I, MICHAEL DAVID QUINN, Deputy Director of Aviation Safety, a delegate of CASA, make this instrument under regulation 308 of the Civil Aviation Regulations 1988 (CAR 1988).

Mick Quinn
Deputy Director of Aviation Safety

2 November 2009

Exemption — from standard take-off and landing minima – Jetstar

1 Duration
This instrument:
(a) commences on the day after it is registered; and
(b) stops having effect at the end of 30 September 2011.

2 Revocation
Instrument CASA EX74/09 is revoked.

3 Definitions
In this instrument:
aircraft means A330 type.
ATC means air traffic control.
CAT means category, and refers to Category I, Category II or Category III minima.
controlling zone means any runway zone where the RVR or RV reading represents the minima for the runway zone.
DH means decision height.
ICUS refers to a pilot and means in command under supervision.
LH means left hand, and refers to the left-hand seat in the cockpit of an aeroplane.
low visibility operation or LVO means:
(a) a landing with less than CAT I minima; or
(b) a take-off with less than 550 metres RV or RVR.
operator means Jetstar Airways Pty Limited, Aviation Reference Number 510654, under Air Operator’s Certificate number ML 510654-105.
RH means right hand, and refers to the right-hand seat in the cockpit of an aeroplane.
runway zone means the touch-down zone (TDZ), the mid-zone (MID) or the end zone (END) of a runway.
RV means runway visibility and is assessed by an approved observer and reported by ATC.
RVR means runway visual range and is measured by instrument and reported by ATC.
4 Application

This instrument applies only to aircraft operated by the operator in an LVO at an aerodrome when both of
the following apply:

(a) ATC is in operation;
(b) ATC has informed the pilot of the aircraft that low visibility procedures are in force.

5 Exemption

Each aircraft operated by the operator is exempt from compliance with regulation 257 of CAR 1988 in
relation to the standard take-off and landing minima determined by CASA under subregulation 257 (1) of

Note Details of the determination are set out in AIP En Route 1.5, sections 4.3 and 4.4.

6 Conditions

The exemption is subject to the following conditions:

(a) each aircraft must use not less than the aerodrome minima mentioned for it in Schedule 1, in
accordance with Schedule 1;
(b) the requirements mentioned in Schedule 2 must be complied with.

Schedule 1 Aerodrome minima for low visibility operations

1 At aerodromes with the facilities required and operating to support low visibility take-offs, the following
are the take-off minima that may be used by the aircraft mentioned:

<table>
<thead>
<tr>
<th>Type of aerodrome and aircraft</th>
<th>Runway zone RVR and RV (in metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TDZ</td>
</tr>
<tr>
<td>CAT II or CAT III aerodromes</td>
<td></td>
</tr>
<tr>
<td>A330</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>200</td>
</tr>
<tr>
<td>Other ATC aerodromes</td>
<td></td>
</tr>
<tr>
<td>A330</td>
<td>350</td>
</tr>
</tbody>
</table>

2 At aerodromes with the facilities required and operating to support CAT II or CAT III landing operations,
the following are the landing minima that may be used by the aircraft mentioned:

<table>
<thead>
<tr>
<th>Type of landing operation and aircraft</th>
<th>Runway zone RVR (metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TDZ</td>
</tr>
<tr>
<td>CAT II</td>
<td></td>
</tr>
<tr>
<td>A330</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3 The aircraft operation must observe the following requirements:

Visibility measurements

(a) (i) for a take-off with a visibility of less than 350 metres or a CAT II landing, visibility must be
measured by RVR for each applicable zone; and

(ii) for a take-off with visibility of at least 350 metres, visibility must be measured by:

(A) RVR or RV for each applicable zone; or

Instrument number CASA EX88/09
(B) RV for each applicable zone other than the TDZ, provided the pilot makes the assessment for the TDZ;

Controlling zones
(b) for controlling zones:
(i) any zone reading shown in the above tables must act as the controlling minima for the zone; and
(ii) if 2 zone readings are required and a MID zone RVR or RV in accordance with paragraph 3 (a) above is not available, the END zone RVR or RV may be substituted provided the END zone RVR or RV is at least the same as the MID zone RVR or RV being replaced;

Runway lighting and markings
(c) for runway lighting and markings:
(i) the runway must have:
(A) for take-off operations with minima below 350 metres — both centreline lighting and centreline markings; and
(B) for take-off operations with minima at 350 metres and greater — either centreline lighting or centreline markings; and
(ii) runway edge lighting must be spaced at not greater than 60 metres for all low visibility operations.

Schedule 2 Requirements for LVO

Training
1 The LVO training course syllabus covering ground training and flight simulator training must be approved in writing by CASA.
   Note A sample training course syllabus is in Annex A.

2 The operator, or an approved training organisation, must certify that each pilot of the aircraft has successfully completed the LVO training course.

Pilot Experience
3 A pilot is authorised for LVO on the aircraft only if he or she has successfully:
   (a) completed the aircraft-type LVO training in accordance with the approved training syllabus; and
   (b) performed 2 autolands in the aircraft in at least CAT I conditions, 1 of which must be performed during line training.

4 Subject to clause 5, unless CASA approves otherwise in writing for an aircraft type with an approved cross-crew qualification transition course, the following pilot experience is required to operate to the minima shown in Schedule 1:
   (a) for a captain:
      (i) at least 300 hours on any aircraft type as a pilot in command while authorised for CAT II or CAT III operations; and
      (ii) at least 100 hours as pilot in command or ICUS or dual in the LH seat on the aircraft type with the operator;
   (b) for a co-pilot:
      (i) at least 100 hours on any aircraft type as a co-pilot while authorised for CAT II or CAT III operations; and
      (ii) at least 50 hours on the aircraft type with the operator.

5 However, if a pilot occupying a control seat does not have the experience mentioned in clause 4, he or she is restricted to:
   (a) for take-off — a cross-wind not exceeding 10 knots and a minima of at least 200 metres RVR; and

Instrument number CASA EX88/09
(b) for landing — CAT II with a minima of 100 feet DH and 400 metres RVR in the TDZ.

Recency

6 For recency, a captain must have completed an autoland using LVO procedures in a flight simulator or in the aircraft type within the 90 days before conducting a CAT II landing.

7 A captain must not conduct a CAT II landing if he or she has lost recency and not regained it in accordance with clause 8.

8 A captain regains recency by performing an autoland:
   (a) in a flight simulator; or
   (b) in an aircraft in at least CAT I conditions.

Competency

9 For competency, each pilot of the aircraft occupying a flight control seat must have successfully completed, to the operator's approved operational and meteorological limits, a flight simulator competency check that includes:
   (a) a take-off with a near V₁ engine failure (reject) and a V₁ engine failure (continue); and
   (b) a CAT II go-around; and
   (c) a CAT II landing.

10 Unless otherwise approved in writing by a CASA Team Leader, Flying Operations, a pilot mentioned in clause 9 must complete 2 checks every 12 months as follows:
   (a) each check must demonstrate competency in each activity mentioned in paragraphs 9 (a), 9 (b) and 9 (c);
   (b) for 1 of the 2 checks, competency must be demonstrated to an operational check captain of the relevant aircraft type;
   (c) not more than 8 months and not less than 4 months may elapse between each check.

Note CASA will only approve otherwise in exceptional circumstances where prior testing, experience or other demonstration of competency is compelling evidence of equivalent safety.

11 A captain may not participate in an LVO from the RH seat unless, at least once in the preceding 12 months, he or she has demonstrated to an operational check captain competency in the LVO from the RH seat.

Operational restrictions

Take-offs and landings

12 For take-off and landing, the following restrictions apply:
   (a) for minima — the pilot in command of the aircraft must use the most restrictive of the following:
      (i) the minima mentioned in Schedule 1 that apply to the type of operation or procedure in which the aircraft is engaged;
      (ii) the minima the aerodrome facilities will support at the time of the LVO;
      (iii) the minima approved by the aircraft operator;
      (iv) the minima approved by the relevant foreign aviation regulatory authority;
      (v) the minima approved in the aircraft flight manual (as amended);
   (b) the maximum cross-wind component for an aircraft conducting an LVO is:
      (i) if any RVR is less than 200 metres — 10 knots; or
      (ii) otherwise — 15 knots;
   (c) the pilot flying must:
      (i) be a captain with the operator; and
      (ii) not be undergoing initial command training with the operator; and
(iii) occupy the LH seat;
(d) the approach, runway, taxiway and ramp lighting must be operating in accordance with the aerodrome lighting requirements for the type of operation.

Landings

13 For landings, the following approach ban rules apply:
   (a) when making an approach, the pilot in command of the aircraft must not continue beyond 1 000 feet above aerodrome elevation if a controlling zone RVR is reported by ATC as continually less than the specified minimum for the approach;
   (b) if, after passing 1 000 feet above aerodrome elevation, a controlling zone RVR is reported by ATC as falling below the specified minimum, the approach may be continued to the minima.

14 For landings, the pilot in command of the aircraft must not continue an approach below the applicable minima unless visual reference is established and maintained in accordance with the following:
   • for CAT II — at least:
     (a) 3 consecutive longitudinally aligned lights, being the centreline of the approach lights, the touchdown zone lights, or the runway lights; and
     (b) a lateral element of lighting, being an approach lighting crossbar, landing threshold or a barrette of touchdown lighting.

15 For landings, the braking action on the runway must not be reported by ATC as worse than “medium”.

16 The landing distance available for the aircraft must be the greater of:
   (a) 2 400 metres; or
   (b) 1.15 times the landing distance required under subsection 11 of Civil Aviation Order 20.7.1B.

17 For a CAT II landing, until visual conditions are established, the aircraft must have at least a fail-passive automatic landing system.

18 Spare.

19 Spare.

Maintenance

20 The aircraft equipment required for an LVO take-off, or a CAT II landing must be maintained in accordance with the aircraft Maintenance Planning Document.

Foreign approvals

21 An LVO may be conducted at an aerodrome outside Australia only if each of the following has been complied with:
   (a) the operator has:
      (i) informed CASA that for landing operations, the aerodrome and runway terrain details and charts, including the data used to determine the applicable minima, have been checked; and
      (ii) received approval to conduct the operation from the relevant foreign aviation regulatory authority; and
      (iii) given CASA a copy of the approval;
   (b) the LVO is conducted in accordance with each of the operator’s relevant foreign aviation regulatory authority approvals.

Document and procedure requirements

22 The operator must ensure that there is an operations manual on board each aircraft containing the following:
   (a) all necessary crew procedures required for a safe LVO, including a standard call for the pilot monitoring to advise the pilot flying of deviations from the runway centreline during take-off;
   (b) a list of aerodromes and runways approved for LVO take-offs and CAT II landings (the list);
   (c) the minima for the approved aerodromes and runways in the list;
(d) a copy of this instrument;
(e) an abbreviated check list which must include all relevant information for:
   (i) briefing on low visibility take-offs and landings; and
   (ii) identifying the aircraft equipment necessary for carrying out the LVO;
(f) the CAT II radio altimeter height that equates to the approved CAT II DH for each runway in the list
    approved for CAT II landings.

Note In Australia, the operator may determine the CAT II radio altimeter height (RA) from a study of the Precision
Approach Terrain Charts available from the relevant aerodrome operator.

23 The operator’s procedures for LVO must be in accordance with the following:
   (a) this instrument;
   (b) if applicable, the operator’s Safety Operational Specification – Approval to Conduct Autolands
        instrument issued by CASA.

Annex A — Low visibility operation training requirements

This is a sample training course syllabus as mentioned in clauses 1 and 3 of Schedule 2.

Training

(a) Ground training

Ground training must cover at least the following subjects:
- general concepts and appropriate definitions (see ICAO Manual of All Weather Operations Doc 9365-
  AN/910)
- aerodrome visual aids, markings and lighting systems
- the meaning of the phrase “clear of runway”, with respect to runway exit light colours
- use and limitations of different types of RVR systems
- ILS characteristics, limitations and Class of Performance classification (see ICAO Annex 10
  Attachment C, paragraph 2.14)
- the principles of obstacle clearance requirements for landing; factors affecting the determination of
  landing minima
- effect of terrain profiles on radio altimeter readings at DH and on the autoland system
- characteristics of fog – homogenous and non-homogenous
- effects of cold temperature on the barometric altimeter reading for the glide slope check
- effects of precipitation, ice accretion, low level windshear and turbulence
- actions to be taken in the event of airborne or ground equipment failures
- reversionary minima
- an understanding of any special aircraft maintenance requirements for LVO equipment
- correct seating and eye position.

(b) Flight simulator training

The session should be approximately 3 hours for a captain paired with a first officer, or 4 hours for 2
paired captains. The session should be a stand-alone exercise conducted after all endorsement training has
been completed. The simulator must be at least level C and type specific with correct visual modelling.

Some exercises should be conducted at maximum take-off weight (to provide a maximum split between
$V_1$ and $V_R$) and maximum landing weight, both take-off and landing at approved (or applied for) RVR
minima with up to maximum cross-wind and where possible a mix of day and night environments.

Training must include the following:
- normal operation with no failures
- visual cues required for landings, especially CAT II
- checks of satisfactory functioning of ground and aircraft equipment
- correct use of MEL and the effect of known unserviceabilities
- effects on minima caused by changes in the status of ground installations
- correct monitoring of automatic flight control systems and annunciators
- any reduced operating limitations
- maximum deviation allowed for glide slope and localizer
- actions to be taken in the event of failures or malfunctions of the following:
- ILS transmitter and ILS receiver(s)
- radio altimeter(s)
- autopilot(s) and autothrust system
- engine, electrical, hydraulic, flight control and instrumentation systems
- autoland system indicated by lack of expected FMA annunciations (flare, rollout)
- engine-out autoland and engine-out missed approach
- loss of visibility during take-off and below the minima during approach
- pilot incapacitation during take-off and approach
- fail-passive automatic landing approach with further system failure below the minima.

**Taxi exercise**

Use of the aerodrome chart in following cleared taxi route to and from the runway and the terminal, identifying stop bars and CAT II and CAT III holding points and using all options to check line up on the correct runway.

**Take-off exercises**

There must be a minimum of 8 take-offs resulting in becoming airborne or in a RTO, covering the exercises below. Additional exercises should be conducted to cover operator requirements and the above training requirements.

Instructors should demonstrate in visual conditions the effectiveness of the localizer display or other lateral guidance equipment, as the aircraft deviates from the runway centreline.

Some suggested exercises are:
- normal take-offs (2) (RVR 200 m, cross-wind 15 kts – RVR 150 m, cross-wind 10 kts)
- engine failure near $V_1$ (RTO) and engine failure at $V_1$ (continue)
- loss of visibility at low speed (RTO) and after 100 kts (continue)
- pilot (PF) incapacitation
- deliberate runway centreline deviation.

**Approach and landing, and go-around exercises**

There must be a minimum of 8 approaches from at least 1 500 feet to either a landing or a go-around. However, additional exercises should be conducted to cover operator requirements and the above training requirements.

Instructors should demonstrate in the simulator the approach (Calvert and ALSF-2) and runway lighting and various visual segments that would permit a landing relating to CAT II before students commence LV landing exercises.

Instructors must provide varying RVR reports to the crew during some of the simulator exercises to ensure a correct understanding of approach bans.

Some suggested exercises are:
- normal operations
- approaches resulting in missed approaches due to either lack of visual reference at DH or loss of visibility below DH
- aircraft and ground system failures
- loss of visibility above and below DH
- incapacitation of the pilot flying
- reversion to manual flight at or below CAT II DH to control flare, landing and rollout or missed approach
- reversion to higher minima
- engine failure at various stages of the approach and during the missed approach.
Explanatory Statement

Civil Aviation Regulations 1988

Exemption — from standard take-off and landing minima – Jetstar

Section 98 of the Civil Aviation Act 1988 (the Act) empowers the Governor-General to make regulations for the Act and the safety of air navigation.

Legislation

Under subregulation 257 (1) of the Civil Aviation Regulations 1988 (CAR 1988), CASA may determine the meteorological minima, that is the visibility requirements, for landing or take-off at an aerodrome. Under subregulation 257 (2), the determination must be published in AIP or NOTAMS. Under subregulation 257 (3), it is an offence for an aircraft to take off if an element of the meteorological minima for that operation is less than that determined for the aircraft at the aerodrome.

The determination of standard meteorological minima for take-off and landing was made in instrument CASA 146/08. The minima are also set out in AIP En Route 1.5, sections 4.3 and 4.4. If conditions are met, the minimum visibility for take-off inside or outside Australian territory is 500 metres (proposed to become 550 metres). If conditions are met, the minimum visibility for landing inside or outside Australian territory is 800 metres, or 550 metres RVR. An exemption would be required to operate in lesser minimum visibility.

Under subregulation 308 (1) of CAR 1988, CASA may exempt aircraft, or persons in, on, or otherwise associated with the operation of, the aircraft, from compliance with specified provisions of CAR 1988. Under subregulation 308 (2), before making an exemption CASA must take into account any relevant considerations relating to the interests of safety. Under subregulation 308 (3), CASA may make an exemption subject to any condition specified in the exemption as being necessary in the interests of safety. Under subregulation 308 (3A), it is an offence to contravene a condition of an exemption that is otherwise being relied upon for an operation.

Jetstar

On 25 September 2009, CASA made instrument CASA EX74/09 exempting Airbus A330 aeroplanes operated by Jetstar Airways Pty Limited (Jetstar) from the standard meteorological minima for take-off and landing. The substituted minima and relevant conditions for them have since been revised so that, for example, the A330 may take-off with less than 350 m runway visibility providing the take-off is at a fully functioning CAT II or CAT III aerodrome using RVR.

The new exemption revokes CASA EX74/09 and replaces it with more suitable minima and conditions.

Instrument and conditions

The instrument, in effect, exempts the aircraft operated by Jetstar inside and outside Australian Territory, from the minimum visibility requirements for take-off and landing in instrument CASA 146/08. However, to ensure the safety of air navigation, the exemption is subject to a series of performance conditions and limitations.

In essence, the operator must ensure that specified visibility standards are met for take-offs and landings that may be performed only at aerodromes properly equipped to support Category II operations. Flight crew training, experience, recency and competency must meet specified benchmarks. Aircraft equipment must be maintained. Operational restrictions and limitations must be observed. Appropriate foreign approvals for the operations must be obtained. A range of documents for inspection must be carried on board the aircraft.

More details of the exemption and its conditions are in Attachment 1.
Legislative Instruments Act
Under subparagraph 6 (d) (i) of the Legislative Instruments Act 2003 (the LIA), an instrument is a legislative instrument for section 5 of the LIA if it is declared to be a disallowable instrument under legislation in force before the commencement of the LIA. Under subregulation 308 (4) of CAR 1988, an exemption is a disallowable instrument. The exemption is, therefore, a legislative instrument and it is subject to tabling and disallowance in the Parliament under sections 38 and 42 of the LIA.

Consultation
Consultation under section 17 of the LIA has not been undertaken in this case. The instrument is required by Jetstar to enable low visibility take-offs and CAT II landings inside and outside Australian territory consistent with the standards and requirements specified in the instrument which are not considered prejudicial to the interests of safety.

Office of Best Practice Regulation
The exemption would be of beneficial effect to the operator. The Office of Best Practice Regulation does not require preparation of a Regulation Impact Statement in this case because a preliminary assessment of business compliance costs in the context of the nature of the instrument indicates that it will have only a nil to low impact on business.

Making and commencement
The exemption has been made by a delegate of CASA in accordance with subregulation 7 (1) and regulation 308 of CAR 1988.

The instrument comes into effect on the day after it is registered. It stops having effect at the end of September 2011.

[Instrument number CASA EX88/09]
Details of exemption

1 Duration
The exemption commences on the day after it is registered, and stops having effect at the end of 30 September 2011.

2 Revocation
Instruments CASA EX74/09 is revoked.

3 Definitions
A large number of relevant terms are given specific definitions for the purposes of the exemption.

4 Application
The instrument is expressed to apply only to A330 aeroplanes operated by Jetstar in an LVO take-off or landing at an aerodrome when both of the following apply, namely, ATC is in operation, and ATC has informed the pilot of the aircraft that low visibility procedures are in force.

5 Exemption
By virtue of this exemption, each A330 aeroplane operated by Jetstar is exempt from compliance with regulation 257 of CAR 1988 in relation to the standard take-off and landing minima determined by CASA under subregulation 257 (1) of CAR 1988 (in CASA 146/08). A Note indicates that details of the determination are set out in AIP En Route 1.5, sections 4.3 and 4.4.

6 Conditions
The exemption is subject to key conditions. Thus:
(a) each aircraft must use not less than the aerodrome minima mentioned for it in Schedule 1, in accordance with Schedule 1; and
(b) the requirements mentioned in Schedule 2 must be complied with.

Schedule 1 Aerodrome minima for low visibility operations

1 This clause provides that at aerodromes with the facilities required and operating to support low visibility take-offs, the following are the take-off minima that may be used by the aircraft mentioned:

<table>
<thead>
<tr>
<th>Type of aerodrome and aircraft</th>
<th>Runway zone RVR and RV (in metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TDZ</td>
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<td><strong>CAT II or CAT III aerodromes</strong></td>
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<td></td>
</tr>
<tr>
<td>A330</td>
<td>350</td>
</tr>
</tbody>
</table>

2 This clause provides that at aerodromes with the facilities required and operating to support CAT II or CAT III landing operations, the following are the landing minima that may be used by the aircraft mentioned:
## Landing minima

<table>
<thead>
<tr>
<th>Type of landing operation and aircraft</th>
<th>DH (feet)</th>
<th>Runway zone RVR (metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>TDZ</td>
</tr>
<tr>
<td><strong>CAT II</strong> A330</td>
<td>100</td>
<td>300</td>
</tr>
</tbody>
</table>

3. Under this clause, the aircraft operation must observe the visibility, controlling zone and runway lighting and marking requirements that are set out in the clause.

## Schedule 2 Requirements for LVO

This Schedule sets out the detailed pilot training and operational requirements for an LVO take-off, and includes a sample training course syllabus.