Advisory Circular

AC139-5

Aerodrome design, aeroplanes above 5700kg MCTOW **Initial Issue**

01 July 2002

GENERAL

Civil Aviation Authority Advisory Circulars (AC) contain information about standards, practices and procedures that the Director has found to be an Acceptable Means of Compliance (AMC) with the associated rule.

An AMC is not intended to be the only means of compliance with a rule, and consideration will be given to other methods of compliance that may be presented to the Director. When new standards, practices or procedures are found to be acceptable, they will be added to the appropriate Advisory Circular.

PURPOSE

This Advisory Circular (AC) provides methods, acceptable to the Director, for showing compliance with the aerodrome design requirements of Part 139 and explanatory material to assist in showing compliance. The AC also provides guidance to operators of non-certificated aerodromes serving aircraft in excess of 5700kg MCTOW.

RELATED CAR

This AC relates specifically to Civil Aviation Rule 139.51.

CHANGE NOTICE

There was no previous issue of this AC, consequently no change is in effect.

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Chapter 1 — Aerodrome Design

1.1 General

1.1.1 It is important for operators of certificated or non-certificated aerodromes to ensure that their aerodrome meets the aerodrome design standards commensurate with the types of aircraft using the aerodrome. This will ensure that aircraft operators intending to use an aerodrome will be able to do so without any limitations placed on the operation of their aircraft.

1.1.2 Aerodrome design encompasses—

(1) physical characteristics; and

(2) obstacle limitation surfaces; and

(3) visual aids for—

- navigation; and
- denoting obstacles; and
- denoting restricted use areas

(4) equipment and installations.

1.1.3 Operating rules for aircraft operators engaged in air operations specify the same aerodrome design requirements as those for the aerodrome operator. It follows therefore that, if an aerodrome does not meet the design requirements for a certain type of aircraft, that aircraft type would be unable to use that aerodrome.

CHAPTER 2 — Aerodrome Design Requirements

2.1 General

2.1.1 Part 139, rule 139.51(b) requires that the “physical characteristics, obstacle limitation surfaces, visual aids, and equipment and installations provided at the aerodrome must be acceptable to the Director”.

2.1.2 While Part 139 deals with the certification and operation of aerodromes, operators of non-certificated aerodromes should, to ensure that aircraft engaged in air operations can use their aerodromes, also comply with the same aerodrome design requirements.

2.2 Aerodrome design

2.2.1 The Director, in accordance with rule 139.51(b), specifies that the aerodrome design standards and recommended practices contained in ICAO Annex 14, Volume 1,Aerodrome Design and Operations, as amended from time to time, are acceptable for the purpose of this rule. Annex 14 makes reference to number of associated ICAO manuals that provide greater detail and information on various aspects of aerodrome design and the aerodrome operator should refer to them as required.

2.3 International aerodromes

2.3.1 It is imperative that operators of international aerodromes comply with the recognised ICA Annex 14 standards and recommended practices for the design and operation of their aerodrome.

2.3.2 An international aerodrome that does not meet the ICAO standards and recommended practices could face a ban on the use of that aerodrome by overseas civil aviation authorities thus affecting the viability of their aerodrome and contrary to the national interest.

2.3.3 Operators of international aerodromes should comply with the standards and recommended practices contained in Annex 14 Volume 1 with respect to any component of their aerodrome that can be used by aircraft engaged in international air services.

2.4 Domestic aerodromes

2.4.1 The standards and recommended practices of Annex 14 Volumes 1 and II, if practical, be complied with at domestic aerodromes.

2.4.2 Papua New Guinea (PNG), as is the case in many other countries, has developed standards and practices for domestic aerodromes taking into account it's particular environment and the practicality of full compliance with Annex 14. These same standards can b applied at international aerodromes for facilities used solely for domestic flight operations.

2.4.3 The domestic differences are generally limited to the aerodrome design characteristics (manoeuvring areas) and some equipment and installations the likes of RFS.

2.4.4 Runways and their associated runway strips, approach and take-off climb surfaces should not be less than the dimensions contained in the following Table.

Domestic Aerodrome Standards

Minimum runway width		23 m
Graded runway strip width		60 m
Total runway strip width		90 m
Runway strip length		Runway length plus 30 m beyond the runway end [1]
Longitudinal runway slope		2%
Maximum rate of runway longitudinal slope per 30m		0.5%
Maximum transverse slope for runway and runway strip		2.5%
Approach area surface	Width inner edge	90 m
	Divergence (splay)	10%
	Length	1500 m
	Gradient	3.3%
	Distance from threshold	30 m
Take-off climb area and surface	Width inner edge	90 m
	Divergence (splay)	10%
	Length	1500 m
	Distance from runway end	30 m
	Maximum gradient	2.5%
	Desirable gradient	2.5%

Note 1 — The 30m extension of the runway strip beyond the ends of the runway may be reduced to a total width of 30m and that portion of the runway strip surface may not be suitable for premature aircraft touchdown.