



4/8/06

Transmittal Note

SUPPLEMENT TO
ANNEX 10 — AERONAUTICAL TELECOMMUNICATIONS
VOLUME I
(RADIO NAVIGATION AIDS)
(Fifth Edition)

1. The attached Supplement supersedes all previous Supplements to Annex 10, Volume I, and includes differences notified by Contracting States up to 4 August 2006 with respect to all amendments up to and including Amendment 80.
 2. This Supplement should be inserted at the end of Annex 10, Volume I (Fifth Edition). Additional differences and revised comments received from Contracting States will be issued at intervals as amendments to this Supplement.
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**SUPPLEMENT TO
ANNEX 10 — AERONAUTICAL TELECOMMUNICATIONS**

**Volume I
(Radio Navigation Aids)**

(Fifth Edition)

Differences between the national regulations and practices of Contracting States and the corresponding International Standards and Recommended Practices contained in Annex 10, Volume I, as notified to ICAO in accordance with Article 38 of the *Convention on International Civil Aviation* and the Council's resolution of 21 November 1950.

AUGUST 2006

INTERNATIONAL CIVIL AVIATION ORGANIZATION

RECORD OF AMENDMENTS TO SUPPLEMENT

<i>No.</i>	<i>Date</i>	<i>Entered by</i>	<i>No.</i>	<i>Date</i>	<i>Entered by</i>

**AMENDMENTS TO ANNEX 10, VOLUME I, ADOPTED OR APPROVED BY THE COUNCIL
SUBSEQUENT TO THE FIFTH EDITION ISSUED JULY 1996**

<i>No.</i>	<i>Date of adoption or approval</i>	<i>Date applicable</i>	<i>No.</i>	<i>Date of adoption or approval</i>	<i>Date applicable</i>
72	not applicable to Volume I				
73	19/3/98	5/11/98			
74	18/3/99	4/11/99			
75	not applicable to Volume I				
76	12/3/01	1/11/01			
77	27/2/02	28/11/02			
78	not applicable to Volume I				
79	23/2/04	25/11/04			
80	25/2/05	24/11/05			

1. Contracting States which have notified ICAO of differences

The Contracting States listed below have notified ICAO of differences which exist between their national regulations and practices and the International Standards and Recommended Practices of Annex 10, Volume I (Fifth Edition) up to and including Amendment 80, or have commented on implementation.

The page numbers shown for each State and the dates of publication of those pages correspond to the actual pages in this Supplement.

<i>State</i>	<i>Date of notification</i>	<i>Pages in Supplement</i>	<i>Date of publication</i>
Australia	20/10/05	1-2	4/8/06
Canada	24/10/05	1-2	4/8/06
Chile	14/10/05	1	4/8/06
China (Hong Kong SAR)	24/10/05	1	4/8/06
Denmark	22/6/05	1	4/8/06
France	14/11/05	1	4/8/06
Germany	20/10/05	1	4/8/06
New Zealand	27/11/05	1	4/8/06
Norway	19/8/05	1	4/8/06
Sweden	24/10/05	1	4/8/06
Switzerland	29/7/05	1	4/8/06
United Kingdom	28/4/06	1-3	4/8/06

2. Contracting States which have notified ICAO that no differences exist

<i>State</i>	<i>Date of notification</i>	<i>State</i>	<i>Date of notification</i>
Argentina	14/11/05	Romania	20/10/05
Austria	14/6/05	Saudi Arabia	24/8/05
Azerbaijan	26/8/05	Singapore	5/7/05
Belgium	27/10/05	Slovakia	4/11/05
Bolivia	2/6/05	Slovenia	30/6/05
China	14/6/05	South Africa	13/5/05
Egypt	13/7/05	The former Yugoslav Republic of Macedonia	4/7/05
Gambia	8/6/05	Tunisia	18/7/05
Greece	5/10/05	Turkey	5/7/05
India	27/7/06	United Arab Emirates	24/5/05
Iran (Islamic Republic of)	30/7/05	United States	30/6/05
Ireland	24/10/05	Uruguay	4/4/06
Lithuania	16/8/05	Uzbekistan	11/10/05
Malaysia	16/6/05	Venezuela	12/7/05
Republic of Moldova	12/9/05		

3. Contracting States from which no information has been received

Afghanistan	Gabon	Nicaragua
Albania	Georgia	Niger
Algeria	Ghana	Nigeria
Andorra	Grenada	Oman
Angola	Guatemala	Pakistan
Antigua and Barbuda	Guinea	Palau
Armenia	Guinea-Bissau	Panama
Bahamas	Guyana	Papua New Guinea
Bahrain	Haiti	Paraguay
Bangladesh	Honduras	Peru
Barbados	Hungary	Philippines
Belarus	Iceland	Poland
Belize	Indonesia	Portugal
Benin	Iraq	Qatar
Bhutan	Israel	Republic of Korea
Bosnia and Herzegovina	Italy	Russian Federation
Botswana	Jamaica	Rwanda
Brazil	Japan	Saint Kitts and Nevis
Brunei Darussalam	Jordan	Saint Lucia
Bulgaria	Kazakhstan	Saint Vincent and the Grenadines
Burkina Faso	Kenya	Samoa
Burundi	Kiribati	San Marino
Cambodia	Kuwait	Sao Tome and Principe
Cameroon	Kyrgyzstan	Senegal
Cape Verde	Lao People's Democratic Republic	Serbia
Central African Republic	Latvia	Seychelles
Chad	Lebanon	Sierra Leone
Colombia	Lesotho	Solomon Islands
Comoros	Liberia	Somalia
Congo	Libyan Arab Jamahiriya	Spain
Cook Islands	Luxembourg	Sri Lanka
Costa Rica	Madagascar	Sudan
Côte d'Ivoire	Malawi	Suriname
Croatia	Maldives	Swaziland
Cuba	Mali	Syrian Arab Republic
Cyprus	Malta	Tajikistan
Czech Republic	Marshall Islands	Thailand
Democratic People's Republic of Korea	Mauritania	Timor-Leste
Democratic Republic of the Congo	Mauritius	Togo
Djibouti	Mexico	Tonga
Dominican Republic	Micronesia (Federated States of)	Trinidad and Tobago
Ecuador	Monaco	Turkmenistan
El Salvador	Mongolia	Uganda
Equatorial Guinea	Morocco	Ukraine
Eritrea	Mozambique	United Republic of Tanzania
Estonia	Myanmar	Vanuatu
Ethiopia	Namibia	Viet Nam
Fiji	Nauru	Yemen
Finland	Nepal	Zambia
	Netherlands	Zimbabwe

4. Paragraphs with respect to which differences have been notified

<i>Paragraph</i>	<i>Differences notified by</i>	<i>Paragraph</i>	<i>Differences notified by</i>
2.1.1.2	United Kingdom	3.1.5.3	Canada
2.1.1.3	United Kingdom		China (Hong Kong SAR)
2.1.2.1	Canada		New Zealand
	New Zealand		Sweden
2.1.4	United Kingdom	3.1.5.3.1	Norway
2.2.1.1	United Kingdom		Switzerland
2.7.1	Canada		United Kingdom
	France	3.1.7	Canada
	New Zealand	3.1.7.1	China (Hong Kong SAR)
	Norway	3.1.7.3.1	United Kingdom
	Sweden	3.1.7.6.2.1	Denmark
	United Kingdom		New Zealand
2.8.1	France		Norway
	Germany	3.1.7.6.3.1	New Zealand
3.1.2	Norway	3.1.7.6.6	United Kingdom
3.1.2.1	France	3.1.7.7.2	United Kingdom
	Germany	3.3.4.1	United Kingdom
3.1.3.3	Canada	3.3.5.2	France
	China (Hong Kong SAR)	3.3.5.3	France
	New Zealand		Germany
3.1.3.3.1	Norway	3.3.6.1	United Kingdom
	Switzerland	3.3.6.5	Sweden
3.1.3.3.2	United Kingdom	3.3.7.1	Canada
3.1.3.3.2.1	United Kingdom	3.3.8	Canada
3.1.3.3.2.2	United Kingdom		China (Hong Kong SAR)
3.1.3.3.2.3	United Kingdom		New Zealand
3.1.3.3.4	United Kingdom		Norway
3.1.3.3.5	United Kingdom	3.3.8.1	Australia
3.1.3.5.3.6	United Kingdom	3.3.8.2	Australia
3.1.3.6.2	United Kingdom	3.3.8.3	Australia
3.1.3.7.3	United Kingdom	3.3.8.4	Australia
3.1.3.7.4	Canada	3.4.5.2	United Kingdom
3.1.3.10	Canada	3.4.5.4	France
3.1.3.10.1	Norway		United Kingdom
3.1.4	Canada	3.4.6.1.1	United Kingdom
	China (Hong Kong SAR)	3.4.6.4	United Kingdom
	New Zealand	3.4.8	Canada
	Norway	3.4.8.2	New Zealand
3.1.4.1	Australia	3.4.8.4	New Zealand
3.1.4.2	Australia	3.5.2.1	Australia
3.1.4.3	Australia	3.5.2.2	Australia
3.1.4.4	Australia	3.5.2.3	Australia
3.1.5.1.2.1	Denmark	3.5.2.6.1	Canada
3.1.5.1.2.2	United Kingdom	3.5.3.1.3.1	Australia
3.1.5.1.5	Canada	3.5.3.4.1	Australia
	Norway	3.5.3.4.2	Australia
	United Kingdom	3.5.3.4.3	Australia

3.5.3.4.4	Australia	3.5.5.3.3.1	Australia
3.5.3.6.3	New Zealand	3.5.5.3.4.1	Australia
3.5.4.1.5.1	Australia	3.5.5.3.4.2	Australia
3.5.4.2.3.1	Canada	3.5.5.3.5.1	Australia
3.5.4.7.2	Canada	3.5.5.3.5.2	Australia
3.5.4.7.2.1	New Zealand	3.5.5.4.1	Australia
3.5.4.7.2.3	New Zealand	3.5.5.4.3.1	Australia
3.5.5.1.1	Australia	3.5.5.4.3.2	Australia
3.5.5.1.2	Australia		
3.5.5.1.3	Australia	3.11.6.1.1.1	Australia
3.5.5.1.4.1	Australia	3.11.6.1.1.2	Australia
3.5.5.1.4.2	Australia	3.11.6.1.1.3	Australia
3.5.5.1.4.3	Australia	3.11.6.1.2.1	Australia
3.5.5.1.6	Australia	3.11.6.1.2.2	Australia
3.5.5.1.7	Australia	3.11.6.1.3.1	Australia
3.5.5.2.1	Australia	3.11.6.1.4	Australia
3.5.5.2.2	Australia		
3.5.5.2.3	Australia	Attachment B	Chile
3.5.5.3.1	Australia		
3.5.5.3.2.1	Australia	Attachment C	France
3.5.5.3.2.3	Australia		

CHAPTER 3

- 3.1.4.1 Australian legislation does not specify FM immunity requirements for ILS localizer and VOR
 3.1.4.2 airborne receiving systems.
 3.1.4.3
 3.1.4.4* *Remark:* FM interference was not considered to be a significant issue due to the low density
 3.3.8.1 population centres. FM transmissions were not widespread. The values of tolerable unwanted
 3.3.8.2 signals are used to coordinate FM broadcast stations. In practice, Australian aircraft engaged in
 3.3.8.3 international operations are required to conform to the rules and regulations of the country in
 3.3.8.4* which they are operating. Legislation is currently under review.
- 3.5.2.1 Standards presently available for the specifications, fitment and operation of airborne DME
 3.5.2.2 equipment do not conform to the Annex Standards.
 3.5.2.3
 3.5.3.1.3.1 *Remark:* Australian legislation is under review. In practice, Australian aircraft engaged in
 3.5.3.4.1 international operations are required to conform to the rules and regulations of the country in
 3.5.3.4.2 which they are operating.
 3.5.3.4.3*
 3.5.3.4.4
- 3.5.4.1.5.1* Australia has not specified a peak pulse power density of approximately minus 83 dBW/m² at the
 maximum specified service range and level as per this recommendation. However, it has specified
 a peak pulse power density of approximately minus 89 dBW/m² at the maximum specified service
 range and level in accordance with the Standard in 3.5.4.1.5.2.
- 3.5.5.1.1 Standards presently available for the specifications, fitment and operation of airborne DME
 3.5.5.1.2 equipment do not conform to the Annex Standards.
 3.5.5.1.3
 3.5.5.1.4.1 *Remark:* Australian legislation is under review. In practice, Australian aircraft engaged in
 3.5.5.1.4.2 international operations are required to conform to the rules and regulations of the country in
 3.5.5.1.4.3* which they are operating.
 3.5.5.1.6
 3.5.5.1.7*
 3.5.5.2.1
 3.5.5.2.2
 3.5.5.2.3
 3.5.5.3.1
 3.5.5.3.2.1
 3.5.5.3.2.3
 3.5.5.3.3.1
 3.5.5.3.4.1
 3.5.5.3.4.2
 3.5.5.3.5.1
 3.5.5.3.5.2
 3.5.5.4.1
 3.5.5.4.3.1

* Recommended Practice

3.5.5.4.3.2 Not relevant to Australian environment.

Remark: Australia does not operate DME/P.

3.11.6.1.1.1 No Standards have been specified for airborne MLS equipment.

3.11.6.1.1.2

3.11.6.1.1.3

Remark: Australian legislation is under review. In practice, Australian aircraft engaged in international operations are required to conform to the rules and regulations of the country in which they are operating.

3.11.6.1.2.1

3.11.6.1.2.2

3.11.6.1.3.1

3.11.6.1.4

CHAPTER 2

- 2.1.2.1 a) ILS installations do not include VHF marker beacons, so equipment described as ILS does not conform to the VHF marker beacon standards of Chapter 3, 3.1.7.1 a).
- 2.7.1 NDBs are not subject to periodic flight tests.

CHAPTER 3

- 3.1.3.3 Some localizers may not meet the full lateral extent of coverage sector requirements. In such cases, approach procedure design will assure aircraft remain within areas of adequate signal coverage. Any operational restrictions will be duly annotated on the approach plate.
- 3.1.3.7.4 In some cases, the localizer may not meet the minimum DDM required to the full lateral extent of the requirement. In such cases, approach procedure design will assure aircraft remain within areas of adequate signal coverage. Any operational restrictions will be duly annotated on the approach plate.
- 3.1.3.10 Where site constraints dictate, the localizer antenna system is offset from the centre line of the runway and is adjusted so that the course lines intersect the extended runway centre line. In such cases, the alignment will be duly annotated on the approach plate.
- 3.1.4 Receivers are not required to meet this Standard in Canada because the frequency requirements are engineered using a system of prediction techniques, coordination procedures and controls of FM station operating parameters to eliminate interference problems and ensure that aviation operations can be conducted safely without the need for this requirement.
- 3.1.5.1.5* This specification is followed for new ILS, but for some existing ones, the height of the reference datum may be as low as 45 ft.
- 3.1.5.3 Some glide paths may not meet the full lateral extent of coverage sector requirements. In such cases, approach procedure design will assure aircraft remain within areas of adequate signal coverage. Any operational restrictions will be duly annotated on the approach plate.
- 3.1.7 ILS installations and back-course localizers do not have VHF marker beacons. NDB, DME, GNSS or other suitable means will provide for the function marker beacons previously fulfilled.
- 3.3.7.1 Certain VOR/DME used solely for en-route navigation do not provide an indication at a control point. These facilities will be annotated as “unmonitored” on the navigation charts.
- 3.3.8 Receivers are not required to meet this Standard in Canada because the frequency requirements are engineered using a system of prediction techniques, coordination procedures and controls of FM station operating parameters to eliminate interference problems and ensure that aviation operations can be conducted safely without the need for this requirement.
- 3.4.8 Certain NDB do not provide an indication at a control point. These facilities will be annotated as “unmonitored” on the navigation charts.
- 3.5.2.6.1 b) Separation distance of up to 80 m between collocated VOR and DME used in terminal areas is allowed for Conventional VOR as well as Doppler VOR.

* Recommended Practice

- 3.5.4.2.3.1 a) The minimum transponder sensitivity for DME/N not supporting en-route applications is -86 dBW/m² (same as for DME/P IA mode).
- 3.5.4.7.2 Certain VOR/DME used solely for en-route navigation do not provide an indication at a control point. These facilities will be annotated as “unmonitored” on the navigation charts.
-

ATTACHMENT B

- 3.3 and 4 b) These will not be applicable as our country is not considering using MLS.
- 3.4 d) It is not expected that GNSS with ground-based augmentation system (GBAS) will be operational by the date indicated in 3.4 d).
-

CHAPTER 3

- 3.1.3.3 The RWY 07L and 07R localizers at the Hong Kong International Airport do not meet standard coverage criteria. The RWY 25L and 25R localizers at the Hong Kong International Airport do not meet standard coverage criteria.

Remark: The difference is due to airport terrain limitations, but because such limitations have already been taken into account in the promulgated approach procedures, withdrawal of this difference is not expected.

- 3.1.4 ILS localizer and VOR receivers, required to be carried by Hong Kong registered aircraft for the purposes of operations under Instrument Flight Rules in accordance with applicable airworthiness and operational regulations, must be of a type approved as complying with the improved FM broadcast immunity Standard.

Remark: For aircraft of 5 700 kg maximum total weight authorized or less, an acceptable means of compliance is to placard and restrict non-immune receivers to operations permitted under the Restricted Approval Category LA Class 3, irrespective of the approval category for that equipment.

- 3.1.5.3 The RWY 25L and 25R glide paths at the Hong Kong International Airport do not meet standard coverage criteria.

Remark: The difference is due to airport terrain limitations, but because such limitations have already been taken into account in the promulgated approach procedures, withdrawal of this difference is not expected.

- 3.1.7.1 No marker beacons are installed for RWY 07R and 25L ILS at the Hong Kong International Airport. No marker beacons are installed for RWY 07L and 25R ILS at the Hong Kong International Airport.

Remark: Since DME collocated with the glide path equipment is installed as an alternative, withdrawal of this difference is not expected.

- 3.3.8 ILS localizer and VOR receivers, required to be carried by Hong Kong registered aircraft for the purposes of operations under Instrument Flight Rules in accordance with applicable airworthiness and operational regulations, must be of a type approved as complying with the improved FM broadcast immunity Standard.

Remark: For aircraft of 5 700 kg maximum total weight authorized or less, an acceptable means of compliance is to placard and restrict non-immune receivers to operations permitted under the Restricted Approval Category LA Class 3, irrespective of the approval category for that equipment.

CHAPTER 3

- 3.1.5.1.2.1* A small number of glide paths will, for operational reasons, be retained with a glide path angle of 2.75 degrees.
- 3.1.7.6.2.1* The middle markers are not located at standard distances but are preferably located where the glide path height is 300 ft \pm 20 ft above threshold level.
-

* Recommended Practice

CHAPTER 2

- 2.7.1 NDBs are not subject to periodic flight tests.
- 2.8.1 In France, information on the operational status of radio navigation aids essential for approach, landing and take-off is not provided to aerodrome control towers and units providing approach control service for **initial** approaches and RNAV operations, in particular when GNSS is the radio navigation aid.

CHAPTER 3

- 3.1.2.1 c) Most of the marker beacons (metropolitan France and overseas) do not comprise remote control equipment since they are designed to operate on a continuous basis.
- Remark:* The marker beacons are being progressively replaced by landing DMEs at aerodromes equipped with an ILS.
- 3.3.5.2 The depth of modulation of the radio frequency carrier of the Doppler VOR variable phase (subcarrier of 9 960 Hz) shall be within 20 to 40 per cent.
- 3.3.5.3 The depth of modulation of the radio frequency carrier of the Doppler VOR variable phase (subcarrier of 9 960 Hz) shall be within 20 to 40 per cent.
- 3.4.5.4 Most of the beacons operate in A1. The bandwidth occupied by the emission is thus reduced as compared to A2 modulation.
- Remark:* The operation of the beacons in A1 facilitates frequency allocations for a very large number of facilities.

Attachment C

- 2.1.1 For Category II precision approaches, the RVR may be not less than 300 m for Category A, B and C aircraft and for Category D aircraft when they make an automatic landing.
- For Category IIIA and IIIB precision approaches, a decision height is always required.
- For Category IIIB, the RVR must not be less than 75 m.
- Category IIIC precision approaches are not applicable in France.
-

CHAPTER 2

- 2.8.1 Information **without delay** on the operational status of radio navigation aids is provided for ILS during operational hours, for other navigation aids, e.g. VOR/DME for approach and landing according to local agreements.

CHAPTER 3

- 3.1.2.1 c) Outer marker beacons are being progressively replaced by DME fixpoints at aerodromes equipped with an ILS.

Remarks: Chapter 3.1.7.6.6 refers.

- 3.3.5.3 Germany accepts the depth of modulation within the limits of 25 per cent to 35 per cent.
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CHAPTER 2

2.1.2.1 DME may be used in place of markers.

2.7.1 Some non-directional beacons and locator beacons are not the subject of periodic flight tests.

Remarks: Stand-alone NDBs are only flight tested as required for special or post-accident/incident inspection.

CHAPTER 3

3.1.3.3 Because of siting problems and terrain limitations, some localizers do not meet Category I facility performance criteria for off-course clearance.

Remarks: Details of limitations are published in the AIP.

3.1.4 Not a mandatory requirement for ILS localizer receiving systems fitted to New Zealand registered aircraft.

3.1.5.3 Because of siting problems and terrain limitations, some glide paths do not meet Category I facility performance criteria up to 8 degrees in azimuth on each side of the centre line.

Remarks: Details of limitations are published in the AIP.

3.1.7.6.2.1* Due to topographical limitations, middle markers are not always at 1 050 m plus or minus 150 m from the landing threshold.

3.1.7.6.3.1* Due to topographical limitations, outer markers are not always located between 6.5 and 11.1 km from the landing threshold.

3.3.8 Not a mandatory requirement for VOR receiving systems fitted to New Zealand registered aircraft.

3.4.8.2* Mandatory Standard.

3.4.8.4* Mandatory Standard.

3.5.3.6.3 a) The beacon identity code signal must be transmitted at least once but not more than twice every 40 seconds with the code groups equally spaced.

3.5.4.7.2.1 a) Certain remotely sited DMEs do not provide an indication at a control point.

3.5.4.7.2.3* Mandatory Standard.

*Recommended Practice

CHAPTER 2

- 2.7.1 Non-directional and locator beacons in Norway are not subject to periodic flight tests.

CHAPTER 3

- 3.1.2 Some localizers are not associated with glide path or prescribed distance information (OM and/or MM and/or DME).
- 3.1.3.3.1 Some localizers do not meet Category I coverage criteria due to terrain.
- 3.1.3.10.1 Some localizers are not located on the extension of the centre line of the runway.
- 3.1.4 Mandatory compliance for ILS localizer receiving systems will be implemented for IFR flights as of 1 January 2006.
- 3.1.5.1.5* ILS reference datum is less than 50 ft at a few runways.
- 3.1.5.3.1 Some glide paths do not meet Category I coverage criteria due to terrain.
- 3.1.7.6.2.1* Some marker beacons are not located at recommended distances from the threshold.
- 3.3.8 Mandatory compliance for VOR receiving systems will be implemented for IFR flight as of 1 January 2006.
-

*Recommended Practice

CHAPTER 2

- 2.7.1 Non-directional and locator beacons are not subject to periodic flight tests.

CHAPTER 3

- 3.1.5.3 Some Category I glide paths do not meet the requirement of coverage up to ± 8 degrees on each side of the centre line. Details are published in the AIP. The reason for this is that radiation is shadowed by mountainous terrain.
- 3.3.6.5 Some VORs are transmitting identification signals at a speed of 10 words per minute.
-

CHAPTER 3

- 3.1.3.3.1 Not all ILS localizers and glide paths are compliant with the coverage requirements due to obstructions.
- 3.1.5.3.1 Not all ILS localizers and glide paths are compliant with the coverage requirements due to obstructions.
-

CHAPTER 2

- 2.1.1.2* The United Kingdom has no specific criteria published that prescribes the operational duration of established non-visual aids.
- 2.1.1.3 The United Kingdom does not prescribe the category of performance to be provided by an airport.
- 2.1.4* PARs are not used for civil aviation in the United Kingdom.
- Remarks:* The recommendation is to install PAR “where it will materially assist”. The United Kingdom view is that it would not “materially assist” at civil aerodromes.
- 2.2.1.1* No requirement exists to meet this recommendation.
- Remarks:* Modern navigation systems cross-check their performance to indicate any loss of accuracy but the United Kingdom will review this recommendation. The United Kingdom has a high density of VORs and finding spare frequencies for VOR test facilities (VOT) would not be possible. We see no safety benefit in having this facility since ramp test sets are readily available in the United Kingdom.
- 2.7.1 Whereas the United Kingdom is compliant with this requirement for ILS, ILS associated DME, en-route DME, VOR and NDBs, it does not require regular flight testing of non-ILS DME.

CHAPTER 3

- 3.1.3.3.2 Some localizers are promulgated in AIP as having specific areas where signals do not meet specifications.
- Remarks:* This is worldwide standard practice where topography restricts or influences the signals.
- 3.1.3.3.2.1 The United Kingdom requirements are written in terms of usable signal.
- 3.1.3.3.2.2
- 3.1.3.3.2.3
- 3.1.3.3.4 The United Kingdom requires a minimum of 12 dB on centreline compared with 10 within course sector in SARP.
- 3.1.3.3.5* This is only applied to new CAT III localizers installed since the date this recommendation was introduced.
- Remarks:* This is a function of aerial design and cannot be changed by simple adjustment.
- 3.1.3.5.3.6* Several old CAT I and uncategorized systems do not meet this recommendation.
- Remarks:* This is a function of aerial design and cannot be changed by simple adjustment. Airports are advised at flight inspection if their system could give false capture on certain types of receivers.

* Recommended Practice

- 3.1.3.6.2* CAP 670 inspection limits for CAT II are ± 17.5 feet.
- Remarks:* Facilities with a 180-day flight inspection interval have to meet a closer tolerance than this recommendation (approximately 80 per cent of localizers). The three Cat II systems in the United Kingdom comply.
- 3.1.3.7.3* CAT II inspection limits are ± 17 per cent.
- Remarks:* Facilities with a 180-day flight inspection interval which includes all United Kingdom Cat III systems have limits of 12.8 per cent which we believe is sufficiently tight.
- 3.1.5.1.2.2 The glide path angle for CAT I/II is 0.06.
- 3.1.5.1.5* Some CAT I systems have reference datum heights between 40 and 50 feet.
- Remarks:* To insist on 50 feet at certain airports would reduce the useable runway length too much.
- 3.1.5.3.1 The United Kingdom accepts that some glide paths have restricted coverage — this is published in AIPs for each specific system.
- Remarks:* This is worldwide standard practice where topography restricts or influences the signals.
- 3.1.7.3.1 The United Kingdom still uses fly-through time corrected to 96 knots as in the original Annex 10. The rounding up and down of distances by ICAO means that United Kingdom limits are not precisely those now in Annex 10.
- Remarks:* The differences are less than the uncertainty of measurement; hence, in practice the United Kingdom complies. To change all the associated paperwork would be a nugatory exercise.
- 3.1.7.6.6 The United Kingdom permits DME as an alternative to markers regardless of whether provision is impracticable.
- Remarks:* The United Kingdom considers the DME to be a more useful aid to pilots than markers.
- 3.1.7.7.2* A few older beacons may not meet this recommendation.
- Remarks:* There are very few markers in the United Kingdom. The old facilities will soon be replaced by DME or modern markers which meet the recommendation.
- 3.3.4.1 The United Kingdom does not promulgate a specific requirement for coverage.
- Remarks:* Coverage and operational useable area is determined by flight check.
- 3.3.6.1 The United Kingdom does not promulgate a specification for radiation polarization.
- 3.4.5.2 The United Kingdom requirement is for three times every 30 s. On/off keying of carrier not allowed in UK paragraph 4.1.4.
- 3.4.5.4 400 Hz frequency required.

* Recommended Practice

3.4.6.1.1 On/off keying of carrier not allowed in the United Kingdom.

3.4.6.4* The United Kingdom allows a fall of up to 0.5 dB.

Remarks: To achieve no fall in carrier when modulating is almost impossible. The United Kingdom requirement is practical and has no discernable effect on aircraft equipment.

* Recommended Practice