

**DEPARTMENT OF CIVIL AVIATION
MALAYSIA
AIRWORTHINESS NOTICE**

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**Airborne ILS (Localiser), VOR and VHF Communications Receivers
Improved FM Broadcast Interference Immunity Standards**

1 INTRODUCTION

- 1.1 There have been actions by the FAA and JAA to protect ILS operations and to ensure the safety of aircraft fitted with navigation receivers that did not meet improved FM broadcast immunity standards established by ICAO.
- 1.2 The interference risk arises following the decision taken at the 1979 World Administrative Radio Conference (WARC-79) of the International Telecommunication Union, which became effective from 1 January 1998, to extend the VHF FM sound broadcasting band from an upper limit of 100 MHz to 108 MHz in ITU Region 1 and parts of Region 3, i.e. Europe, Africa, Russia and the Middle East. Use by broadcasters of the extended band increases the risk of interference to the aeronautical VHF navigation (ILS localiser and VOR) and VHF communication services.

2. EQUIPMENT STANDARDS

- 2.1 To counteract the expected interference problem, ICAO, in association with the aeronautical industry, developed and agreed improved performance standards for ILS localiser, VOR and VHF communications receivers (now incorporated in ICAO Annex 10, Volume I Radio Navigation Aids, Fifth Edition dated July 1996, Chapter 3, Paragraphs 3.1.4, 3.3.8, and Volume III, Part II Voice Communications Systems, Paragraph 2.3.3).
- 2.2 Acceptable Minimum Operational Performance Specifications, consistent with ICAO Annex 10, are shown in the following table:

EQUIPMENT	JAA	EUROCAE	RTCA
ILS Navigation	JTSO-2C36f	ED-46B	DO-195
VOR Navigation	JTSO-2C40c	ED-22B	DO-196
VHF Communication	JTSO-2C38e	ED-23B	DO-186

- 2.3 ICAO Annex 10 recommends that equipment meeting the improved immunity performance standards should be placed into operation at the earliest possible date.

3. AERONAUTICAL AND BROADCAST STATION PLANNING

- 3.1 The DCA recognizes that after 1 January 2001, all new broadcasting stations in areas mentioned in para 1.2 above will be planned using less stringent criteria on the basis that ILS localiser and VOR receivers meet the improved FM immunity standards.
- 3.2 It is also recognized that the station planning policy does not offer any additional protection to non-FM immune VHF Communication receivers.

4. CONSEQUENCES OF NON-COMPLIANCE WITH THE ICAO STANDARDS

- 4.1 The continued operation after 1 January 1998 of non-immune ILS localiser and VOR receivers in the regions stated in para 1.2 above may render those receivers liable to interference which could lead to a serious degradation in navigation performance. Aircraft with non-immune ILS localiser or VOR receivers may be subject to operating restrictions that deny those aircraft the use of routes, terminal area and instrument approach procedures affected by interference.
- 4.2 Whilst ICAO Annex 10 and the Minimum Operational Performance Specifications referenced in paragraph 2.2 have specified an improved interference immunity standard for VHF Communications receivers, the risk to safety due to FM broadcast interference with communications is less than that for navigation. Furthermore, many aircraft now comply with this aspect of the ICAO standard having met the new requirements for installation of VHF communications receivers with 8.33 kHz channel spacing. Recognising the reduced risk, paragraph 5 of this Notice permits a relaxation from the ICAO standard for VHF communication receivers carried in aircraft of 5700kg MTWA or less.

5. REQUIREMENTS

5.1 Requirements for ILS localiser and VOR receivers not meeting the improved FM broadcast immunity standards may continue to be used for IFR operations provided that:

- a) Means are provided to identify to flight crews non-immune receivers, so that any consequential operating restriction, as notified in Aeronautical Information Publications (AIP), may be observed. A flight deck placard, visible to the flight crew, identifying the affected navigational system, is an acceptable means of compliance; and
- b) Air Operator Certificate (AOC) holders produce operational and maintenance procedures to comply with the above requirements and the operating restrictions.

5.2 Requirements for ILS localiser and VOR receivers effective from 1 January 2003:

- (a) ILS localiser and VOR receivers, required to be carried by Malaysian registered aircraft for the purposes of operations under Instrument Flight Rules (IFR) in accordance with applicable airworthiness and operational regulations and para 1.2 above, must be of a type approved as complying with the improved FM broadcast immunity standard.
- (b) Where non-immune ILS localiser and VOR receivers remain installed, (i.e. those carried in addition to the minimum number required by applicable airworthiness and operational regulations to meet IFR), they must be identified to the flight crew or as per para 5.1 (a) above.

5.3 Requirements for VHF communications receivers effective from 1 January 2003:

Except as otherwise provided in **exception (a) or (b)** below, where an application is made for the issue Certificate of Airworthiness upon registration of an aircraft in Malaysia, VHF communications receivers, required to be carried by aeroplanes over 5700 kg MTWA for the purposes of operations under IFR in accordance with applicable airworthiness and operational regulations, must be of a type approved as complying with the improved FM broadcast immunity standard.

- (a) Where non-immune VHF communications receivers remain installed in Malaysian registered aircraft over 5700 kg MTWA, and flying in Malaysian airspace (i.e. those carried as required by applicable airworthiness and operational regulations to meet IFR), they must be identified so as to alert flight crews to the potential risk of interference.
- (b) Malaysian registered aircraft of 5700 kg MTWA or less, and Malaysian registered helicopters, may continue to be operated under IFR with non-immune VHF communications receivers provided that the receivers are identified so as to alert flight crews to the potential risk of interference.

NOTE: (1) Paragraph 5.3 is intended for Malaysian airspace and other areas identified by ITU.

NOTE: (2) DCA will continue to monitor reports of interference and, if necessary in the light of experience, reconsider this relaxation from the ICAO standard for VHF communication receivers carried by aircraft of 5700kg MTWA or less.

5.4 Operating limitations must continue to be observed for ILS localiser, VOR and VHF communications receivers carried in aircraft of 5700kg MTWA or less, and approved in the Restricted Category Light Aircraft (LA) Class 3 (see BCAR Section R, Chapter R3-3,4 and Appendix to Chapter R3-1, 1.1.4, or CAP 208 Volume 2 — Foreword, paragraph 3.2) or the FAA equivalent.

NOTE: Such equipment may not be used to comply with a requirement for the mandatory carriage of radio equipment on aircraft for which the Certificate of Airworthiness first issued after the date of issue of this notice.

6. FURTHER INFORMATION

Aircraft operators are advised to contact their equipment suppliers to obtain information on the availability of modification kits or replacement equipment meeting the improved FM immunity standards. This information is not available from DCA.

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