

Consultation response to
Proposed amendments to CAR 235A and CAAP 235A-1(0)
- Minimum runway widths for aeroplanes

A.1 Regulation 235A of CAR 1988 and CAAP 235A-1(0)

In total there were 16 respondents to the consultation draft, of which six agreed with the proposal without change. The manufacturers disagreed with the proposal. Both these manufacturers currently have aeroplanes with narrow runway approvals. The operation of these aeroplanes will be able to continue if the proposed amendments go ahead.

In some cases, the responses indicated an element of confusion, in that some respondents (including the manufacturers) thought that all aeroplanes—both current and future—had to carry out the flight test exercise as stated in the CAAP; this was not the intent. All aeroplanes that have NAA or manufacturer approval can continue without further restriction or testing. Those aeroplanes that do not have, or cannot gain NAA or manufacturer approval, will require flight testing in accordance with the CAAP. In addition, if manufacturers do not have an acceptable method of determining narrow runway approval, then they can use the process in the CAAP as guidance. This is clarified in the Summary of Responses (SOR) below.

The draft CAAP 235A-1(0) has been amended as a result of this consultation, with details of the respective changes contained in this SOR. After these changes were incorporated along with editorial and technical amendments the chapter and paragraph numbers may have changed from those of the original CAAP draft. Amendments to the CAAP in this SOR make reference to the paragraph numbering at the time this SOR was completed.

A.1.1 Widening runways

Respondent stated that by allowing operations in accordance with the proposed regulation 235A of CAR 1988 will mean that there will not be a requirement for the aerodrome operator to widen their runway to cater for current aeroplanes operations. Widening runways is expensive, at this particular aerodrome the costs of widening were in the order of \$17.5 million.

The cost of widening the runway is in the order of \$17.5 million. [The respondent] do not wish to bear the expense, disruptionconstruction work for no gain....

A.1.1.1 CASA response

CASA concurs with the view that widening runways is considerably more expensive compared to the cost incurred in acquiring specific aeroplane narrow runway approvals.

A.1.1.2 Disposition

No change to regulation 235A of CAR 1988 or CAAP 235A-1(0) required.

A.1.2 Specific ports

Respondent supports the approach.

The [respondent's association] welcomes the current approach. Although specific members may raise issues specific to their ports the [respondent's association] is not opposed to the aims of the regulations or the method by which it pursues its goals.

A.1.2.1 CASA response

Response noted.

A.1.2.2 Disposition

No change to regulation 235A of CAR 1988 or CAAP 235A-1(0) required.

A.1.3 DASH 8 application

There was concern with the statement in the briefing document. The respondent interpreted it to mean the DASH 8 Series 400 aircraft would be limited by the new regulation 235A of CAR 1988.

[The respondent] would like to confirm that the intentdoes not apply to [respondent's association] DASH 8 Series 400 aircraft ...

A.1.3.1 CASA response

CASA clarifies that the DASH 8 Series 400 aircraft will be able to continue operations in accordance with the Transport Canada and manufacturer documentation. This is in accordance with the CAAP 235A-1(0).

A.1.3.2 Disposition

No change to regulation 235A of CAR 1988 or CAAP 235A-1(0) required.

A.1.4 Specification in approved AFM

The respondent stated they have nil comment as all aircraft operating on narrow runways have approved AFM information.

..[the respondent's] aircraft have minimum runway widths specified within their approved AFM.

A.1.4.1 CASA response

CASA clarifies that the Airline fleet of B737 and A380 aircraft have approved information permitting narrow runway operations which comply with regulation 235A of CAR 1988.

A.1.4.2 Disposition

No change to regulation 235A of CAR 1988 or CAAP 235A-1(0) required.

A.1.5 General concurrence

Respondent stated that they concur with the draft CAAP and that their narrow runway operation was reliant on the A319 operations continuing in accordance with the current AFM.

general concurrence to the draft CAAP 235A-1(0)

A.1.5.1 CASA response

CASA clarifies that the A319 can continue to operate on narrow runways in accordance with the AFM.

A.1.5.2 Disposition

No change to regulation 235A of CAR 1988 or CAAP 235A-1(0) required.

A.1.6 Freight company submission

Respondent stated that they did not operate to destinations with narrow runways; however, they have nominated alternate aerodromes with narrow runways. The respondent also stated that they do have a B737 narrow runway supplement in their AFM.

Respondent stated:

1. This approval process should ensure appropriate oversight and fitness for purpose of narrow (30 m) runway operations for the AOC holder, not the CAAP.
2. Level D simulators are not specifically required to simulate 30 m runways, refer to CASR 60. The proposed requirements of CAAP 235A-1(0) may be difficult to achieve for ...operators who use level D flight simulators.
3. CAAP 235-1(0) part 12.4.1 "line training" would be unachievable to narrow (30 m) runway operations for (the operator) during normal operations given (respondent) does not operate to narrow runways as destinations...
4. [the respondent's] flight crew would only be exposed to narrow (30 m) runway operations in a diversion scenario.
5. [The respondent's] AFMS for narrow runway operations list "no change" to the normal and non-normal operating techniques and procedures for take-off and landing on narrow runways, when compared to non-narrow runways. [The respondent] is not aware of any Boeing identified discreet skill of behaviour required to operate on a narrow runway that would justify specific simulator tasks.
6. [The respondent] do not necessarily believe that the PIC should be the pilot flying for narrow (30 m) runway operations.

A.1.6.1 CASA response

CASA's response to each comment listed above:

1. The CAAP provides the specific requirements for operations on narrow runway. Narrow runway operations are not considered 'normal' operations. Regulation 235A of CAR 1988 enables operations on narrow runways and the CAAP provides the guidance material such that an acceptable level of compliance can be attained. The CAAP

provides the material that should be included in the Operations, Training and Checking manuals (refer to sections 12 and 13 of the CAAP).

2. This is a misunderstanding of the CAAP. The level D simulator is required for the narrow runway flight testing only. A Level D simulator is not specifically mentioned as being required for the crew training or checking.
3. Section 13.10 – *Line training* of the CAAP specifically mentions *company destination*, there is no mention of a specific line training requirement for alternate aerodromes. It is expected that alternate aerodrome familiarity would be addressed during ground training, including route qualification training. Further clarification has been provided in the CAAP on the requirements for alternate aerodromes with narrow runways.
4. Pilots need to be fully aware of the limitations (both operationally and specifically to the aeroplane) when conducting operations into narrow runways, especially during a diversion. Familiarization training in narrow runway operations will provide pilots with the knowledge and skills to deal with the decision making tasks when confronted with a diversion to an aerodrome that the crew are not familiar with, especially if the operator has nominated alternate aerodromes that have narrow runways. The pilot still has the ability to operate in accordance with the ‘emergency’ provisions of the regulations (if necessary). It would be expected that the operator, in accordance with the SMS, would address the diversion scenario to an aerodrome with a narrow runway, especially in the case of an en route engine failure.
5. The CAAP requires specific narrow runway normal and non-normal procedures to be included in the operations manual. In many cases similar procedures have been incorporated in exemptions issued for narrow runway operations. Boeing has specific training material for operation on narrow runways. The Boeing training material makes specific reference to the MEL for narrow runway operations. MEL items will be dependent on specific aeroplane type. It would be expected that operators of Boeing aeroplanes would use the Boeing training material as part of their training library (e.g. *Guidelines for Narrow Runway Operations* by Rob Root – Performance Engineer Operations Course Boeing Commercial Airplanes).
6. The CAAP does not specifically require the PIC to be the operating pilot into narrow runways; however, for specific safety reasons, operations into 18m wide runways are limited to the PIC. This particular situation does not affect the respondent as their aircraft type is not permitted to operate on 18m runways.

A.1.6.2 *Disposition*

Comment 3

Clarification mentioning that alternate aerodrome familiarity should be provided during ground training has been included in the CAAP.

Section 12.2.1 of CAAP: In accordance with the operator’s SMS (or equivalent) and risk management assessment, the operator must ensure all applicable crew complete narrow runway training and checking, followed by appropriate line training and checking, before commencing operations into and out of **destination aerodromes** with narrow runways.

Section 13.6 of CAAP: Flight crew narrow runway ground training and briefings shall be carried out for operators that have alternate aerodromes with narrow runways.

Comment 6

Clarification of when a co-pilot can operate as flying pilot has been included in the CAAP.

Section 12.2 – Operations Manual 12.2.1 (a) has been amended as follows:

- (ii) except for training or check flights, the PIC shall be the pilot flying into and out of 18m wide narrow runways.
- (iii) when designating the co-pilot as the flying pilot into and out of narrow runways due consideration shall be taken of the runway width, runway surface conditions, co-pilot experience, meteorological conditions (i.e. crosswind).

A.1.7 Comment 7 – Representative of an aviation organisation

Respondent stated:

1. At the last meeting the project manager said that such aircraft could be safely operated on 21 m runways
2. ..at non-controlled airports with 30m runways, the proposal gives the pilot the additional responsibility to determine either to land or proceed to an alternate, when NO reports of runway conditions are available. This is a subjective decision making – increased risk
3. This is an example of where math/simulator models can be shown to be inaccurate
4. Another example of increased risk is the situation should an engine failure occur in the circuit...
5. The industry has always had to contend with the additional expense to FOD
6. I believe that pilots, and fare – paying public, should not be subjected to increased risk to try and reduce airport costs. A runway run-off WILL be very costly

A.1.7.1 CASA response

CASA does not agree with the majority of the respondent's comments. CASA's response to each comment follows:

1. This statement has been taken out of context. The context of the referenced discussion was in relation to the analysis of the B737 flight test results which indicated that the B737 could remain within a 21 m wide runway under the flight test conditions; there is no intention to allow operations of B737 aircraft on 21 m wide runways.
2. The PIC is considered to be adequately qualified to make a safe judgment of the runway surface conditions based on the expected weather reports, state of the weather on arrival, aerodrome runway condition reports and the state of the aeroplane. This is no different to the requirements of the PIC during normal operation into aerodromes; it is not particular to aeroplanes operating on narrow runways.

The flight testing and maximum crosswind analysis specifically required for narrow runway operations is conducted with an engine inoperative. For normal operations into narrow runways, with all engine normal operations, crosswind handling capability at the

narrow runways crosswind limits provides increased safety margin and reduced risk compared to operations at manufacturer crosswind limits that have not been substantiated by flight test or analysis. In the case of an engine failure in cruise, appropriate consideration is required to be made of the state of the aeroplane and the conditions at the aerodrome of intended landing.

Under the emergency authority, the PIC will decide the safest course of action. The CAAP provides guidance for that decision. Narrow runway operations do not change the situation where the pilot is required to make a safe command assessment of the runway state based on the current information available.

3. In the CAAP, the computer data analysis and simulator exercises are compared to the actual V_{MCG} certification flight test results to establish a level of confidence for the analytical and simulator modelling. In addition, further conservative factors are applied, irrespective to the co-relation of the computer data analysis and simulator
4. The engine failure in the circuit is an extremely rare event, but this situation is adequately addressed in the CAAP narrow runway analysis, as the runway width is determined taking into account one engine inoperative landing at the maximum crosswind. For a two engine aeroplanes, an engine failure is an emergency situation so the PIC can exercise emergency authority. This is not particular to narrow runway operations.
5. Prevention of FOD is addressed in section 12.2 of CAAP 235A-1(0) and referenced in subsection 13.7 (b) – Training and checking Manual (i.e. consideration of foreign object damage); however, it is acknowledged that reference to FOD should also be made in section 12.2 of CAAP 235A-1(0) – Operations Manual. The CAAP has been amended accordingly.
6. The risk is mitigated by requiring the aeroplane to demonstrate that it has adequate handling qualities and dimensional configuration to operate safely from narrow runways and into the aerodrome in specific limiting crosswind conditions. In addition specific operational and training requirements are included as part of the narrow runway approval. It is currently not required to determine the runway width for normal operations so in order to operate on runways narrower than currently allowed the flight testing and analysis addresses the associated risks of runway excursion and or veer-off, something that is not guaranteed for normal operations at the manufacturers maximum recommended crosswind value. The Narrow runway crosswind is limited to the maximum demonstrated cross wind value not the maximum recommended crosswind value that many manufacturers publish in their operations manuals.

Aeroplanes that have current narrow runway supplements (i.e. the B737) have been operating safely for more than two decades on 30 m wide runways. The cost of widening 30 m runways to 45 m in order to accommodate these aeroplanes cannot be justified on a safety case. The aeroplanes require NAA or manufacturer narrow runway approval or demonstration of safe operation on narrow runways justified by flight test analysis before such operations can be approved.

A.1.7.2 Disposition

Comment 5

Clarification made in relation to FOD, with specific reference added in CAAP 235A-1(0).

Section 12.2 – Operator’s Operations Manual, subsection 12.2.1 (c) Operational considerations has been amended as follows:

(ix) recommendations should be provided for operations on narrow runways to prevent foreign object damage to the engines and other parts of the aeroplane, especially when they are physically beyond the runway surface.

Section 13.7 – Training and Checking Manual, subsection 13.7 (b) has been amended as follows:

Acknowledgement of the hazards associated with narrow runway operations (i.e. consideration of foreign object damage).

A.1.8 Industry Association representative

Respondent stated:

1. [The respondent] noted that the basis of Draft CAR 235A is a recommendation by ICAO- not a Requirement
2. [The respondent] request this section be amended to only include veer-offs during take-off and landing
3. [The respondent] request CASA produces a Safety Case based on veer-offs in Australia over the past 20 years
4. ‘Impact on industry’ due to the limited availability of OEM resources to produce the required flight manual supplements
5. Australian Charter operators have been flying successfully in and out of narrow runways for many years
6. [The respondent] requests that, until a specific Australian Safety Case is produced, the proposed amended CAR 235A and associated CAAP 235A-1(0) be put on hold

Several respondents stated:

CASA seems to be trying to fix a problem that does not exist

A.1.8.1 CASA response

CASA’s response to each listed comment:

1. It is international practice (e.g. NZ CAA, EASA, UK CAA, Swedish CAA, Brazilian CAA, Transport Canada, FAA and aircraft manufacturers) to refer to the arbitrary aerodrome design standards to determine the operational runway width requirements for aeroplanes.

The FAA refers to AC 150/5300 for runway width information related to specific aeroplanes. The FAA does not permit operations on narrow runways, and have recently

raised a project to investigate a regulation review of operations on narrow runways. CASA is liaising with the FAA on this issue.

Manufacturers and NAA's that do not support operations from runways narrower than specified by these references, particularly the ICAO ARC, will require specific testing or analysis to be carried out to justify narrow runway operations (i.e. Transport Canada, and EASA - A380).

ICAO recognizes the need to address the operation of large aircraft from current airports published Cir 305, AN/177 *Operation of New Larger Aeroplanes at Existing Aerodromes*. This document details the Risk Assessment and Hazard Identification analysis. The document supports the methodology used by CASA to substantiate the operation of aeroplanes from narrow runways. In addition, ICAO recently published State Letter (AN 4/1.1.53-13/81) which addresses, in detail, the operation of aeroplanes into aerodromes with facilities that do not meet the current ICAO ARC. The section related to runway width supports the CASA philosophy for narrow runway operations. The other option for CASA is to adopt current international practice and prohibit operations from runways narrower than the applicable aerodrome design standards. CASA considers this alternative as unnecessarily prohibitive and, as such, CASA has developed a performance based regulation to allow operations from narrow runways if it can be demonstrated that the aeroplane can do so safely. The alternative is to require aerodrome operators to widen runways, which may not be part of the aerodrome operator's business plan. This is also not acceptable as this will be a considerable cost burden to aerodrome operators.

2. The text is correct in the context of the referenced report which classifies runway excursions inclusive of overruns and veer-offs. Mitigating the chance of veer-offs fits in with the ICAO mandate to reduce runway excursions, including veer-offs.
3. The regulation is enabling legislation. CASA policy changed in February 2012 which was in line with international best practice and returned to the application of the arbitrary aerodrome design standard. Implementation of this policy consequentially required aerodromes to widen runways to support the operation of aeroplanes that were, at that time, currently permitted to operate in accordance with flight manual supplements.

This policy was subsequently revised in June 2012 to allow aeroplanes to operate on narrow runways, provided the aeroplane had an approved flight manual supplement or could demonstrate it could do so safely. This was a fundamental policy shift to essentially de-link aeroplane operations from aerodrome design standards. As this policy change is enabling legislation it is not considered necessary to conduct a specific safety case.

ICAO has identified runway excursion accidents as an important required international safety initiative. A safety case based on Australian operations over the past 20 years will not provide meaningful statistical information in relation to the safety analysis for narrow runway operations. The current statistics would indicate the level of safety achieved with operations on runways other than narrow runways; therefore, there will not be relevant data to indicate the relative safety of operations on narrow runways. For those aeroplanes that have been operating on narrow runways, in accordance with approved flight manual supplements (i.e. B737, Fokker 50, CL601, Jetstream 41 etc.) no recorded accidents/incidents have occurred. This indicates that operation of those

aeroplanes on narrow runways, in accordance with their AFM documentation, has occurred safely. In addition, the information provided from the World Aircraft Accident summary, referenced in the consultation draft Briefing Document, is considered relevant information as it indicates the world wide accident statistics substantiating the ICAO mandates addressing runway safety.

4. The proposed amendments provide a positive enabling impact for industry. Narrow runways operations will be permitted if approved by the NAA, or manufacturer can demonstrate the aeroplane is safe to operate from narrow runways. Manufacturers, such as Beechcraft, have evaluated the benefit of providing AFM supplements with a recently approved AFM supplement for the BE350. Several manufacturers are understanding the commercial benefits and competitive edge their product has over other products if they have narrow runway approval.
5. Australian operators previously operating on narrow runways will have required specific narrow approval's when operating outside the provisions found in the regulations or AIP.

In addition, it has been noted on record that just because operations have been safe in the past does not guarantee future safe operations. Many manufacturers and NAA's do not support the operations of aeroplanes from narrow runways; otherwise, narrow runway operational material would be available for those particular aircraft. CASA providing unsubstantiated narrow runway approvals outside what the manufacturer or NAA permit is an unacceptable risk carried by CASA, the regulatory risk is not carried by the operator.

6. CASA disagrees and the project will not be 'put on hold'. A safety case is not considered a necessary part of the proposed enabling rulemaking. In addition, there are other sections of the industry (including aerodrome operators) that agree with the process. There are operators who have obtained acceptable manufacturer documentation (including flight manual supplements) indicating operations from narrow runways can be carried out safely.

CASA is not prohibiting narrow runway operations, but providing an acceptable means of compliance. This includes recognition of manufacturer and NAA approvals that it is safe to do so. CASA no longer conducts certification flight testing; therefore, the responsibility for the safe operation of aeroplanes from narrow runways is an operators responsibility along with the required manufacturer and where applicable NAA's concurrence. This is in line with current international best practices. Currently some manufacturers have seen the value of gaining narrow runway approvals and as such have decided to produce dedicated narrow runway operational information.

CASA is providing a means of enabling narrow runway operations if it is safe to do so. In addition, CASA removed specific runway width requirements for other than Charter, RPT operation of aeroplanes with MTOW above 5,700 kg. All other aeroplanes must operate safely in accordance with Part 92 of CAR 1988.

This change of policy has provided significant relief to the industry. Operating in accordance with Part 92 of CAR 1988 is considered to provide an acceptable level of safety for those operations. It also must be put in context that aeroplanes with MTOW greater than 5,700 kg have a completely different certification requirement based on the level of safety required to be provided to the travelling public. Accountability of

accelerate-stop and V_{MCG} flight handling testing is determined for these aeroplanes, inclusive of commuter category aircraft. As such, it is not realistic to require these aircraft to provide performance and flight handling information outside what is provided during certification of those particular types. The CAAP 235A-1(0) is based on the certification basis (post-FAR 25 Amendment 42) for aeroplanes above 5,700 kg. It also has to be recognised that narrow runway operations not supported by the manufacturer or applicable NAA, or in accordance with specific approved flight test procedures, is an unacceptable risk that is not acceptable to CASA.

A.1.8.2 Disposition

No change to regulation 235A of CAR 1988 or CAAP 235A-1(0) required.

A.1.9 Harmonisation queries

Cover letter

Respondent's cover letter stated:

...[respondent] extremely concerned about the potential adverse impact that the proposed CAR revision and associated CAAP will have on the ability of [respondent's] commercial airplanes to operate in Australia, as well the additional burden on operators and manufacturers to support operations, which have not previously been warranted. [Respondent] found no convincingly safety case provided to support these extensive new proposals and the justification for the proposals is insufficient.

If these proposals go forward, CASA will be advancing Australian-unique standards that are not harmonized with the rest of the industry. They are neither addressed by ICAO today, nor consistent with either FAA or EASA standards. [Respondent] urge CASA to consider harmonizing these standards with the broader international aviation industry, since harmonization will result in lower cost, more efficient, and less confusion for operators, manufacturers, and suppliers when complying with these requirements.

Moreover [respondent] recommend that CASA consider withdrawing these proposals altogether until such time as the broader industry has established a need for operational standards related to runway width and an internationally accepted standard has been developed and put forward.

A.1.9.1 CASA response

CASA disagrees. CASA's response to the cover letter extracts is summarised below.

It is apparent that the respondent is concerned that the proposal will limit the current operation of their aircraft in Australia. This is not the case, this proposal is an enabling proposal and will allow operations of aircraft from and into runways that would otherwise not be approved. The proposal only affects aeroplanes above 5,700 kg operating in RPT or Charter operations. The proposal does not apply to aeroplanes in private or aerial work operations.

The flight test procedures etc. that are covered in the proposed CAAP are essentially the same flight test procedures that Boeing complied with for the Boeing 737 30 m narrow runway approval in the mid-1980s. The CAAP provides an acceptable means of compliance in the case

where the manufacturer cannot provide approved information or the NAA will not approve such operations.

At that time, Boeing did not have a specific 30 m wide runway approval. Boeing carried out flight testing with the Australian Department of Aviation (DoA) personnel, in accordance with the DoA flight test schedule, the same flight test philosophy has been incorporated in the CAAP235A-1(0).

This 'flight testing' was the foundation upon which Boeing produced runway width flight manual supplements (now incorporated as an Appendix). Australia was the only country that provided a means of allowing narrow runway operations by successful flight testing. At that time, Boeing was very keen to carry out the testing to gain DoA approval. As a result of that successful flight testing this became the bench mark for all the B737 narrow runway AFM approvals, and indeed other aeroplane narrow runway approvals. The current Boeing Narrow Runway power point presentation *Guidelines for Narrow Runway Operations* - by Rob Root, even includes the line-up allowance that the DoA recommended at that time. This line-up allowance has been revised in the new CAAP.

In addition, the CAAP details that if the manufacturer (OEM or NAA) provides/approves the appropriate AFM supplement, limitations etc. and if that document is included in the AFM, then that is an acceptable document for narrow runway operations. The current B737 series aeroplane approvals for 30m narrow runway operations in Australia is based on the Boeing AFM 30 m narrow runway appendix.

This proposal will continue to enable aeroplanes, such as the B737, to operate with the applicable 30 m AFM Supplement/Appendix, and or limitation etc. If the proposal does not go forward then all affected aeroplanes will be limited by the generic ICAO ARC runway width requirements which for most series B737 would be 45 m.

It is important to provide the respondent with this initial feedback as it is apparent that respondent may have miss-interpreted the intent of the regulation and the guidance material in the CAAP.

In summary:

- The ICAO Annex SARP's do not require certification assessment of minimum runway width.
- The FAA is assessing a project to look at the determination of minimum runway widths for aeroplanes.
- Boeing aeroplanes that currently operate with an AFM Appendix or runway width limitation will be able to continue to do so.
- Regulation 235A of CAR 1988 is enabling legislation. It is common practice for States to apply the ICAO ARC or equivalent, as an aeroplane operational limit for runway width (e.g. EASA, FAA, Transport Canada, and NZ CAA etc.)
- The regulation 235A of CAR 1988 proposal is not unique to Australia; Transport Canada also applies similar provisions based on flight test providing relief from the ICAO ARC. Transport Canada based the provision on the original (Australian) DoA ANO 101.0, ARP 85/11 proposal.

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MINIMUM RUNWAY WIDTHS FOR AEROPLANES

- Adoption of the CASA policy will enable continued operation and future operation of aeroplanes that can satisfactorily demonstrate safe operation from aerodromes with narrow runways.
- If CASA withdrew the proposal then operations would not be permitted from narrow runways, this would be unnecessarily limiting and would potentially have considerable consequences for other stake holders, including aerodrome operators.
- Boeing has been able to take advantage of this unique policy for over 25 years for the B737. Adoption of this proposed policy recognises the safe operation from narrow runways for those aeroplanes with flight manual approval for such operations.
- The broader aviation community has identified a need for a performance based enabling regulation providing relief from the current applied ICAO ARC.

Specific comments relating to DRAFT CAAP 235A-1(0).

The following specific comments were made by the respondent in relation to draft CAAP 235-1(0). CASA's response follows each comment.

_____ is concerned about the potential adverse impact of the proposed CAAP -- and associated CAR revision -- on the ability of our commercial airplanes to operate in Australia, as well as the additional burden on operators and manufacturers to support such operations that have not previously been warranted. We therefore respectfully ask CASA to consider withdrawing these proposals until such time as the broader industry has established a need for operational standards related to runway width. Such standards are not addressed by ICAO today, and have only been implemented by Australia and a few other authorities in the South Pacific region. Further, CASA has itself recognized that the ICAO Annex 14 [Airport Reference Codes (ARCs)] are not intended as operational limitations, yet the proposed CAAP defines the ARC designations as a means of operational compliance, which is contradictory to ICAO's stated intent. CASA may wish to seek clarification and confirmation from ICAO on this point before taking further measures to publish this proposed CAAP and the associated CAR 235a regulation.

1. Comment 1 is answered in response to the cover letter.

The proposed text states:

"The purpose of this Civil Aviation Advisory Publication (CAAP) is to identify the minimum runway width requirements that apply to aeroplanes with a Maximum Take-off Weight (MTOW) greater than 5700kg engaged in Regular Public Transport (RPT) or Charter (CHTR) operations. This CAAP identifies the processes and considerations for the production of the Aeroplane Flight Manual (AFM), AFMS and operational documentation for narrow runway operations."

The justification statement provided in this paragraph is inadequate to support such extensive new guidance, and should be strengthened to provide detailed rationale as to why the proposed CAAP is warranted.

2. The CAAP has clarified that flight test procedures are applicable in the case where there is no manufacturer, NAA or Designated Engineering Representative (DER) provided supplement, and or AFM limitation, section 8 8.1.2 (b) refers.

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Either remove or clarify that the references related to aerodrome design standards are not specifically relevant and are only provided for reference purposes.

3. The references are those references made within the CAAP doc; therefore, the references will remain.

Clarify that the acronym "AFMS – Airplane Flight Manual Supplement" may also refer to an AFM Appendix or a notation in the basic AFM document.

4. If there is information in the approved AFM that covers a specific aeroplane (either by note etc.) then it is considered to be approved. If there is no reference in the approved AFM, then the definition for *Flight Manual* also includes "another document that contains the aircraft's [operating](#) limitations and other information required for safe operation of the aircraft".

Another document, such as an AFM appendix, is acceptable as it meets the requirements of another document from the definition of *Flight Manual*.

The term "Aeroplane Reference Field Length" has no relevance to operational runway width considerations, and so adds no practical value to the proposed CAAP. We suggest deleting it.

5. Regulation 235A of CAR 1988 foundation requirement is the ICAO ARC as such the Balanced Field Length (BFL) definition will be retained.

We agree with CASA's point made in paragraph 4.4 that ICAO Annex 14 is "not intended to limit or regulate operations of aeroplanes." That fundamental premise is the basis of many of our comments and concerns about this proposed CAAP.

6. The current and previous policy was to apply the ICAO ARC as the base line requirement; this is in line with international practice. The CAAP provides enabling legislation as an alternative to this requirement, based on an assessment of the aeroplane or AFM information supplied by the manufacturer, NAA or DER.

The proposed text states:

"5.1 Runway width operational limitations are not supported by an aircraft certification standard. The current generic method of determining the minimum runway width, by sole reference to the ICAO ARC, can be operationally limiting for some aeroplanes. For example, Airbus undertook specific flight testing to demonstrate that the A380 is capable of operating on 45 m wide runways. Airbus subsequently issued a specific AFM 45m runway width limitation. Reference to the ICAO ARC indicates the A380 physical characteristics equate to a Code 4F runway - 60m runway width."

Since the Boeing Model 747-8 (ARC 4F) has also been shown to be capable of 45-meter runway width operations, it should also be mentioned in paragraph 5.1.

7. Will include reference to the B747-8 for balance of manufacturers.

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The proposed text states:

"5.2 CASA has developed a performance-based assessment of aeroplane operational capability on narrow runways, providing possible relief from the generic ICAO Aerodrome Design Standard. ..."

The term "possible relief" is not appropriate here and should be removed.

8. Will clarify statement in the CAAP and make reference to the prescriptive requirement.

The proposed text states:

"5.5 Subsection 3.1.10 of Annex 14, Volume 1 to the Chicago Convention - Aerodrome Design and Physical Characteristics, recommends a minimum runway width taking into account general aeroplane performance parameters and physical characteristics. Application of the ARC has historically been adopted as a generic default runway width limit for aeroplane operations. The aeroplane code is determined based on the MTOW BFL and specific aeroplane physical characteristics (e.g. the ARC code applicable to most variants of the B737 taking into account characteristics and performance is 4C which equates to a 45 m wide runway)."

The statement and the ICAO Annex 14 reference are not relevant to airplane operations and should be removed.

9. Most NAA's use the ICAO ARC as a reference limit for runway width. In addition, the text has specifically been chosen to indicate that not all B737's have BFL that fit into the Code 4C designation, based on this no change required to the CAR or CAAP. An amendment to the text to clarify that the largest aircraft of intended use is the basis upon which aerodrome runway width is chosen.

Clarification has been added that the 'unfactored MTOW BFL' is used.

The proposed text states:

"5.6 Certification flight testing to determine VMCG is required for Transport Category aeroplanes with MTOW above 5700 kg, and in the case of the FAA, turbo-jet aeroplanes with MTOW above 2722 kg (refer to FAA AC 25-7C in Appendix B to this CAAP)."

This paragraph should be clarified to state that FAA AC 25-7C requirements meet the intent of this CAAP

10. Is acknowledged, however this is incorrect as the V_{MCG} testing does not meet the flight test requirements for compliance against the CAAP. The flight test methodology for V_{MCG} flight testing with crosswind accountability is analogous to that required for the CAAP. No change required.

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The proposed text states:

"It is recommended that the aerodrome operator include, in the Aerodrome Manual, or equivalent, documentation indicating an AFM limitation and/or supplement has been issued in accordance with this CAAP for each aeroplane that operates on a narrow runway from and into that aerodrome."

The recommendation is outside the purview of this proposed CAAP and should be deleted.

11. For clarity, CASA will add the word 'type' after aircraft within section 6 of the CAAP - *Aerodrome operators*. The remainder of the text will remain, as it is necessary in Australia for the aerodrome operator to include such information in the aerodrome manual.

The proposed text states:

"7.1 This CAAP sets out a process and considerations for the issue of narrow runway approval in the AFM."

Clarification is needed as to CASA's role in approving AFM content regarding narrow runways.

12. section 7 – AOC holder – 7.1 removal of the text 'in the AFM'.

The proposed text states:

"7.2 RPT and CHTR AOC holders must comply with narrow runway limitations set out in the AFM."

We request that CASA clarify how an operator can comply with this requirement if no AFM runway width limitations are provided by the manufacturer.

13. This section only applies to Narrow runways operations. All other operations that are not narrow runways do not require limits to be included in the AFM. In all cases in this CAAP, the AFM refers to the definition of Flight Manual. Clarification will be added in the CAAP with the Australian legislation definition of Flight Manual: "another document that contains the aircraft's [operating](#) limitations".

The proposed text states:

"7.3 The runway width must be determined as follows:
(a) generic Runway Width from the ICAO Aerodrome Reference Code, applicable to the particular variant of the aeroplane type, at the type certificated MTOW, refer to section 9 of this CAAP; or
(b) as limited by the AFM (e.g. the A380); or
(c) the runway width for the particular variant of the aeroplane type, as limited by the AFMS."

We recommend deleting or clarifying this paragraph as it contains several inconsistencies.

14. The term 'must' is used as it is required by regulation, reference to the ICAO ARC is appropriate as it is CASA policy, reference to the A380 is only as an example. These

are the only three ways of referencing the minimum runway width requirement. No change is required.

CASA should clarify what additional requirements are expected to be covered in manufacturers' operations manuals.

15. Section 12.2 – *Operator's Operations Manual* details what is required in the Operations Manual. This is an operator's responsibility and not necessarily required to be incorporated by the aircraft manufacturer. No change required.

We suggest removing language in this paragraph indicating that a landing gear wheel may never leave the runway surface, as there are conditions when this will simply not be possible.

16. The determination of the minimum runway width is based on the aeroplane remaining within the runway surface under the stipulated conditions as determined by the narrow runway approval process. The case the respondent mentioned as an example (i.e. engine failure at very low speed is) one case that is addressed by the specific flight testing in the CAAP. No change required.

The proposed text states:

"8.1.3 The AFMS is produced on the basis of manufacturer's data in compliance with the conditions herein. Supporting data must be made available to CASA on request."

The applicability of previously approved AFM Appendices needs to be clarified.

17. The respondent's flight manuals do not require any further change; the current appendixes will remain effective. No change required.

The proposed paragraph represents a misapplication of the ICAO ARC designation and should not be characterized as a method for operational compliance.

18. This is the baseline CASA runway width policy as stated in Comment 6, which is in line with international practice. No change required.

We suggest revising this paragraph to simply state that flight testing should be performed in accordance with FAA Advisory Circular (AC) 25-7 guidelines or equivalent methods found to be acceptable to CASA.

19. The respondent's statement is incorrect; the FAA AC 25-7 does not cover narrow runway flight testing. The reference to the FAA AC in the CAAP is purely in reference to V_{MCG} flight testing, not narrow runway flight testing. There is no FAA published flight test schedule for determining runway width. No change required.

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It should be clarified that a combination of flight test and analysis substantiated by data obtained from flight test is a fundamental method used by manufacturers to establish airplane capabilities and characteristics.

20. The CAAP details that narrow runway flight test conducted in the aircraft or in the simulator and data analysis, can be carried out independently or in combination, to validate and improve the crosswind factoring. This approach has been used by manufacturers (both in the past and recently) to provide flight manual supplements. In addition, data analysis can be used to reduce the runway width by ONE code only (i.e. from 45 to 30m, but with a heavy penalty on crosswind capability), this is clarified in the **Note** after Subparagraph 10.5.3. No further change required.

As noted previously in our comments, we are concerned that CASA is seeking to independently define unique and extensive flight test requirements in this CAAP, and we would suggest simply referring to the well-established flight test guidance outlined in FAA AC 25-7.

21. CASA does not agree with the respondent comment. As detailed in Comment 19, the FAA AC 25-7 does not provide flight test guidance for narrow runway flight testing. The FAA AC does not provide adequate flight test procedures to demonstrate satisfactory narrow runway operations taking into account crosswind or aeroplane physical characteristics. No change required.

The proposed text states:

"10.9.1 The maximum demonstrated crosswind, or the crosswind limit in the AFM, whichever is less, is the baseline crosswind value for narrow runway flight testing. The narrow runway approach and landing crosswind limit will be referenced to the manufacturer's one-engine inoperative demonstrated crosswind, if scheduled. Manufacturer published Maximum Recommended crosswind limits will not be considered in the determination of minimum runway widths."

We suggest removing the statement that suggests that one engine inoperative crosswind is a demonstrated value. Also we suggest providing allowance for manufacturer-recommended crosswind guidelines as a basis for narrow runway operations, as is common practice in the rest of the industry.

22. The reference to one-engine inoperative cross wind limit is mentioned to cater for manufacturers that may provide such a limit, especially for an aeroplane with more than two engines. Application of manufacturer recommended crosswind values above the certification maximum demonstrated crosswind is not a conservative approach especially for narrow runway operations. The actual demonstrated crosswind value is a value that has flown in the aircraft during certification flight test. This crosswind value is referenced for the narrow runway analysis. CASA does not agree with the use of recommended cross wind values as the baseline crosswind for narrow runway operations.

In addition, appropriate application of demonstrated crosswind values has been recommended internationally, as a result of the analysis of runway excursion accidents. A minor clarification amendment to the text has been made to:

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- subparagraph 11.9.1: “values that are greater than the maximum demonstrated crosswind”
- subparagraph 11.9.9: “or the maximum demonstrated crosswind determined during certification flight testing”.

To preserve continuity of current operations, we suggest including a statement on the applicability of existing narrow runway AFM Appendices.

23. As mentioned in Comment 17 the respondent’s current flight manual appendices will remain effective and do not require any change. The aeroplane operator will be required to make the appropriate operational references in their specific Operations Manual. There is no need to use the B737 Appendix as an example, there are other AFM supplements that could be used but it is not necessary as the CAAP is meant to be generic document and not manufacturer specific. No change required.

The extent of the proposed content is arguably excessive and should be revised to be better aligned with existing operations manual information to support narrow runway operations.

24. CASA does not agree with the respondent’s statement that the Operations Manual requirements are excessive. There is no current generic Operations Manual format for narrow runway operations. The CAAP provides the minimum content of the Operations Manual. Operators are required to provide an Operations Manual with a specific narrow runway section. If the manufacturer does not provide narrow runway operational information, then the operator, using the CAAP as guidance, is required to produce narrow runway operational information based on the AFM and/or other documentation appropriate for the type of operation.

The Operations Manual content, in many cases, will be similar in content to that found in current CASA exemptions. Application of specific crosswind limits for co-pilot sectors is standard common practice, and is recommended for narrow runway operations. In light of the fact that the operator shall manage narrow runway operations para 12.2.1 (a), the title has been changed to *Flight crew operations* and (i) has been amended, along with minor changes to the remaining sections of this subparagraph to address the respondent’s comments.

We request that CASA ensure that the proposed requirements are not overly excessive as compared to existing approved narrow runway operational programs.

25. The training requirements included in the CAAP are in-line with the current practice of many operators currently operating into narrow runways by way of CASA exemption. In addition, the training requirements follow the guidelines published by manufacturers, such as: *Guidelines for Narrow Runway Operations – by Rob Root*. This proposal has been consulted widely with industry; their responses are detailed in this SOR. No change required.

We suggest removing this section, as the "Part 139 Manual of Standards (MOS) – Aerodromes" is already included as a reference in Section 1.

26. The requirement to involve the Aerodrome Operator formalizes the current practice. It is necessary for the aeroplane operator to make sure that the aeroplane can be supported by the infrastructure that is available at the aerodrome. This is also supported by the ICAO Cir 305-AN/177 – *Operation of New Larger Aeroplanes at Existing Aerodromes*. No change required.

We recommend updating the table in this section to include all relevant airplane models and clarify the intent of the indicated watermark "Not for operational use."

27. CASA agrees; the Appendix A table will be replaced with a current ICAO ARC table.

A.1.9.2 Disposition

Comment 2

The CAAP has clarified that flight test procedures are applicable in the case where there is no manufacturer, NAA or DER provided supplement, and or AFM limitation. Subsection 8.2 has been amended to include the following text:

as limited by the NAA, OEM or AFM

Comment 7

Text amended with the following text:

and B747-800" to provide a balance of manufacturers.

Comment 8

Text amended to remove to provide clarity and removes confusion. Removed:

providing possible relief from the generic ICAO Aerodrome Design Standard.

Comment 9

Sub paragraph 5.5 amended to provide clarity 'for the largest expected aircraft of intended use' and 'unfactored'.

Comment 11

Section 6 Aerodrome operators text amended for clarity text amended as follows:

for each aeroplane type

Comment 12

Section 7 AOC holder 7.1 removal of the text 'in the AFM'.

Comment 13

Definition of *Flight Manual* from CASR Dictionary added for clarity:

Flight manual: As defined in Part 2, Clause 37 of the CASR Dictionary.

Comment 22

A slight change to section 11.9.1 has been made to clarify that the certification flight test demonstrated crosswind is the value being referenced:

maximum demonstrated crosswind established during certification flight test.

In addition, a slight change has been made to section 11.9.9 to clarify that the narrow runway crosswind limit is referenced to the demonstrated cross wind:

determined during certification flight testing.

Comment 24

In light of the fact that the operator shall manage narrow runway operations subparagraph 12.2.1(a) the title has been changed to *Flight crew operations* and changes to (i) through (iii) have been made. In addition, other changes made to this section as a result of other industry responses.

Comment 27

Appendix A table will be replaced with a current ICAO ARC table.

A.1.10 Harmonization with other NAAs

As a conclusion, considering the severity and amount of testing to be [respondent], Airbus is concerned about the impracticality that would stem from this CAAP and request that CASA consider a harmonized approach with EASA and FAA. Airbus is confident that current experience of operations on narrow runway does not justify introduction of more severe certification criteria.

CASA disagrees with the respondent's statement. There are no certification standards published by the FAA, EASA, or any other State. Authorities (except Transport Canada) do not have formal policies for approving narrow runway operations. This is the reason CASA has developed a formal approval process for narrow runway operations. The FAA has advised that they are investigating narrow runway operational approvals.

[respondent] reminds that, currently, there are no certification requirements published by EASA or FAA, regarding minimum runway width.

Many States do not allow narrow runway operations. CASA considered that this is an onerous restriction for aeroplanes that can demonstrate safe operations from narrow runways.

It is CASA's policy to allow those aeroplanes which currently have narrow runway approvals issued by their NAA, manufacturer or produced by a DER to continue operations in accordance with those approvals (i.e. B737, A320, A380 etc.).

It is noted that within this submission the JAA FWP 773 Draft was attached. It is noted that section B of the JAA FWP 773 has similarities to that of the CAAP and, in some parts, resembles exactly the content of the Australian CAA ARP 85/11 –drafted in 1985.

EASA has advised that there are currently no specific regulations or approval processes for narrow runway operations. It is also noted that the June 2004 JAA Guidelines are only in 'Draft', this approval process has not been adopted in the current JAR-OPS.

The CAAP has adopted new policies from those in ARP85/11 (including the use of simulators and/or data analysis as a means of demonstrating compliance). This was seen as a way to reduce the risk involved in actual aircraft flight test and the associated costs. It is understood that simulator accreditation for ground manoeuvres and data analysis cannot replicate exactly the actual handling of the aircraft. This is the reason for the conservative approach to the crosswind accountability. This conservative approach is introduced into the methodology of the determination of the minimum runway width.

Australia has led the process of narrow runway approval internationally. The application of the CAAP is considered 'enabling regulation'. ICAO Annex 6, 8 and 14 do not provide SARP's for narrow runway operations. The ICAO recommendations for operations from runways that are in variance with the ARC requirements have been adopted in the CAAP. Several aeroplanes have been provided with narrow runway approvals in Australia, including Airbus aeroplanes. These approvals have been based on the manufacturer's narrow runway supplements and, in the case of the A380, the approval is based on the specific crosswind flight testing that was carried to demonstrate the applicable narrow runway AFM limit.

In addition, the findings of the *European Action Plan for the Prevention of Runway Excursions* and the current focus within ICAO to address runway safety has been taken into consideration in the development of the narrow runway policy.

Many of the maneuver combinations described in the CAAP, such as and not limited to the above examples, are considered by [respondent] as not realistic and much too severe, independently of the "narrow runway" aspect. They are going far beyond the current practice agreed with EASA and FAA on recent programs.

CASA disagrees; the determination of narrow runway capability is related to the handling characteristics of the aeroplane. The aeroplane shall demonstrate that it can remain within the runway width after suffering an engine failure or landing with and engine inoperative with crosswind accountability. This is also analogous to the flight test evaluations provided in the JAA FWP 773 section B. The JAA document attached to the respondent's letter is considered a more restrictive process, as it requires the testing to be done in the aircraft.

- [respondent] considers that flight test and/or simulator test, complemented by analyses when necessary, are acceptable means of compliance. This CAAP authorizes the use of analyses and full flight simulator, but with significant penalizing factors. As an example, should a demonstration be made by analysis, only 50% of the crosswind considered would be certified. We see no reason for these arbitrary adjustments. Means of compliance and possible precaution margins should be subject to case-by-case discussion.

CASA disagrees; the factoring is required due to the level of confidence that can be attributed to flight testing carried out in a simulator due to the simulator ground modelling capabilities. The factoring applied to the simulator testing can be improved with further simulator accreditation comparisons. The use of data analysis alone cannot replicate the handling characteristics either in the aeroplane or simulator, data only replicates the pure engineering analysis. As such, considerable factoring is required against pure data analysis. The three options provide flexibility in the methodology in determining the minimum runway width.

A.1.10.1 Disposition

No change to regulation 235A of CAR 1988 or CAAP 235A-1(0) required.

A.1.11 Reclassification query

Respondent stated:

..the draft CAAP .It looks good and [respondent] was surprised that CASA have taken this approach as only 18 months ago [respondent] under the impression that 4C aircraft were pretty much done on 30 m runways....[The respondent's] A320 operations has a 30m runway instrument as it is AFM approved to do so....[respondent]train to ICAO Standard, our Training and Checking manual has an extensive syllabus on 30m runway ops...

While the CAAP is very clear in many respects , [respondent] seeking some clarity on wether, under the proposed legislation, if an aerodrome has to be reclassified to 4C if it has been upgraded from 3C to 4C standard or, if the airline risk assesses that it meets the MOS139 requirements then commences operation

A.1.11.1 CASA response

The respondent's response highlights an understanding that the policy change will no longer limit aeroplane operations, but will enable them and subsequently will not require aerodrome operators to widen runways at considerable cost. In addition, the respondent was advised that as part of the narrow runway project there are concurrent amendments to the Part 139 MOS, which address the aerodrome upgrade policy and that the aerodrome design standards will be in line with ICAO Annex 14; therefore, strip widths will need to be considered by the aerodrome operator.

A.1.11.2 Disposition

No change to regulation 235A of CAR 1988 or CAAP 235A-1(0) required.

A.1.12 Crosswind considerations

Respondent stated:

Given both documents (CAR 235A and CAAP 235A) specify a requirement for narrow runway operations to be included in the AFM (inclusive or as a Sup) and the AFM is a certified document forming part of the Type Certification for an aircraft, could I ask the following? Could you please provide me the Regulatory reference(s) (and copies of them if you have them) that requires "crosswind" to be taken into account.

A.1.12.1 CASA response

Regulations 21.005, 21.006 and 21.006A of CASR 1998 covers flight manuals and changes to flight manual provisions. In addition to information contained in Type Certification data sheet, the flight manual may contain Aircraft Flight Manual Supplements (AFMS) that are approved by CASA or an authorised person under regulation 21.006A. The AFMS can also be required at the direction of CASA under Subpart 11.G – Directions. The AFMS can also relate to the foreign type certificate to which CASA has issued a type acceptance certificate, or a foreign

supplemental type certificate which is approved by the NAA that issued the foreign type or supplemental type certificate. Part 2, Clause 37 to the CASR Dictionary – References to flight manual, further expands on what is covered by references to flight manual.

Flight manual supplements for narrow runway operations are at the direction of CASA and, as such, are required to meet the requirements as set out by CASA. In the case of Narrow Runways, crosswind accountability is required for engine failure cases. The CAAP provides background as to why crosswind accountability is important for runway containment during engine failure.

This is in accordance with the philosophical recommendations of ICAO in regard to approving operations of aeroplanes into aerodromes facilities that are not in compliance with the ICAO ARC applicable to the aeroplane of intended use. It was on this basis that Airbus carried out specific narrow runway flight testing in strong crosswinds for the A380 and satisfactorily gained EASA approval for operations from 45m wide runways.

In addition, there is a lot of work currently being carried out by ICAO, industry, and other overseas regulators in regard to runway incursions and excursions. There is also a current ICAO Friction Task Force working group which is dealing with runway surface conditions as a consequence of runway excursions. In these studies it has been identified by the Runway Excursion task force that crosswind accountability and handling characteristics is fundamental to runway safety.

A.1.12.2 Disposition

No change to regulation 235A of CAR 1988 or CAAP 235A-1(0) required.

A.1.13 Regional airline

Respondent stated:

1. CAR 235A removes the ability for the regulator to facilitate air operations where equivalent levels of safety can be achieved.
2. Whilst the associated CAAP may provide some relief from the ICAO Aircraft Reference Codes (ARC), its potential to enable “narrow” runway operations is not clear from either a practical or commercial standpoint.
3. CAR 235A describes a process to develop standards for operations on “narrow” runways; it also introduces additional requirements that may restrict or prohibit operation to remote regional communities that require an airtaxi to support essential needs of the community.
4. The CAAP also contains contradictions in regards to crew training and does not provide alternative means of achieving equivalent safety outcomes.

Multi-engine aeroplane runway width requirement

5.Foreign NAA approved Aeroplane Flight Manual Supplements (AFMS) may not meet these requirements.
6. [The respondent] is of the opinion there should be flexibility (in both the CAR and CAAP) to allow the considerations to be dealt with operationally, without the need for flight test data and NAA approved AFM supplements.

Minimum runway width

7. ...Is the homogenous surface requirement part of the process developed by CASA or is it required by ICAO?
8. ...Is the homogenous surface relevant to the consideration of V_{MCG} as back usage is not permitted in V_{MCG} calculation?
9. ...If the homogenous surface is not relevant to V_{MCG} considerations, can the entire runway width be used for such calculations?
10. The determination of runway width based on homogenous runway surface material is not in line with the information currently promulgated in the AIP ENR 1.1-96.

Method of determining minimum runway width and flight test schedule

11. Level C simulator that have sufficient modelling should be permitted in the certification process.

Narrow runway flight manual and operations manual requirements

12. ...operations should be restricted in accordance with the operators risk assessment matrix, outline in their safety management system.
13. ...the CAAP do not consider the experience, training or competency level of the First Officer or their participation in a CAR 217 organisation.
14. The recommendation in 11.2.1(a) would preclude Captains under check or training from completing a landing or take-off under the supervision of a Training or Check Captain.....In addition, it also prohibits exposing the First Officer to components of narrow runway operations under supervision.
15. The runway guidance stated in 11.2.1 (b)(ii) is not in accordance with MOS 139. MOS 139 does not require centreline markings on 18m wide runways where side stripe markings are provided.
16. Section 11.2.1 (b) (iii) also makes a recommendation...that a VASI be available for Turbo-prop aircraft.
17. The CAAP provides no guidance on operators action if the facilities mentioned in 11.2.1(b) are temporarily unavailable.
18. Flight Crew Training requirements:

[The respondent] believes a practical awareness of operational issues associated with narrow runways is of some value; however, specific modelling of narrow runways may depend on the technology available and may not be possible for some operators. In addition, night operations on
19. The recommendations contained in section 11 references PIC landing on narrow runways would prohibit 'Line training'.
20. Implications: By removing CASA current ability to exempt types from complying with ICAO Aerodrome Reference Codes on the grounds of equivalent safety, the draft regulation has the potential to restrict vital aviation services to remote regional communities.
21. The requirements of the CAAP may be prohibitive for operators of some types.
22. The review process of CAR235A has not been accompanied by a Regulatory Impact Statement.

23. The fact that the CAAP does not provide an alternative means of compliance with regard to the operation and training of flight crew, may result in interpretations of compliance with the CAAP”.

A.1.13.1 CASA response

CASA’s response to each of the individual comments follows:

1. CASA disagrees; regulation 235A of CAR 1988 provides the mechanism to determine the minimum runway width for aeroplane operations. The CAAP 235A-1(0) provides the acceptable means of compliance so an acceptable level of safety can be assured for Charter and RPT operations on narrow runways.
2. CASA disagrees; as mentioned in Comment 1 above, the CAAP provides the acceptable means of compliance in the event that an aeroplane is to operate on runways narrower than provided for in the ICAO ARC. There is currently no means of assessing narrow runway capability. Without an acceptable means of compliance, runway width requirements would be as referenced in ICAO Annex 14 and in accordance with current international practice.
3. CASA disagrees; the CAAP provides a specific process to enable operations into narrow runways which is not otherwise available from either the aircraft manufacturer or approved by another NAA. In the case of the SAAB340, the Swedish Authorities will not permit operations on runways narrower than 30m and the manufacturer also does not provide information for such operations.
4. CASA agrees in part; the training provisions in the CAAP have been revised in response to these comments and comments from other respondents. These changes are detailed below in the disposition.

Narrow runway operations are considered other than a normal operation, especially 18m operations, in order to provide an acceptable level of safety for RPT operations specific training is required. Aeroplanes operating on current exemptions are required to carry out specific training for narrow runway operations. The required training assures equivalent safety outcomes are achieved. Operators conducting operations in accordance with narrow runway approvals, do so in accordance with specific Operations Manual requirements.

5. CASA disagrees; a flight manual supplement approved by the NAA, manufacturer, or DER will be acceptable. There are also many supplements that meet the requirements of the CAAP as a result of specific flight test.
6. CASA disagrees; flexibility is provided by the methodology in the CAAP. The prescriptive requirement of the ICAO ARC is applied by several NAA’s. Australia has maintained this fundamental approach since the ICAO ARC was introduced. The CAAP provides a level of flexibility for the approval process by introducing a performance based regulation for narrow runway operations.
7. ICAO requires that the entire runway surface (both length and width) is available for take-off and landing. There are specific requirements for friction tolerances, surface roughness and edge ‘lip’ transitional areas between runway edges and surrounding surfaces. Certificated take-off performance and ground handling characteristic cannot be assured if operating across different surfaces that do not meet these requirements.

Certification requirements do not take into account the aeroplane suffering excursions and then having to deal with different surface friction condition as would happen if an aeroplane deviated off bitumen and then onto a gravel surface.

8. Yes, in the case of an homogenous runway with a central bitumen surface with a surrounding gravel surface, if the aeroplane deviates off the side of the bitumen surface into the gravel, for any reason, then there is the potential to have significant changes to the braking capability and handling characteristics in the case of a rejected take-off or continued take-off. It would not be possible to guarantee that the aeroplane is able to replicate the certified performance. In addition, if the surrounding unpaved surface is other than dry (i.e. damp or wet) then departing off the sealed surface into the unpaved surface is considered potentially dangerous.
9. No, the runway width comprising of a homogenous surface material is considered the operational runway width for narrow runway operations. The width depicted in the ERSA may be different to the width of the central (sealed) portion.
10. This paragraph was originally promulgated in the AIP to provide for aeroplanes that could take-off on the unpaved surface of the runway, as well as the paved surface (i.e. essentially smaller aeroplanes). In which case, if the aeroplane was to take-off on the unpaved surface, then the aeroplane was required to use the take-off performance applicable to the unpaved surface. The current interpretation implies that if an aeroplane has unpaved performance then it can operate on the narrow bitumen strip (18m) as if the runway width is that published in the ERSA (30m) (e.g. Coober Pedy). The initial AIP provision in the early 1990's mentioned that if the unpaved surface was not available (i.e. wet or NOTAM out of service), then credit for unpaved surface was not available. As part of the Narrow Runway Project page, the AIP will be amended, inclusive of this section related to take-off performance; Sub paragraph 59.2.6 to ENR 1.1-96 section 59 – *Suitability of Aerodromes*.
11. CASA disagrees: Simulator level C accreditation is not acceptable for flight test evaluation. As the narrow runway assessment is predominantly a ground based flight test assessment, simulator ground modelling cannot be assured as representative to the level required for this specialist flight test assessment. A level C simulator is more than adequate for normal flight training etc; however, in the case of narrow runway flight testing assessment, the highest level of fidelity is required.

Simulator assessment is provided as an alternative to flight testing the aircraft, so it is required for the test results to be representative of the actual aeroplane handling characteristics. This is not to be confused with the simulator requirements of CAAP section 13 – *Flight crew training requirements*, the simulator requirements to conduct training and checking is not changed from that currently required.
12. CASA agrees and will add the applicable reference in the CAAP to SMS and risk assessment in paragraph 12.2.1.
13. CASA disagrees; the CAAP details the training and checking required for operations from and into narrow runways. It is the intention that operators will include the minimum specific training requirements to address the specific operational procedure for narrow runway operations. As a minimum the special procedures for narrow runway operations

are included in the Operations Manual. These standard operating procedures need to be addressed during training and checking.

14. CASA agrees and has revised the text accordingly.

15. Part 139 MOS states:

Runway centreline markings must provide on all sealed, runways, to provide directional guidance during landing or take-off. Runway centreline marking may be omitted in the case of 18m wide runways where strip markings are provided.

In the first instance, the centre line marking is required for assistance in maintaining directional control guidance. In addition, the determination of the minimum runway width is predicated on a line up allowance, based on centreline line accuracy. As 18m wide runway operations are considered operationally limiting, maintaining the centreline accurately is fundamental to reducing the risk of veer-off in the case of an engine failure. It is noted that Coober Pedy, with an 18m central sealed portion, has central line marking, as does Jabiru in the NT. The CAAP is specifically worded to state "runway centre line guidance is required" which means it is up to the operator to determine how centre line guidance can be reassured; centreline marking and lighting is referenced as an example.

16. A VASI/PAPI is a recommendation especially to mitigate the visual illusion situation that can occur with narrow long runways. A VASI/PAPI is not required for operations of Turbo-prop aircraft from narrow runways.

17. The operator will deal with this in the same manner as they deal with inoperative aerodrome equipment, via the company SMS etc.

The provisions in section 12.2 are recommendations and, as such, it is up to the operator to handle unserviceability's as they do for normal operations (i.e. no different if a NOTAM is issued that the windsock is u/s or the gravel is not available). CASA does not intend to be prescriptive on this issue and will leave it up to the operator to handle, in accordance with the recommendations in the CAAP and the Operations Manual.

18. It is understood that the current SAAB 340 simulator that is available in Melbourne and the new simulator in Wagga has a runway model which can replicate the 18m runway wide runway. This will provide the respondent with the opportunity to conduct adequate training simulating narrow runway operations.

The CAAP provides the recommended scenario for engine failure training, without aeroplane type specific details. The specific details applicable to the particular aeroplane type and operation are left to the operator to manage.

19. CASA agrees; section 12.2.1 (a) (ii) in regards to PIC sector has been reworded such that, for other than training flights, the pilot flying into 18m wide runways shall be the PIC.

20. CASA disagrees, the regulation is outcome based providing the opportunity to allow aeroplanes to operate on narrow runways if they can demonstrated they are capable of safely doing so. This removes the necessity to issue exemptions as aeroplanes with approved supplements will be permitted to continue operations without the need to issue exemptions. In addition, it also removes the requirement for smaller local communities to widen runway at great expense.

21. CASA disagrees; intended aeroplane operations on runways narrower than currently allowed in accordance with the ICAO ARC are required to show that they can operate safely. The CAAP provides the acceptable means of complying with regulation 235A of CAR 1988. There are two other NAA's that allow narrow runway operations by way of acceptable flight testing-Transport Canada and EASA-other regulators (including the Swedish Transport Agency) do not allow operations from narrow runways.

If the manufacturer or the applicable NAA does not support narrow runway operations by way of AFM limitation or applicable supplement then the CAAP provides the methodology by which the approvals can be obtained. Each individual aeroplane, if not already provided with an approved supplement or AFM limitation, will be assessed on an outcome-based perspective.

22. In accordance with CASA policy, the RIS was produced as part of final rulemaking.

23. The training and checking requirements are up to the operator, in accordance with:

- their SMS
- training and checking manual
- CAR 217 approval.

Operators are expected to consider the recommendations provided in the CAAP as a minimum, and if necessary, provide alternatives applicable to the particular aeroplane and the particular narrow runways within the operator's route structure.

The regulation (4) and (5) of CAR 235A states:

Offence for the operator- operators training and checking manual

(4).....

Offence for operator and pilot in command –flight crew training requirements

(5) The operator and the pilot in command of the aeroplane each commit and offence if, when the landing or take-off is conducted, each member of the aeroplanes flight crew has not successfully completed the training mentioned in sub regulation (4)

A.1.13.2 Disposition

Comment 4

In accordance with previous respondents, changes have been made to:

- section 13.2 – *Training and checking Manual*
- section 13.8 – *Narrow Runway Simulator training*
- section 13.10 – *Line Training* which, in general, address this respondents comment.

Comment 12

Reference to SMS and risk assessment added to paragraph 13.3 of section 13 as follows:

In accordance with the operator's Safety Management System (or equivalent) and risk management assessment

Comment 14

CASA agrees; original subparagraph 11.2.1(a)(i) has been removed. Subparagraph 12.2.1(a) has been re-drafted as a result of comments from other respondents.

Comment 19

CASA agrees; text for original subparagraph 12.2.1(a) has been amended as follows:

(a) Flight crew operations:

(ii) except for training or check flights, the PIC shall be the pilot flying into and out of 18m wide narrow runways.

A.1.14 Appropriate method of determining minimum runway width

Respondent stated:

[Airline group] has concerns with the proposed amendment of CAR235A and is opposed to the progression of the proposed amendment until CASA engages further with [respondent] and other members of industry on an appropriate method of determining the minimum runway width for aeroplanes.

This letter indicated that the respondent disagrees strongly with the implementation of regulation 235A of CAR 1988 and the supporting CAAP 235A-1(0). The respondent's submission covers the subject of Narrow Runways in general terms. This response summary covers those general Narrow Runway issues in the respondent's submission

A.1.14.1 CASA response

As indicated in this SOR, several operators have responded with little or no comment and along with support for the proposal. Many operators, like the respondent, operate aeroplanes that currently have supplements/operational information or AFM limitations and with the introduction of regulation 235A of CAR 1988, will be able to continue operations without further exemptions or limitation.

The respondent was of the view that CASA needs to engage other operators before going forward with this proposal. A balanced view of the current responses does not support that view, and, as such, CASA will not be further developing runway width standards outside the scope of this project.

In addition, aerodrome operators have responded positively to this proposal with due consideration of the significant cost savings by not having to widen runways. One aerodrome operator stated it would cost \$17.5m to widen their runways to 45m to continue B737 operations supported by an AFMS, if the new narrow runway policy was not adopted.

The ICAO ARC has been used as the fundamental basis for runway width criteria since the ARC was introduced in the early 1980's. It is acknowledged that this is an aerodrome design standard. Until ICAO introduce a runway width certification requirement in Annex 8 or an operational requirement in Annex 6, CASA has no intention of changing the current policy of using the ICAO ARC as the foundation criteria for establishing required runway widths. This philosophy is in line with current international practice.

However, it must also be stated that the V_{MCG} certification requirement in Annex 8, in itself, determines the minimum runway width is approximately 18m plus half the gear track in zero wind. Combining half the gear track, runway centre line up allowance and crosswind accountability becomes very limiting criteria for narrow runway operations, particularly for

operations from runways with widths of 23m or less. Runway width flight testing or analysis will provide the basis to make an outcome based assessment of aeroplane capability for limiting runway configurations.

Australia made previous representation at ICAO suggesting an outcome based approach on the issue of aeroplane runway widths in the early 1980's, this was not internationally supported at that time. The ICAO standards in relation to runway widths have continued to be applied since Australia and Canada have had an additional performance base approach for decades.

CASA intends to de-link the operational requirements of aeroplane operations from the aerodrome design requirements. This is currently underway with the recently published Part 139 MOS PIR. All reference to 'critical aircraft' is proposed to be removed from the MOS so that aerodrome exemptions will no longer be required or issued for operations of aeroplanes into narrow runways.

Regulation 235A of CAR 1988 and the supporting CAAP 235-1-(0) is enabling legislation. The regulation will permit those aeroplanes currently approved to operate on narrow runways without the need for future exemption renewals, all exemptions will be cancelled with the implementation of this new legislation. Current Narrow Runway operations, in accordance with approved AFM information, will continue without further limitation (e.g. A380, B737 all models, A320, and F50 etc.).

The applicability of regulation 235A of CAR 1988 has been chosen to address the level of safety required to be provided to the travelling public while taking into consideration the type of operation and aeroplanes likely to be used in such operations (i.e. aeroplanes above 5,700 kg operating in RPT or Charter). All other operations are expected and required to operate safely in accordance with the appropriate regulations (i.e. subregulation 92(2) of CAR 1988).

Aeroplanes with manufacturer, NAA or DER provided AFM supplements, operational information or AFM limitations will be permitted to operate in accordance with the limitations. CASA will not be providing approvals or conducting flight testing. It will be the operator's responsibility to obtain the required information as has been the case for many years. CASA no longer issues specific AFM supplements, but will rely on the NAA, Manufacturer or DER information provided in accordance with this policy and the guidance in the CAAP.

The respondent operates B737 and F50 aircraft which are currently approved for operation on narrow runways, in accordance with AFMS. These aircraft, under the proposed regulation 235A of CAR 1988, will be permitted to continue operations without further exemption requirements. The NZ CAA approves operations of the B737 on narrow runways in accordance with Boeing issued Narrow Runway supplement, which is based on the original Australian Civil Aviation Authority (CAA) approval. After discussions with the NZ CAA, it is apparent that Air Transport operations in NZ are in accordance with the ICAO ARC, the B737 is an exception where the NZ CAA provides Narrow Runway approval based on the initial Australian approval of the Boeing AFM appendices.

It also needs to be put into context that the possible impact of this rule change does not only affect aeroplane operators, but also on infrastructure providers (i.e. aerodrome operators and local councils). Even though there maybe cost implications on the aeroplane operators who require manufacturer data in order to comply with this regulation there is also considerable cost impact on aerodromes if they are required to widen runways if this policy is not implemented.

As a general comment to the respondent's submission, all regulators (including the FAA, UK CAA, EASA, and Swedish Aviation Authority) use the ICAO ARC, or their local equivalent, as the means of regulating the minimum runway width of aeroplanes. ICAO Annex 8 and ICAO Annex 6 do not include SARP's specific to operations from runways narrower than that referenced in the ICAO ARC.

The ICAO ARC is used worldwide as the foundation for the operation of aeroplanes, and until a specific ICAO certification requirement is established it is expected that this will continue to be the world practice for determining runway widths for aeroplane operations. CASA, formally CAA, acknowledge that aeroplanes that can demonstrate safe operation on runways narrower than that specified in the ICAO ARC should be allowed to do so. Australia and Canada are the only regulators that allow such operations based on performance based regulation.

CASA is not intending to determine a certification requirement specific to Australia, but is providing a means of demonstrating safe compliance. Currently the FAA is considering a narrow runway study and is very interested in the Australian approach.

Many regulators do not allow operation of aeroplanes on runways narrower than stipulated in an ARC (i.e. FAA, EASA, and UK CAA). In the case of the A380, after flight test demonstration and inclusion of appropriate operational limitations in the A380 AFM, EASA approved the A380 to operate on 45m wide runways. This is an approved EASA AFM limitation and is acceptable to CASA.

CASA will accept manufacturer approved, NAA approved or DER/OEM AFM information, but will not be conducting specific narrow runway flight testing.

Runway Safety Initiative

The ATSB accident statistics referred in the respondent's submission are based on aeroplanes conducting operations in accordance with the current runway width requirements (i.e. in accordance with the ICAO ARC). These statistics do not delineate those aeroplane operations that have been conducted on narrow runways. As previously mentioned, the amendment to regulation 235A of CAR 1988 is enabling legislation determined in accordance with an outcome based approach.

By determining the capability of an aeroplane to remain within the confines of the runway in cases of engine failure and crosswind condition mitigates the risk of an aeroplane excursion from the runway surface.

ICAO has noted that the rate of runway excursion has not decreased in more than 20 years. As a result of the high percentage of accidents attributed to runway excursions, there has been a worldwide initiative to address all aspects contributing to runway excursions. The *European Action Plan for the Prevention of Runway Excursions, Edition 1.0*, identifies several safety actions that, if addressed, are highly likely to reduce the runway excursion accident rate. Some of those safety actions are associated with aircraft design, certification and aircraft operations. An important safety action that has been identified is the lack of appropriate crosswind determination and an over reliance on the manufactures maximum recommended crosswind.

In late 2006, the Flight Safety Foundation initiated a project entitled Runway Safety Initiative (RSI) to address runway safety. The study focused on worldwide runway excursions accidents

specifically related to runway Overrun and Veer-off during take-off and landing. A total of 1429 accidents from 1995-2008 were sourced from the *World Aircraft Accident Summary (WAAS)*.

Take-off runway excursion accidents accounted for 21% of the total take-off and landing events, with 37% of those accidents attributed to veer-off runway excursions. Turbo-prop aircraft accounted for 41% of the total take-off excursions with Turbo-Jets accounting for 36% of the total. Of the take-off excursions, it was analysed that the following are the three highest risk factors contributing to take –off runway veer-off excursions:

- rejected take-off
- aircraft directional control
- crosswind.

The analysis further indicated that rejected take-off often resulted in veer-off when there was an engine power loss in combination with a contaminated runway and/or crosswind conditions. The risk factor was further exacerbated with the introduction of gusty wind conditions and windshear.

Landing runway excursions accounted for 79% of the total landing and take-off events, with 53% of those accidents attributed to veer-off runway excursions. Turbo-prop aircraft accounted for 43% of the total landing excursions with Turbo-Jet aircraft accounting for 35% of the total. It was analysed that the following are the three highest risk factors contributing to landing runway veer-off excursions:

- long touchdown
- ineffective braking
- pilot directional control

The analysis further indicated that touchdown/hard bounce combined with crosswind had a strong association with veer-off runway excursions. It was also indicated that unstabilised approaches had a close association with veer-off accidents.

Australian runway excursion accident data, for the period between 2001 and 2010, indicates the same relationship between turbo-prop and turbo-jet and take-off veer-off runway excursions; with turbo-prop veer-off accidents accounting for the higher percentage of the total runway excursions. Similar association was also indicated with rejected take-off and wind conditions being the major contributing factors to the total number of veer-off accidents.

Impact on Industry

The proposed amendment will have a positive safety and cost benefit impact on the industry as a whole (including both aerodrome and aeroplane operators). Current and future aircraft operations from and into runways with a width narrower than that specified by ICAO ARC will be permitted without having to widen runways when it is determined that an aeroplane can operate safely.

There are some aircraft types in Australia that have been issued with a time limited exemption to operate from and into runways with a width that is not supported by the relevant NAA or manufacturer. For continued operation of those aeroplanes the operators will be required to gain NAA and/or manufacturer approval for such operations, or carry out the testing detailed in CAAP

235A-1-(0). Currently there are manufacturers conducting the required testing in accordance with the CAAP for subsequent narrow runway approvals.

Industry participants have indicated there may be considerable cost involved in achieving the necessary approvals; however, this cost would be significantly less than adopting a policy to widen runways. It is also acknowledged that aircraft manufacturers, in some cases, will be interested in achieving such approvals, as it will provide a wider marketing audience for their product.

It is also acknowledged that many remote communities require the services of particular aeroplane types and as such providing enabling legislation for narrow runway operations will permit the continued operation into those community aerodromes by aeroplanes with the appropriate approved AFM documentation. This will also subsequently result in the local communities not having to widen the runways at considerable cost to the local councils.

There are no current certification requirements to determine the minimum runway width. FAA AC 25-7C details the Certification flight testing requirements; V_{MCG} is just one of the many parameters determined in a specific manner. The FAA AC does not address specific flight testing required to establish minimum runway width and does not address the crosswind capability with an engine failure on take-off. CAAP 235A flight test schedule is specific for narrow runways such that engine failure and crosswind are accounted for. This performance based assessment is not necessary when an aeroplane is operating on a runway width in accordance with ICAO ARC as there is a level of conservatism built in with the application of the ICAO ARC.

A.1.14.2 Disposition

The respondents submission did not mention specific sections of regulation 235A of CAR 1988 or the draft CAAP 235A, but addressed this issue in general terms. Therefore, apart from addressing the respondent's issues in general terms in this SOR there were no specific sections of regulation 235A or of draft CAAP 235A-1(0) that required specific changes.

A.1.15 Member of the public submission

Respondent stated:

[Respondent] understand that the DRAFT CAAP 235A-1(0).....will potentially result in the cessation of airline's operations at Coober Pedy if funds....are not available to widen the existing runway to conform to the proposed new minimum width for the runways

A.1.15.1 CASA response

CASA disagrees; all operations of aeroplanes into aerodromes has to be carried out safely, noting that RPT operations are required to provide the highest level of safety to the travelling public. With this in mind, some aerodromes may not be suitable for use by all aeroplanes types (e.g. the runway is not long enough, strong enough or wide enough to conform to the aeroplane manufactures design data). Aeroplanes must be operated in accordance with the aeroplane manufactures design criteria for intended use to ensure safe operations.

Regulation 235A of CAR 1988 is enabling legislation for aeroplane operations into narrow runways. The CAAP and regulation provides an acceptable means of compliance (a way

forward) for such operations. The CAAP provides a method of determining the minimum runway width required (based on aeroplane performance and flight handling) for a particular aeroplane type. Compliance with the CAAP provisions alleviates the need for runways, such as Coober Pedy, to be widened. The comparative cost of CAAP compliance and widening runways is considerable. It has been quoted that to widen Coober Pedy runway will cost more than \$700,000.

A.1.15.2 Disposition

No change to regulation 235A of CAR 1988 or CAAP 235A-1(0) required.

A.1.16 DC3 operator

Respondent stated:

DC3 aircraft have been operating in Australia since 1937 into many airfields that are now not permitted to be used. In [respondent] experience of operating DC3s regularly for over 50 years, [respondent] do not recall any accident or incident that occurred because of a 23m. wide runway.

[respondent] is keen to claim "Grandfather Rights" on this matter.

A.1.16.1 CASA response

CASA agrees that consideration of 'grandfathering' aeroplanes that were not certificated to performances and flight handling requirements referenced in CAAP 235A-1(0). It has been identified that aeroplanes such as the DC3 were type certificated to CAR 4b standard. Subsequent aeroplanes certificated to the FAR 25 prior to Amendment 42 were not specifically required to determine or scheduled V_{MCG} or the applicable take-off speeds. In addition, specific balanced field length performance taking into account time delays and retardation device activation for accelerate stop performance was not required. ICAO Annex 14 ARC did not exist at that time.

It is considered that aeroplanes that fit into this category will be required to operate safely in accordance with sub regulation 92(2) of CAR 1988 and will not require specific narrow runway approvals or flight testing.

A.1.16.2 Disposition

Policy has been changed to 'grandfather' all aeroplanes that were type certificated and placed on the Australian register prior to 1 March 1978 (i.e. prior to FAR 25 Amendment 42). Regulation 235A of CAR 1988 and CAAP 235A-1(0) have been amended accordingly to provide the 'grandfather' clause for these 'old' aeroplanes with the following text:

CAAP 235A-1(0) Aeroplanes type certificated prior to 1 March 1978 are 'grandfathered' from the requirements of regulation 235A of CAR 1988. As such, applicable aeroplanes are 'exempt' from the requirements of regulation 235A of CAR 1988 and this CAAP. The operation of these affected aeroplanes into aerodromes shall be carried out safely in accordance with regulation 92 of CAR 1988.