



NOTICE OF PROPOSED AMENDMENT - NPA 02-2020

Date of Issue: 16th March 2020

SUBJECT:

YCAR PART VIII - SUBPART 2 - AERONAUTICAL INFORMATION SERVICES ORGANISATIONS REGULATIONS.

REASON:

The Civil Aviation and Meteorology Authority (CAMA) has recently conducted a review of (YCAR PART VIII - SUBPART 2 AERONAUTICAL INFORMATION SERVICES ORGANISATIONS REGULATIONS) to be in line with ICAO latest Amendment to Annex, and Doc 8697 and international best practices.

RECOMMENDATION:

This NPA is published to announce to the public amendment proposals to YCAR Part VIII – subpart 2 to entitle all concerned parties to:

- a) Review the attached proposed changes to regulation;
- b) Agree on the date of applicability to the proposed change set to 1st June 2020; and
- c) Send their comments on the changes and date of applicability to the below address by 16th April 2020.

Civil Aviation and Meteorology Authority (CAMA)
Aviation Safety Affairs Sector (ASAS)
E-mail: legislation.dir@cama.gov.ye
cc: civilaviation@y.net.ye



YCAR PART VIII

SUBPART 2

AERONAUTICAL INFORMATION SERVICES ORGANISATIONS

UNCONTROLLED COPY WHEN DOWNLOADED
Check with [CAMA Website](#) to verify current version before using

FOREWORD

1. The Civil Aviation and Met. Authority (hereinafter -Authority).
2. This requirement shall come in force from June 2020.
3. Compliance and interpretative material would be subsequently published prior to the enactment of this Requirement.
4. Future amendments of SUBPART 2 shall be harmonized with amendments to ICAO Annexes and Documents in a timely manner.
 - a. Annex 15 aeronautical information services as the base document to establish the requirements and standards. Additionally, ICAO documents 8126 aeronautical information services manual, ICAO document 8400 ICAO abbreviation and codes;
 - b. Annex 4 aeronautical information charts additionally Guidance material on the preparation of aeronautical charts are contained in the Aeronautical Chart Manual (Doc 8697) and (Doc. 8168 Volume II).
 - c. Annex 2 rules of the air and annex 11 air traffic services. Additionally, ICAO documents 4444 PANS – Air traffic management.
5. Definitions and abbreviations of terms used in SUBPART 2 shall always be interpreted as per the applicable international standards.
6. TRANSITION: An AIS Service Provider providing an AIS service at the date that this Rule Subpart comes into force, may continue to provide the same service for a period of three years, by which time a Certificate as required by this Subpart will be required.

RECORD OF ISSUES AND DATE OF APPLICABILITY

Issue No.	Date of issue	Date of applicability
Issue: Initial	November 2011	June 2013
Issue: 01	June 2013	November 2018
Issue 02	April 2019	An AIS Service Provider providing an AIS service at the date that this Rule Subpart comes into force, may continue to provide the same service for a period of three years, by which time a Certificate as required by this Subpart will be applicable on April 2022.
Issue: 03	April 2020	June 2020

HIGHLIGHT OF CHANGES

Amendment	Subject(s)	Issue Date
Issue 00	New regulations	November 2011
Issue 01	Amendment	June 2013
Issue 02	This regulation has been amended to be in line with the latest requirements of ICAO Annex 15	April 2019
Issue 03	YCAR-AIS has been amended to be in line with latest amendment of ICAO Annex 4, (Doc. 8168) and Volume II (Doc 8697).	April 2020

Table of Contents

FOREWORD	3
RECORD OF ISSUES AND DATE OF APPLICABILITY	2
HIGHLIGHT OF CHANGES.....	3
Table of Contents	4
SECTION A — GENERAL PROVISIONS	6
YCAR 2.1 Applicability.....	6
YCAR 2.2 Definitions and Acronyms	6
YCAR 2.3 Requirements for Certification	6
YCAR 2.4 Application for Certificate	6
YCAR 2.5 Issue of Certificate	7
YCAR 2.6 Privileges of Certificate.....	7
YCAR 2.7 Duration of Certificate.....	7
YCAR 2.8 Validity of Certificate	7
SECTION B — CERTIFICATION REQUIREMENTS.....	8
YCAR 2.9 Personnel Requirements	8
YCAR 2.10 Facility Requirements	8
YCAR 2.11 Responsibility and function for providing aeronautical information services	10
YCAR 2.12 Scope of Pre-Flight Information Service.....	11
YCAR 2.13 Documentation	12
YCAR 2.14 Collection of Information.....	13
YCAR 2.15 Publication of Aeronautical Information	13
YCAR 2.16 Records.....	20
YCAR 2.17 Internal Quality Assurance	21
YCAR 2.18 Safety Management	24
YCAR 2.19 Organizational Exposition.....	24
SECTION C — OPERATING REQUIREMENTS.....	26
YCAR 2.20 Continued Compliance	26
YCAR 2.21 Changes to an Aeronautical Information Service Provider Certificate	26
YCAR 2.22 Safety Inspections and Audits	27

SECTION D — YEMEN AIP SERVICE.....	28
YCAR 2.23 AIP General.....	28
YCAR 2.24 Contents of Yemen AIP.....	29
YCAR 2.25 Specifications of Yemen AIP.....	30
YCAR 2.26 Specifications for AIP Amendments	31
YCAR 2.27 Specifications for AIP Supplements.....	32
YCAR 2.28 Specifications for an AIC	33
YCAR 2.29 Specifications for Aeronautical charts	34
SECTION E — NOTAM SERVICE	68
YCAR 2.30 NOTAM Services General.....	68
YCAR 2.31 Specifications for NOTAM.....	68
YCAR 2.32 Distribution of NOTAM.....	73
SECTION F — PRE-FLIGHT INFORMATION SERVICE	74
YCAR 2.33 Pre-Flight Information Services General	74
YCAR 2.34 Automated Pre-Flight Information Services General	75
YCAR 2.35 Post Flight information.....	76
SECTION G — ELECTRONIC TERRAIN, OBSTACLE DATA AND AERODROME MAPPING DATA	77
YCAR 2.36 ELECTRONIC TERRAIN AND OBSTACLE DATA	77
YCAR 2.37 AERODROME MAPPING DATA	82
SECTION H — FLIGHT PLANS.....	85
YCAR 2.38 Flight Plans	85
YCAR 2.39 Shift Administration	87

SECTION A — GENERAL PROVISIONS

YCAR 2.1 Applicability

YCAR Part VIII, SUBPART 2 contains the Rules governing

- (a) Rules governing the operation of organizations providing an aeronautical information service for Yemen on behalf of the CAMA;
- (b) The requirements for Yemen integrated aeronautical information package, which consists of the following elements:
 - (1) AIP, including amendment services;
 - (2) Supplements to the AIP;
 - (3) NOTAM and pre- flight information bulletins (PIB);
 - (4) Aeronautical information circular (AIC);
 - (5) Checklists and lists of valid NOTAM
- (c) Rules for dealing with various types of flight plans; and
- (d) The copyright of any AIS product which shall be granted by CAMA .

YCAR 2.2 Definitions and Acronyms

- a) Definitions existing in ICAO Documents shall form part of this Rule, supplemented by the definitions contained in YCAR Part VIII, Subpart 1. Where there are differences between the definitions in the two sources, Subpart 1 has precedence.

YCAR 2.3 Requirements for Certification

- a) No person shall provide an Aeronautical Information Service for Sana'a FIR except under the authority of, and in accordance with the provisions of this YCAR Subpart.
- b) For the purpose of this YCAR Subpart, an aeronautical information service shall consist of one or more of the following services:
 - 1. An AIP service comprising the provision of;
 - i. Yemen AIP; and
 - ii. the AIP amendment service; and
 - iii. the AIP Supplement service; and
 - iv. the AIC service;
 - 2. A pre- flight briefing service;
 - 3. A NOTAM service;
 - 4. Rules for dealing with various types of flight plans; and
 - 5. The copyright of any AIS product which shall be granted by CAMA.
 - 6. Rules for producing and specifications of aeronautical charts.
- c) An integrated aeronautical information package shall include those services listed above with the addition of a checklist of valid NOTAM.

YCAR 2.4 Application for Certificate

- a) Each applicant for the grant of an Aeronautical Information Service Certificate shall complete an application for an Aeronautical Information Services Certificate and submit it to the Authority.
- b) In the interests of aviation safety, only one certificate for the provision of an aeronautical information service relating to the provision of an AIP service, an AIC service and a NOTAM service shall be current at any time. There may be more than one Pre-Flight Briefing Service certificate valid at any time.
- c) The submission shall include the exposition required by YCAR 2.19 .

YCAR 2.5 Issue of Certificate

- a) Each applicant is entitled to an Aeronautical Information Service Certificate if :
 - 1. The applicant meets the requirements of section B of the Rule; and
 - 2. The applicant and persons holding positions listed in Y CAR 2.9.a).1 to 2.9.a).3 inclusive are acceptable to the Authority; and
 - 3. The organization's exposition as required by YCAR 2.19 is acceptable to the Authority; and
 - 4. The Authority is satisfied that the granting of the certificate is not contrary to the interests of aviation safety.

YCAR 2.6 Privileges of Certificate

- a) The CAMA AIS certificate shall specify the Aeronautical Information Services that the certificate holder is authorized to provide.

YCAR 2.7 Duration of Certificate

An aeronautical information service certificate may be issued or renewed for a period up to 2-years

- a) The validity of an aeronautical information certificate is based on continued operation in accordance with Civil Aviation Regulations, Civil Aviation Advisory Publications and Information Bulletins as published by the Authority .
- b) An Aeronautical Information Service Certificate remains in force until it expires or is suspended or revoked.
- c) The holder of an Aeronautical Information Service Certificate that expires or is revoked shall forthwith surrender the certificate to the Authority.
- d) The holder of an Aeronautical Information Service Certificate that is suspended shall forthwith produce the certificate to the Authority for appropriate endorsement.

YCAR 2.8 Validity of Certificate

- a) The Aeronautical Information Service Certificate shall remain valid subject to periodic surveillance audits conducted at the discretion of the Authority, confirming ongoing compliance with the Civil Aviation Regulations.
- b) The Authority shall undertake a complete Aeronautical Information Service certification audit at least once a year following the issue of an Aeronautical Information Service Certificate

SECTION B — CERTIFICATION REQUIREMENTS

YCAR 2.9 Personnel Requirements

- a) Each applicant for the grant of an Aeronautical Information Service Certificate shall engage, employ or contract:
 - 1. A person identified as the Chief Executive, who has the authority within the service provider's organization to ensure that the Aeronautical Information service listed in its exposition can be provided in accordance with the requirements prescribed in this Rule Subpart; and
 - 2. A Head of AIS who is responsible for ensuring that the applicant's Organization complies with the requirements of this Subpart;
 - 3. A Head of Training responsible for ensuring that the Organization complies with the training requirements of this subpart;
 - 4. A Safety Management Post holder responsible for the provision of a safety management system according to the requirements of YCAR Part X;
 - 5. A Quality management post holder responsible for the provision of a quality management system and of a safety management system according to the requirements of YCAR Part X; and
 - 6. Sufficient personnel to collect, collate, check, coordinate, edit, and publish aeronautical information for the aeronautical information service listed in the applicant's exposition.
- b) The person or persons listed in YCAR 2.9.a.2 to 2.9.a.5 shall be ultimately responsible to the Accountable Manager.
- c) The applicant shall establish procedures to:
 - 1. Ensure the competence of those personnel authorized by the applicant to check, edit and publish aeronautical information for the aeronautical information service/s listed in their exposition; and
 - 2. Maintain the competence of those authorized personnel; and
 - 3. Provide those authorized personnel with written evidence of the scope of their authorization.

YCAR 2.10 Facility Requirements

- (a) Each applicant for the grant of an aeronautical information service certificate shall establish the following approved facilities that are appropriate to the aeronautical information services listed in the applicant's exposition:
 - 1. International NOTAM office;
 - 2. AIS aerodrome units;
 - 3. Aeronautical information publications;
 - 4. Cartography ; and
 - 5. Dedicated training and assessment facilities.
 - 6. Quality management system and Safety management system

(b) To accomplish objectives of AIS, this service being divided in three parts as follows:

Aeronautical information services: the provision of aeronautical information services except for those parts of such services described in 2.10 (1) and (4,5), in order to accomplish objectives of AIS; Aeronautical publications: the provision of aeronautical information services except for those parts of such services described in 2.10 (1) (2), (3) and (5), to accomplish objectives of AIS; and Cartography and lead down procedures. the provision of aeronautical information services except for those parts of such services described in 2.10 (1), (2), (3), (4) and (6), to accomplish objectives of AIS.

(c) Provision of aeronautical information services. The parts of aeronautical information services described in 2.10 (b) shall be provided by the various departments as follows:

1. Aeronautical information services;
2. International NOTAM office;
3. unit providing briefing services in each aerodrome AIS unit which is limited by coverage zone/geographic coverage which is designated primarily for the provision of briefing service, and where no an aerodrome AIS unit is established the service shall be provided via appropriate ATS unit to enable the provision of information to aircraft in flight (FIS); and
4. Aeronautical information publications: By aeronautical information publications departments; and
5. AIS cartography and lead down procedures: By cartography and lead down procedures departments; and
6. Quality Management System for AIS: By quality department; and
7. Flight plan: By aerodrome unit or AIS.HQ and where no an aerodrome AIS unit is established the service shall be provided via appropriate ATS unit to enable the provision of information to aircraft in flight (FIS).

(d) An applicant for an aeronautical information services certificate shall verify that AIS center including AIS aerodrome unit, listed in the applicant's exposition is:

1. Constructed and situated to provide:
 - (a) The maximum efficiency and flow of information internally between NOF department and BOF department as well as AIS AD unit to enable:
 - (i) Accepting flight plans and;
 - (ii) Provide pre-flight information services; and
 - (iii) Protection from noise.
2. Safeguarded from any development that would affect the requirements of paragraph (e) 1; and
3. Provided with equipment linked with the following:
 - (a) Aerodrome AIS units;
 - (b) AIS publications;
 - (c) ATS units and communication center; and

- (d) NOF positions and BOF positions.
- (4) Provided with the following minimum equipment:
 - (a) Adequate table/counter space for processing information;
 - (b) Adequate filing/card index systems;
 - (c) Computer network.;
 - (d) Duplicator, for pre-flight bulletin production;
 - (e) Telephones and faxes (telefax);
 - (f) Electronic mail;
 - (g) A reliable clock and, for the international NOTAM office, a recording time-stamp clock both showing UTC .where appropriate, a second clock should be provided showing local time;
 - (h) Reference charts and documents modified as necessary for the international NOTAM office;
 - (i) A display system for displaying self – briefing; and
 - (j) Logbooks and quality formats.
- (e) An applicant for an aeronautical information services certificate shall verify that AIS publications listed in the applicant's exposition is:
 - Constructed and situated to provide;
 - (1) The maximum efficiency and flow of information with International NOTAM office; and
 - (2) The national and international subscribers of aeronautical information publications.
- (f) The applicant for an aeronautical information service cartography and lead down procedures shall verify that aeronautical information service cartography and lead down procedures listed in the applicant's exposition is; and
- (g) Constructed and situated to provide: -As prescribed in YCAR.

YCAR 2.11 Responsibility and function for providing aeronautical information services

- (a) Each applicant for AIS shall provide Yemen information service. Permanent information shall be approved by CAMA before publication. Urgent temporary information shall be distributed by AIS certificate holder according to the special delegation from CAMA to the certificate holder provided that CAMA to be notified after distribution.
- (b) Where 24-hour service is not provided, service shall be available during the whole period an aircraft is in flight in the area of responsibility of an information service, plus a period of at least two hours before and after such a period. The service shall also be available at such other time as may be requested by an appropriate ground organization.
- (c) An aeronautical information service shall, in addition, obtain information to enable it to provide pre-flight information service and to meet the need for in-flight information. from the aeronautical information services of other States; and from other sources that may be available.
- (d) Aeronautical data and aeronautical information obtained from the AIS of other states shall, when distributed, be clearly identified as having the authority of the originating State, but Aeronautical data and aeronautical information obtained from other sources shall, if possible, be verified before distribution and if not verified shall, when distributed, be clearly identified as such.

- (e) An aeronautical information service shall promptly make available to the aeronautical information services of other States any information/data necessary for the safety, regularity or efficiency of air navigation required by them, to enable them to comply with (f) below.
- (f) An aeronautical information service shall ensure that aeronautical information/data necessary for the safety, regularity or efficiency of air navigation is made available in form suitable for the operational requirements of: those involved in flight operations, including flight crews, flight planning, flight simulators; and the air traffic services unit responsible for flight information service and the services responsible for pre-flight information.
- (g) An aeronautical information service shall receive and/or originate, collate or assemble, edit, format, publish/store and distribute aeronautical information/data concerning the entire territory of Yemen as well as areas in which Yemen is responsible for air traffic services outside its territory. Aeronautical information shall be published as an Integrated Aeronautical Information Package.
- (h) To ensure that the responsibility for providing aeronautical information services is rested to a single AIS unit as follows:

(1) The responsibility of flight plans:

The responsibility of accepting flight plans in an AIS aerodrome unit shall be delegated to other AIS aerodrome unit in case of sudden circumstances; and

The responsibility of only transmitting flight plans provided to an AIS aerodrome unit shall be delegated to other AIS aerodrome unit or ATS unit of such aerodrome in case of sudden circumstances.

(2) The responsibility for providing briefing services:

The responsibility of providing automated briefing services in AIS aerodrome unit shall be delegated to other AIS aerodrome unit in case of sudden circumstances;

The responsibility of providing manual PIB services shall be delegated to AIS center in case of all AIS automated systems are out of service.

(3) The responsibility for providing NOTAM service:

The responsibility of editing and issuing NOTAM shall rest only on the international NOTAM office;

The responsibility for dealing with foreign NOTAMs (processing, storing and distribution the effected NOTAMs) for achieving the objectives of AIS shall rest only on international NOTAM office.

YCAR 2.12 Scope of Pre-Flight Information Service

- (a) Each applicant for the grant of an aeronautical information service certificate for a pre-flight information service shall, for the pre-flight services listed in their exposition, specify: The geographic area; and the aerodromes and the air routes originating from those aerodromes.
- (b) Each applicant for the grant of an aeronautical information service certificate a pre-flight information service shall fulfill the minimum requirements for accommodation as follows:

(1) The physical location of aerodrome AIS unit "briefing room"

The AIS units shall be situated in close proximity to other aerodrome flight services and to airline flight operations offices and establish in a group of soundproofed offices located on the ground floor of the terminal building preferably near the apron.

A diagram indicating the location of AIS units shall be placed at the apron entrance(s) to the terminal building.

(2) The physical layout of AIS units: -

These factors are principles for the layout of an AIS unit including:

- (a) The space available;
- (b) The extent of the coverage zone; and
- (c) The demand for pre-flight information services (a reflection of the type and volume of traffic using the aerodrome).

YCAR 2.13 Documentation

- a) Each applicant for the grant of an Aeronautical Information Services certificate shall:
 - 1. Document the format and standards for the aeronautical information published under the authority of their Approval; and
 - 2. Ensure that the format and standards take into account the circumstances under which the information will be used; and
 - 3. Hold copies of relevant reference materials, standards, practices and procedures, and any other documentation that is necessary for the Aeronautical Information service listed in their exposition.
- b) Each applicant for the grant of an Aeronautical Information Services certificate shall establish a procedure to control all the documentation required by YCAR 2.13 a.3), to ensure that:
 - 1. The documentation is reviewed and authorized by appropriate personnel before issue; and
 - 2. Current issues of relevant documentation are available to staff at all locations where they need access to such documentation for the flight procedure design service listed in their exposition; and
 - 3. All obsolete documentation is promptly removed from all points of issue or use; and
 - 4. Changes to documentation are reviewed and approved by appropriate personnel; and
 - 5. The current version of each item of documentation can be identified to preclude the use of out of date editions.
- c) The order of precedence of publications is as follows:
 - 1. Yemen Civil Aviation Law
 - 2. Yemen Civil Aviation Regulations
 - 3. Other Regulatory material published by CAMA

4. ICAO Annexes
5. ICAO Documents

YCAR 2.14 Collection of Information

- a) Each applicant for the grant of an Aeronautical Information Service Certificate shall establish procedures to collect and collate the information required for the aeronautical information service listed in their exposition.
- b) The procedures shall ensure that:
 1. Applicable information is obtained from organizations that provide services in support of Yemen air navigation system; and
 2. Applicable information is obtained from the aeronautical information services of other States relevant to the requirements of international aircraft operators operating on air route stages originating from Yemen; and
 3. shall ensure that formal arrangements are established between originators of aeronautical data and aeronautical information and the AIS in relation to the timely and complete provision of aeronautical data and aeronautical information; and
 4. shall ensure that the aeronautical data and aeronautical information provided are complete, timely and of required quality in accordance with YCAR2.17(i).
- c) The procedures for the NOTAM service shall furthermore ensure that any originator's request for the issue of a NOTAM does not require the NOTAM to be effective for more than 3 months.

YCAR 2.15 Publication of Aeronautical Information

- a) Each applicant for the grant of an Aeronautical Information Service Certificate shall establish procedures to check, co-ordinate, edit, publish and disseminate aeronautical information for the services listed in the applicant's exposition.
- b) The applicant shall ensure that the procedures established under YCAR 2.15 a) require that:
 1. The information received under YCAR 2.14 to be checked against available information to verify its accuracy prior to publication; and
 2. The information received under YCAR 2.14 to be edited, accurately published and disseminated
 - i. in the format applicable to the operational significance of the information; and
 - ii. if applicable, in accordance with sections D, E, or F; and
 - iii. in a format that takes into account the circumstances under which the information is to be used; and
 3. Except for YCAR 2.15 b) 4, permanent publications and long term temporary publications be clearly identified as being published under the authority of the applicant's Aeronautical Information Service Certificate; and
 4. If aeronautical information obtained from the aeronautical information services of other States under Y CAR2.14 b) 2 is disseminated, that information is clearly identified as having the authority of the originating State; and
 5. If information that has not been certified, as required under YCAR 2.14. b) 4, is disseminated that information is clearly identified as being

- unverified; and
- 6. Any permanent change to published information is to be coordinated with other applicable information originators before the change is published; and
- 7. Temporary information that is published without a defined expiry date be reviewed at an appropriate time to ensure that the originator takes the required action to cancel or reissue the information; and
- 8. Each element of the Integrated Aeronautical Information Package for international distribution shall include:
 - i. English text for those parts expressed in plain language; and
 - ii. Place names shall be spelt according to local usage, transliterated when necessary into the Latin alphabet;
- 9. Units of measurement to be consistent with those prescribed in YCAR Part VIII, Subpart 1; and

For measurement of	Units used
Distance used in navigation, position reporting, etc,-generally in excess of 2 to 3 nautical miles.	Nautical miles and tenths.
Relatively short distances such as those relating to aerodromes (e.g. runway length).	Meters.
Altitudes, elevations and heights.	Feet(with the exception of base-clouds in meters)
Horizontal speed including wind speed.	Knots.
Vertical speed.	Feet per minute.
Wind direction for landing and taking off.	Degrees magnetic.
Wind direction (except for landing and taking off)	Degrees true.
Visibility including runway visual range.	Kilometers or meters.
Altimeter setting.	Hectopascal.
Temperature.	Degrees Celsius (centigrade).
Weight.	Metric tons or kilograms.
Time.	Hours and minutes, the day of 24 HRS beginning at midnight UTC.

- 10. Abbreviations, consistent with those prescribed in YCAR 2.2, to be used in the published aeronautical information if:
 - i. Their use is appropriate; and
 - ii. Their use facilitates the dissemination of the information; and
- 11. Any of the aeronautical information published to be promptly made available to the aeronautical information services of other States, upon request by those States; and

12. The aeronautical information to be made available in a form that is suitable for the operational requirements of:
 - i. Flight operations personnel, including flight crew members and the service responsible for pre-flight briefing; and
 - ii. The air traffic service units responsible for flight information services.
13. Use of automation:
 - i. Automation enabling digital data exchange shall be introduced with the objective of improving the speed, quality, efficiency and cost-effectiveness of aeronautical information services
 - ii Where aeronautical data and aeronautical information are provided in multiple formats, processes shall be implemented to ensure data and information consistency between formats.
 - iii In order to meet the data quality requirements, automation shall:
 - a) Enable digital aeronautical data exchange between the parties involved in the data processing chain; and
 - b) Use aeronautical information exchange models and data exchange models designed to be globally interoperable.

Note.— Guidance material on the aeronautical information and data exchange models may be found in ICAO Doc 8126.

- iv The aeronautical information model used should encompass the aeronautical data and aeronautical information to be exchanged.
- v The aeronautical information model used should:
 - a) Use the Unified Modeling Language (UML) to describe the aeronautical information features and their properties, associations and data types;
 - b) Include data value constraints and data verification rules;
 - c) Include provisions for metadata as specified in YCAR2.15-(h/3/iv); and
 - d) Include a temporality model to enable capturing the evolution of the properties of an aeronautical information feature during its life cycle.
- vi The aeronautical data exchange model used should:
 - a) Apply a commonly used data encoding format;
 - b) Cover all the classes, attributes, data types and associations of the aeronautical information model detailed in YCAR2.15- (b/13/v);and
 - c) Provide an extension mechanism by which groups of users can extend the properties of existing features and add new features which do not adversely affect global standardization.

Note 1.—The intent of using a commonly used data encoding format is to ensure

interoperability of aeronautical data exchange between agencies and organizations involved in the data processing chain.

Note 2.—Examples of commonly used data encoding formats include Extensible Markup Language (XML), Geography Markup Language (GML), and JavaScript Object Notation (JSON).

14. Subject to availability, satisfactory operation and bilateral/multilateral and/or regional air navigation agreements, the use of public Internet should be permitted for exchange of non-time critical types of aeronautical information.
 15. Identification and delineation of prohibited, restricted and danger areas:
 - i. Each prohibited area, restricted area, or danger area established by Yemen shall, upon initial establishment, be given an identification and full details shall be promulgated .
 - ii. The identification so assigned shall be used to identify the area in all subsequent notifications pertaining to that Area
 - iii. The identification shall be composed of a group of letters and figures as follows:
 - (1) Nationality letters for location indicators assigned to Yemen or territory which has established the airspace;
 - (2) A letter P for prohibited area, R for restricted area and D for danger area as appropriate;
 - (3) A number, unduplicated within Yemen or territory concerned.
 - iv. To avoid confusion, identification numbers shall not be reused for a period of at least one year after cancellation of the area to which they refer.
 - v. When a prohibited, restricted or danger area is established, the area should be as small as practicable and be contained within simple geometrical limits, so as to permit ease of reference by all concerned.
- c) The applicant for an AIP service shall ensure that the procedures for the AIP service, in addition to YCAR 2.15 b), require:
1. Aeronautical charts, and operationally significant information published in AIP Amendments and AIP Supplements, to be published in accordance with the AIRAC procedures; and
 2. The information published under the AIRAC procedures to be clearly identified with the acronym AIRAC; and
 3. The information published under the AIRAC procedures to be distributed so that recipients receive the information at least 28 days before its effective date; and
 4. The information published under the AIRAC procedures to not change for at least 28 days after the effective date, unless the circumstance notified is of a temporary nature and would not persist for the full AIRAC period;

and

5. If an AIP Supplement is published to replace a NOTAM, the supplement shall include a reference to the serial number of the NOTAM; and
6. If an AIP Amendment or AIP Supplement is published under the AIRAC procedures, a NOTAM to be originated giving a brief description of the operationally significant

contents, the effective date and the reference number of each amendment or supplement. The NOTAM shall:

- i. come into force on the same effective date as the AIRAC amendment or the AIRAC supplement; and
 - ii. remain in force, as a reminder on the pre-flight information bulletin, for a period of 14 days.
7. If there is no applicable information to be published by the AIRAC date, a NIL notification shall be originated and distributed by NOTAM or other suitable means, not later than one cycle before the AIRAC effective date concerned; and
8. A NOTAM to be originated if information to be published as an AIP Amendment or an AIP Supplement takes effect prior to the effective date of the amendment or supplement.

d) Each applicant for the grant of an Aeronautical Information Service Certificate shall distributed:

1. One copy of each of the elements of the Integrated Aeronautical Information Package, in paper or electronic form or both, that have been requested by the aeronautical information service of an ICAO Contracting State shall be made available by the originating State in the mutually-agreed form(s), without charge, even where authority for publication/storage and distribution has been delegated to a non-governmental agency;
2. The exchange of more than one copy of the elements of the Integrated Aeronautical Information Package and other air navigation documents, including those containing air navigation legislation and regulations, whether in paper and/or electronic form, should be subject to bilateral agreement between ICAO Contracting States; and
3. The procurement of aeronautical information/data, including the elements of the Integrated Aeronautical Information Package, and other air navigation documents, including those containing air navigation legislation and regulations, whether in paper and/or electronic form, by States other than ICAO Contracting States and by other entities should be subject to separate agreement with the originating State.

e) Any product of each applicant for the grant of an Aeronautical Information Service Certificate shall has been granted copyright protection by that State and provided to another State in accordance with procedure of exchange of aeronautical information/data 3.3 annex 15 shall only be made available to a third party on the condition that the third party is made aware that the product is copyright protected and provided that it is appropriately annotated that the product is subject to copyright by the originating State.

f) The overhead cost of collecting and compiling aeronautical information/data should be included in the cost basis for airport and air navigation services charges, as appropriate, in accordance with the principles contained in ICAO's Policies on Charges for Airports and Air Navigation Services (Doc 9082).

- g) Each applicant for the grant of an Aeronautical Information Service Certificate shall take into consideration human factor principles which apply to aeronautical design, certificate, training, operations and maintenance and which safe interface between the human and other system components by proper consideration to :-

1- Human performance to facilitate the optimum utilization of aeronautical design, contents, processing and distribution of aeronautical information/data.

2- To the integrity of information where human interaction is required and mitigating steps taken where risks are identified.

Note.— This may be accomplished through the design of systems, operating procedures or improvements in the operating environment.

h) Common reference systems for air navigation

(1) Horizontal reference system

- i. World Geodetic System-1984 (WGS-84) shall be used as the horizontal (geodetic) reference system for international air navigation. Consequently, published aeronautical geographical coordinates (indicating latitude and longitude) shall be expressed in terms of the WGS-84 geodetic reference datum.
- ii. In precise geodetic application and some air navigation application, temporal changes in the tectonic plate motion and tidal effects on the crust should be and reflect the temporal effect; an epoch should be included with any set of absolute station coordinates.
- iii. Geographical coordinates that have been transformed into WGS-84 coordinates but whose accuracy of original field work does not meet the requirements in Annex 11, Chapter 2, and Annex 14, Volumes I and II, Chapter 2, shall be identified by an asterisk.
- iv. The order of publication resolution of geographical coordinates shall be that specified in Table A7-1 of Appendix 7 while the order of chart resolution of geographical coordinates shall be that specified in Annex 4, Appendix 6, Table 1..

Note : Specifications governing the determination and reporting (accuracy of field work and data integrity) of WGS-84-related aeronautical coordinates for geographical positions established by air traffic services are given in Annex 11, Chapter 2, and Appendix 5, Table 1, and for aerodrome/heliport-related positions, in Annex 14, Volumes I and II, Chapter 2, and in Table A5-1 of Appendix 5 and Table A1-1 of Appendix 1 .

(2) Vertical reference system:

- i. Mean sea level (MSL) datum, which gives the relationship of gravity-related height (elevation) to a surface known as the geoid, shall be used as the vertical reference system for international air navigation.

- ii. The Earth Gravitational Model–1996(EGM-96), containing long wavelength gravity field data to degree and order 360, shall be used by I air navigation as the global gravity model.
- iii. At those geographical positions where the accuracy of EGM-96 does not meet the accuracy requirements for elevation and geoid undulation specified in Annex 14, Volumes I and II, on the basis of EGM-96 data, regional, national or local geoid models containing high resolution (short wavelength) gravity field data shall be developed and used. When a geoid model other than the EGM-96 model is used, a description of the model used, including the parameters required for height transformation between the model and EGM-96, shall be provided in the Aeronautical Information Publication (AIP). Specifications governing determination and reporting (accuracy of field work and data integrity) of elevation and geoid undulation at specific positions at aerodromes/heliports are given in Annex 14, Volumes I and II, Chapter 2, and Table A5-2 and Table 2 of Appendices 5 and 1, respectively.
- iv. In addition to elevation referenced to the MSL (geoid's), for the specific surveyed ground positions, geoids undulation (referenced to the WGS-84 ellipsoid) for those positions specified in Appendix 1 shall also be published.
- v. The order of publication resolution of elevation and geoid undulation shall be that specified in Table A7-2 of Appendix 7 while the order of chart resolution of elevation and geoid undulation shall be that specified in Annex 4, Appendix 6, Table 2.

(3) Temporal reference system:

- i. For international civil aviation, the Gregorian calendar and Coordinated Universal Time (UTC) shall be used as the temporal system.
- ii. When a reference system is used for some applications, the feature catalogue, or the meta-data associated with an application schema or a data set, as appropriate, shall include either a description of that system or a citation for a document that describes that temporal reference system. When a different temporal reference system is used for charting, this shall be indicated in GEN 2.1.2 of the Aeronautical Information Publication (AIP).
- iii. Metadata shall be collected for aeronautical data processes and exchange points. This metadata collection shall be applied throughout the aeronautical information data chain, from survey/origin to distribution to the next intended user.
- iv. The metadata to be collected shall include, as a minimum:
 - (1) the name of the organizations or entities performing any action of originating, transmitting or manipulating the data;
 - (2) the action performed; and
 - (3) the date and time the action was performed.

YCAR 2.16 Records

- a) Each applicant for the grant of an Aeronautical Information Service Certificate shall establish procedures to identify, collect, index, store, maintain and dispose of the records that are necessary for the aeronautical information service listed in their exposition.

b) Procedures shall ensure that:

1. There are records enabling all incoming and outgoing aeronautical information to be readily identified and that supplementary information can be similarly identified, verified and where necessary, authenticated; and
2. There is a record of each person who is authorized by the service provider to check, edit and publish aeronautical information; and
3. There is a record of each occurrence of error correction under the procedures required by YCAR 2.17.n) ; and
4. There is a record of each internal quality assurance review of the service provider's organization carried out under the procedures required by YCAR 2.17.m).4 and
5. There is a record of all audits and reviews required under the safety management procedures required by YCAR 2.18.b); and
6. There is a record of all flight plans including standard and repetitive plans; and
7. All records are legible and of a permanent nature; and
8. All records are retained for at least 5 years except NOTAM, AIP Supplements, PIB and Aeronautical Information Circulars, which need only to be retained for 31 days after cancellation.

YCAR 2.17 Internal Quality Assurance

- a) Each applicant for the grant of an Aeronautical Information Service Certificate shall establish Quality management systems shall be implemented and maintained encompassing all functions of an AIS, as outlined in YCAR 2.11 (f). The execution of such quality management systems shall be made demonstrable for each function stage.
- b) The quality system established in accordance with YCAR 2.17.a) should be similar to ISO 9000 standards and shall be certified by an approved organization.
- c) The person who has responsibility for internal quality assurance shall have direct access to the Accountable Manager on matters affecting the adequacy, accuracy, timeliness format and dissemination of the published aeronautical information the skills and knowledge required for each function shall be identified, and personnel assigned to perform those functions shall be appropriately trained. States shall ensure that personnel possess the skills and competencies required to perform specific assigned functions, and appropriate records shall be maintained so that the qualifications of personnel can be confirmed. Initial and periodic assessments shall be established that require personnel to demonstrate the required skills and competencies. Periodic assessments of personnel shall be used as a means to detect and correct shortfalls..
- d) When the quality assurance procedures indicate that aeronautical information to be supplied does not comply with the accuracy and integrity requirements of YCAR 2.17.i) to YCAR 2.17.k) inclusive, such information shall not be supplied to the users.

- e) Each applicant for the grant of an Aeronautical Information Service Certificate shall establish procedures to ensure that aeronautical data is traceable to its origin to allow any data anomalies or errors detected during the production and maintenance phases of the AIS, or in operational use.
- f) The quality system shall:
 - 1. Established the information management resources and processes which shall be adequate to ensure the timely collection, processing, storing, integration, exchange and delivery of quality-assured aeronautical data and aeronautical information within the ATM system.
 - 2. Provide users with the necessary assurance and confidence that distributed aeronautical information or data satisfy stated requirements for data quality (accuracy, resolution and integrity) as specified in appendix 7 of annex 15 and for data traceability through the use of appropriate measures at every stage of the data production or modification processes; and
 - 3. Provide assurance of the applicability period of intended use of aeronautical data as well as that the agreed distribution dates shall be met.
- g) Material to be issued as part of the Integrated Aeronautical Information Package shall be thoroughly checked before it is submitted to the AIS, in order to make certain that all necessary information has been included and that it is correct in detail prior to distribution.
- h) Validation and verification procedures shall be established to ensure that upon receipt of aeronautical data and aeronautical information, quality requirements (accuracy, resolution, integrity and traceability) are met.
- i) Each applicant for the grant of an Aeronautical Information Service Certificate shall establish procedures to ensure that the order of accuracy for aeronautical data shall be as specified in Annex 11, Chapter 2, and Annex 14, Volumes I and II, Chapter 2. In that respect, three types of positional data shall be identified: surveyed points (runway thresholds, navigation aid positions, etc.), calculated points (mathematical calculations from the known surveyed points of points in space/fixes) and declared points (e.g. flight information region boundary points).
- j) Each applicant for the grant of an Aeronautical Information Service Certificate shall establish procedures to ensure that the order of publication resolution shall be that specified in Appendix 7 of Annex 15.
- k) Each applicant for the grant of an Aeronautical Information Service Certificate shall establish procedures to ensure that the integrity of aeronautical data shall be maintained throughout the data process from survey/origin to distribution to the next intended user (the entity that receives the aeronautical information from the AIS provider). Based on the applicable integrity classification, the validation and verification procedures shall:

- i) For routine data: avoid corruption throughout the processing of the data;
 - ii) For essential data: assure corruption does not occur at any stage of the entire process and include additional processes as needed to address potential risks in the overall system architecture to further assure data integrity at this level; and
 - iii) For critical data: assure corruption does not occur at any stage of the entire process and include additional integrity assurance processes to fully mitigate the effects of faults identified by thorough analysis of the overall system architecture as potential data integrity risks.
- l) The aeronautical data integrity requirements shall be based on the potential risk resulting from the corruption of data and upon the use to which the data item is put.
- m) Consequently the following classifications and data integrity levels shall apply:
- 1. Critical data, integrity level 1×10^{-8} : there is a high probability when using corrupted critical data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe;
 - 2. Essential data, integrity level 1×10^{-5} : there is a low probability when using corrupted essential data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe; and
 - 3. Routine data, integrity level 1×10^{-3} : there is a very low probability when using corrupted routine data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe.
- n) Aeronautical data quality requirements related to classification and data integrity shall as provided in Tables A7-1 to A7-5 of Appendix 7 to ICAO Annex 15.
- o) Each applicant for the grant of an Aeronautical Information Service Certificate shall establish procedures to ensure that protection of electronic aeronautical data while stored or in transit, shall be totally monitored by the cyclical redundancy check (CRC).
- p) To achieve protection of the integrity level of critical and essential aeronautical data as classified YCAR 2.17, a 32- CRC algorithm shall apply respectively.
- q) To achieve protection of the integrity level of routine aeronautical data as classified in YCAR 2.17, a 16-bit CRC algorithm shall apply.

Note 1.— Guidance material on the use of a 32-bit CRC algorithm to implement a protection of electronic aeronautical data sets is contained in the Aeronautical Information Services Manual (Doc 8126).

- r) The procedures shall specify:

1. That the level of quality that the service provider intends to achieve meets the requirements of paragraphs 17.i to 17.k inclusive; and
 2. The level and frequency of internal audits; and
 3. The person or persons responsible for carrying out the internal audits; and
 4. How the findings of the internal audits are to be recorded and reported to the Accountable Manager; and
 5. How quality indicators such as error reports, incidents and complaints are incorporated into the internal quality assurance procedures; and
 6. The means of rectifying any deficiencies found during an internal audit; and
 7. The documentation requirements for all aspects of the audit.
- s) Each applicant for the grant of an Aeronautical Information Service Certificate shall establish procedures to record, investigate, correct, and report any errors that are detected in the aeronautical information published under the authority of their approved.
- t) The procedures shall ensure that:
1. The error is corrected by the most appropriate means relative to the operational significance of the error; and
 2. The correction is clearly identified in the republished information; and
 3. The source of the error is identified and, where possible, eliminated; and
 4. The Civil Aviation Safety Sector, CAMA is notified of the publication error.

YCAR 2.18 Safety Management

- a) Each applicant for the grant of an Aeronautical Information Service Certificate shall establish a safety management system in accordance with YCAR Part X.
- b) Each applicant for the grant of an Aeronautical Information Service Certificate shall , as part of their SMS, establish target levels of safety/key performance indicators for at least the following safety areas:
 1. AIRAC Adherence monitoring,
 2. Data Quality monitoring,
 3. NOTAM monitoring.
- c) ANSPs/Service Providers and ACC AIS shall record the measurements above and report to CAMA ANA Inspector on a bi-annual basis at the end of March and September of each year.

YCAR 2.19 Organizational Exposition

- a) Each applicant for the grant of an Aeronautical Information Service Certificate shall provide the Air Navigation Service Regulations section of the Department of with an exposition containing:
 1. A statement signed by the Chief Executive on behalf of the applicant's organization .
Confirming that:
 - i. the exposition and any included manuals define the organization and

demonstrate its means and methods for ensuring ongoing compliance with this Subpart; and

- ii. the exposition and any included manuals will be complied with at all times; and
- 2. The titles and names of the person or persons required by YCAR 2.9. a) 2-5; and
 - 3. The duties and responsibilities of the persons specified in YCAR 2.19.a) 2 including matters for which they have responsibility to deal directly with the CAMA on behalf of the organization; and
 - 4. An organizational chart showing lines of responsibility of the persons specified in YCAR 2.19.a) 2; and
 - 5. A summary of the applicant's staffing structure for each aeronautical information service listed under YCAR 2.19.a) 6; and
 - 6. A list of the aeronautical information service to be covered by the certificate; and
 - 7. For a pre-flight information service, details of the area, aerodromes and air route stages required by YCAR 2.33.a); and
 - 8. The location and address details of the applicable offices required by YCAR 2.23.b).1 and YCAR 2.30.a).1; and
 - 9. Details of the applicant's format and standards required by YCAR 2.11.a) for their published aeronautical information; and
 - 10. Details of the applicant's procedures required by:
 - i. YCAR 2.9 regarding the competence of personnel; and
 - ii. YCAR 2.13 regarding the control of documentation; and
 - iii. YCAR 2.14 regarding the collection of information; and
 - iv. YCAR 2.15 regarding the publication of aeronautical information; and
 - v. YCAR 2.16 regarding the identification, collection, indexing, storage, maintenance, and disposal of records; and
 - vi. YCAR 2.17 regarding internal quality assurance; and
 - vii. YCAR 2.18 regarding safety management; and
 - viii. YCAR 2.38 The procedures required by paragraph A regarding the processing of flight plans; and
 - 11. The specific requirements of whichever elements of the AIS provision the applicant is seeking certification for; and
 - 12. Procedures to control amend and distribute the exposition.
- b) The applicant's exposition shall be acceptable to the Authority CAMA.

SECTION C — OPERATING REQUIREMENTS

YCAR 2.20 Continued Compliance

- a) Each holder of an Aeronautical Information Service Certificate shall:
 - 1. Hold at least one complete and current copy of their exposition at each office listed in their exposition; and
 - 2. Comply with all procedures and standards detailed in their exposition; and
 - 3. Make each applicable part of their exposition available to personnel who require those parts to carry out their duties; and
 - 4. Continue to meet the standards and comply with the requirements of **Section B** prescribed for certification of this Subpart; and
 - 5. Notify the Authority of any change of address for service, telephone number or facsimile number required by CAMA Application form ANF-AIS -01a, within 28 days of the change.

YCAR 2.21 Changes to an Aeronautical Information Service Provider Certificate

- a) Each holder of an Aeronautical Information Service Certificate shall ensure that their exposition is amended so as to remain a current description of the Service's provider.
- b) The certificate holder shall ensure that any amendments made to the holder's exposition meet the applicable requirements of this Subpart and comply with the amendment procedures contained in the holder's exposition.
- c) The certificate holder shall provide the Authority with a copy of each amendment to the service's provider exposition as soon as practicable after its incorporation into the exposition.
- d) Where the certificate holder proposes to make a change to any of the following, prior notification to and acceptance by the Authority is required:
 - 1. The persons listed in YCAR 2.9 a).1 to YCAR 2.9.a).3 inclusive; or
 - 2. The aeronautical information service provided by the certificate holder; or
 - 3. The format and standards for the aeronautical information published under the authority of their certificate.
- e) The Authority may prescribe conditions under which a certificate holder may operate during or following any of the changes specified in YCAR 2.21.d).
- f) A certificate holder shall comply with any conditions prescribed in YCAR 2.21.e).
- g) Where any of the changes referred to in YCAR 2.21 requires an amendment to the certificate, the certificate holder shall forward the certificate to the Authority as soon as practicable.
- h) The certificate holder shall make such amendments to the holder's exposition as the Authority may consider necessary in the interests of aviation safety.

- i) The notification of changes required in YCAR 2.21.d shall be made by completing the appropriate sections of the E Services application form on the CAMA Website.

YCAR 2.22 Safety Inspections and Audits

- a) The Authority may, in writing, require the holder of an Aeronautical Information Service Certificate to undergo or carry out such inspections and audits of the holder's aeronautical information service offices, facilities, documents and records as the Authority consider necessary in the interests of civil aviation safety.
- b) The Authority may require from the holder of an Aeronautical Information Service Certificate such information as the Authority considers relevant to the inspection or audit.

SECTION D — YEMEN AIP SERVICE

YCAR 2.23 AIP General

- a) The holder of an Aeronautical Information Service Certificate for the AIP service shall produce:
 - 1. Yemen AIP in accordance with the requirements of YCAR 2, Section D; and
 - 2. AIP Amendments in accordance with YCAR 2.26; and
 - 3. AIP Supplements in accordance with YCAR 2.27; and
 - 4. Aeronautical charts in accordance with YCAR 2.29.
- b) Purpose:
 - 1. Yemen AIP is intended primarily to satisfy international requirements for the exchange of aeronautical information of a lasting character essential to air navigation; and
 - 2. AIP constitutes the basic information source for permanent information and long duration temporary changes. The AIP may be produced either in an electronic or paper form.
 - 3. The AIP shall be produced in an electronic form. Paper formats of the AIP should be made available to users upon request and upon receipt of the appropriate payment.
- c) The holder of an Aeronautical Information Service Certificate for the AIP service shall, in addition to YCAR 2.23.a):
 - 1. Designate the office to which all elements of the Integrated Aeronautical Information Package originated by other States shall be addressed. Such an office shall be qualified to deal with requests for aeronautical data and aeronautical information originated by other States, except for NOTAM; and
 - 2. Make Yemen AIP, AIP Amendments, AIP Supplements and AIC available to any person, upon payment of a charge that may apply to the supply of the publications; and
 - 3. Establish a system to disseminate Yemen AIP, AIP Amendments, AIP Supplements, Aeronautical charts in accordance with AIRAC procedures; and
 - 4. Ensure that every aeronautical chart published as part of the AIP conforms to the applicable standards for the charts; and
 - 5. Coordinate the input of all aeronautical information from the originators prescribed in YCAR 2.14.b).1, except that information of immediate operational significance which will be promulgated by NOTAM; and
 - 6. Ensure that the AIP, AIP Amendments and the AIP Supplements are distributed by the most expeditious means; and
 - 7. Establish and operate an automated AIP production system.
 - 8. When provided, the eAIP should be available on a physical distribution medium (CD, DVD, etc.) and/or online on the Internet.

YCAR 2.24 Contents of Yemen AIP

- a) Yemen AIP shall contain current information, data and aeronautical charts relating to:
 - 1. The regulatory and airspace requirements for air navigation in Sana'a FIR; and
 - 2. Yemen services and facilities that support international air navigation to and from Yemen; and
 - 3. The services and facilities that support air navigation within Sana'a FIR; and
 - 4. Aerodromes operating under an aerodrome license issued in accordance with YCAR Part IX.
- b) Yemen AIP may contain information, data and aeronautical charts relating to aerodromes not operating under an aerodrome licence issued in accordance with YCAR Part IX, provided that:
 - 1. The aerodrome operator provides the holder of the Aeronautical Information Service Certificate for the AIP service with the required data and information for the aerodrome; and
 - 2. The aerodrome operator accepts responsibility for the accuracy and currency of that information; and
 - 3. The AIP entry states that the information is unverified in accordance with YCAR2.15.b).5.
- c) Yemen AIP shall be produced in three parts, sections and subsections containing current information relating to and arranged under the subjects enumerated in Appendix 1 to Annex 15.
- d) Yemen AIP shall include in Part 1 — General (GEN)
 - 1. A statement of the competent authority responsible for the air navigation facilities, services or procedures covered by the AIP;
 - 2. The general conditions under which the services or facilities are available for international use;
 - 3. A list of significant differences between the national regulations and practices of the State and the related ICAO Standards, Recommended Practices and Procedures, given in a form that would enable a user to differentiate readily between the requirements of the State and the related ICAO provisions;
 - 4. The choice made by a State in each significant case where an alternative course of action is provided for in ICAO Standards, Recommended Practices and Procedures.
- e) The aeronautical charts listed alphabetically below shall, when available for designated international aerodromes/heliports, form part of the AIP, or be distributed separately to recipients of the AIP:
 - i. Aerodrome/Heliport Chart — ICAO;
 - ii. Aerodrome Ground Movement Chart — ICAO;
 - iii. Aerodrome Obstacle Chart — ICAO Type A;
 - iv. Aerodrome Terrain and Obstacle Chart — ICAO (Electronic);

- v. Aircraft Parking/Docking Chart — ICAO;
- vi. Area Chart — ICAO;
- vii. ATC Surveillance Minimum Altitude Chart — ICAO;
- viii. Instrument Approach Chart — ICAO;
- ix. Precision Approach Terrain Chart — ICAO;
- x. Standard Arrival Chart — Instrument (STAR) — ICAO;
- xi. Standard Departure Chart — Instrument (SID) — ICAO;
- xii. Visual Approach Chart — ICAO.

YCAR 2.25 Specifications of Yemen AIP

- a) Each publication that forms part of Yemen AIP shall:
 - 1. Specify the purpose of the publication, the geographic area covered by that publication and that the publication is part of Yemen AIP; and
 - 2. Be self-contained, include a table of contents with page numbers; and
 - 3. Specify that it is published:
 - i. by the holder of the aeronautical information service for the AIP service; and
 - ii. under the authority the holder's certificate issued by the CAMA; and
 - iii. Not duplicate information unnecessarily and, if duplication is necessary, there shall be no difference in the duplicated information in respect of the same facility, service or procedure; and
 - iv. Be published in loose leaf form where possible, unless the complete document is reissued at frequent intervals.
 - v. Be dated, or if the publication is in loose leaf form, each page shall be dated. The date shall consist of the day, month by name, and the year when the aeronautical information becomes effective; and
 - vi. Be updated by means of AIP Amendments or by reissue at regular intervals;
 - vii. Show clearly the degree of reliability of and unverified information .
and
 - viii. The sheet size should be no larger than 210 × 297 mm, except that larger sheets may be used provided they are folded to the same size
- b) Each page of an Aeronautical Information Publication issued in loose-leaf form shall be so annotated as to indicate clearly:
 - i. The identity of the Aeronautical Information Publication;
 - ii. The territory covered and subdivisions when necessary;
 - iii. The identification of the issuing State and producing organization (authority);
 - iv. Page numbers/chart titles;
 - v. The degree of reliability if the information is doubtful
- c) A checklist giving the current date of each page in the Aeronautical Information Publication series shall be reissued frequently to assist the user in maintaining a current publication. The page number/chart title and date of the checklist shall appear on the checklist itself.

YCAR 2.26 Specifications for AIP Amendments

- a) Permanent changes to Yemen AIP shall be published as AIP Amendments.
- b) Each AIP Amendment shall:
 - 1. Be allocated a serial number which shall be consecutive and based on the AIRAC cycle.
 - 2. Show the issue date on the cover page; and
 - 3. Shall include references to the serial numbers of those elements, if any, of the Integrated AIP, which have been incorporated into the amendment; and
 - 4. Clearly identify by a distinctive symbol or annotation, all changes to published information, and all new information on a reprinted page; and
 - 5. Include on the amendment cover page a brief indication of the subjects affected by the amendment.
- c) Operationally significant changes to the AIP shall be published in accordance with AIRAC procedures and shall be identified by the acronym AIRAC.
- d) The AIP shall be amended or reissued at such regular intervals as may be necessary to keep them up to date.
- e) Recourse to hand amendments or annotations shall be kept to the minimum. The normal method of amendment shall be by replacement pages.
- f) The interval to be used shall be specified in the AIP, Part 1 – General (GEN)
- g) When no AIP Amendment shall be issued at the established interval or publication date, a NIL notification shall be originated and distributed by NOTAM and included in the monthly list of valid NOTAM ;
- h) Information concerning the circumstances listed in Appendix 4, Part 1 of Annex15, shall be distributed under the regulated system (AIRAC), i.e. basing establishment, withdrawal or significant changes upon a series of common effective dates at intervals of 28 days, including 14 January 2010. The information notified therein shall not be changed further for at least another 28 days after the effective date, unless the circumstance notified is of a temporary nature and would not persist for the full period.
- i) Each AIRAC AIP Amendment page, including the cover sheet, shall display an effective date. When an effective time other than 0000 UTC is used, the effective time shall also be displayed on the cover sheet;
- j) When information has not been submitted by the AIRAC date, a NIL notification shall be originated and distributed by NOTAM or other suitable means, not later than one cycle before the AIRAC effective date concerned.

- k) Implementation dates other than AIRAC effective dates shall not be used for pre-planned operationally significant changes requiring cartographic work and/or for updating of navigation databases
- l) The use of the date in the AIRAC cycle which occurs between 21 December and 17 January inclusive should be avoided as an effective date for the introduction of significant changes under the AIRAC system.
- m) In all instances, information provided under the AIRAC system shall be published in paper copy form and shall be distributed by the AIS unit at least 42 days in advance of the effective date with the objective of reaching recipients at least 28 days in advance of the effective date .
- n) Whenever major changes are planned and where advance notice is desirable and practicable, information published in paper copy form should be distributed by the AIS unit at least 56 days in advance of the effective date. This should be applied to the establishment of, and premeditated major changes in, the circumstances listed in Appendix 4, Part 3, and other major changes if deemed necessary .

Note.— Guidance on what constitutes a major change is included in Doc 8126

- o) An Aeronautical Information Service provider that have established an aeronautical database shall, when updating its contents concerning the circumstances listed in Annex 15 , Appendix 4, Part 1, ensure that the effective dates of data coincide with the established AIRAC effective dates.
- p) Information provided as electronic media, concerning the circumstances listed in Appendix 4, Part 1, shall be distributed/made available by the AIS unit so as to reach recipients at least 28 days in advance of the AIRAC effective date.
- q) Whenever major changes are planned and where advance notice is desirable and practicable, information provided as electronic media should be distributed/made available at least 56 days in advance of the effective date. This should be applied to the establishment of, and premeditated major changes in, the circumstances listed in Appendix 4, Part 3, and other major changes if deemed necessary.

Note.— Guidance material on what constitutes a major change is included in Doc 8126.

YCAR 2.27 Specifications for AIP Supplements

- a) Temporary changes of 3 months duration or more, and information of short duration containing extensive text or graphics shall be issued as an AIP Supplement.
- b) Each AIP Supplement shall be allocated a serial number which shall be consecutive

and based on the calendar year.

- c) An AIP Supplement shall be retained in the AIP while any of the content remains valid.
- d) An AIP Supplement issued as a replacement for a NOTAM shall contain reference to the serial number of the NOTAM concerned.
- e) A checklist of valid AIP Supplements shall be issued at intervals of not more than 1 month and shall be issued through the monthly list of valid NOTAM ;
- f) AIP Supplement pages shall be colored yellow and shall be kept in the front of the AIP as long as all or some of their contents remain valid.
- g) When an error occurs in an AIP Supplement or when the period of validity of an AIP Supplement is changed, a new AIP Supplement shall be published as a replacement.

YCAR 2.28 Specifications for an AIC

- a) An AIC shall be originated whenever it is necessary to promulgate aeronautical information which does not qualify for inclusion in the AIP or under the specifications required for the issue of a NOTAM.
- b) An AIC shall be issued when it is desirable to publish:
 - 1. A long term notification of any major changes to legislation, regulations, procedures or facilities; or
 - 2. Information of a purely explanatory or advisory nature liable to affect flight safety; or
 - 3. Information of a purely explanatory or advisory nature on technical, administrative or legislative matters.

This shall include:

- (i) Forecasts of important changes in the air navigation procedures, services and facilities provided;
- (ii) Forecasts of implementation of new navigational systems;
- (iii) Significant information arising from aircraft accident/incident investigation which has a bearing on flight safety;
- (iv) Information on regulations relating to the safeguarding of international civil aviation against acts of unlawful interference;
- (v) Advice on medical matters of special interest to pilots;
- (vi) Warnings to pilots concerning the avoidance of physical hazards;
- (vii) Effect of certain weather phenomena on aircraft operations;
- (viii) Information on new hazards affecting aircraft handling techniques;
- (ix) Regulations relating to the carriage of restricted articles by air;
- (x) Reference to the requirements of, and publication of changes in, national legislation;
- (xi) Aircrew licensing arrangements;
- (xii) Training of aviation personnel;

- (xiii) Application of, or exemption from, requirements in national legislation;
- (xiv) Advice on the use and maintenance of specific types of equipment;
- (xv) Actual or planned availability of new or revised editions of aeronautical charts;
- (xvi) Carriage of radio equipment;
- (xvii) Explanatory information relating to noise abatement;
- (xviii) Selected airworthiness directives;
- (xix) Changes in NOTAM series or distribution, new editions of AIP or major changes in their contents, coverage or format; and Other information of a similar nature .

Note.— The publication of an AIC does not remove the obligations set forth in Sections D and E ..

c) Each AIC shall:

- 1. Be issued in printed form; and
 - 2. Allocated a serial number which shall be consecutive and based on the calendar year; and
 - 3. Give AIC selected for international distribution the same distribution as for the AIP .
- d) When AIC are distributed in more than one series, each series shall be separately identified by a letter.
- e) A checklist of AIC currently in force shall be issued at least once a year, with distribution as for the AIC.
- f) Differentiation and identification of AIC topics according to subjects using color coding should be practiced where the numbers of AIC in force are sufficient to make identification in this form necessary.

YCAR 2.29 Specifications for Aeronautical charts

- a) Aeronautical charts shall be provided as part of the AIP covering all aspects of an aircraft operation from the point when the aircraft taxies from the stand for departure until it taxies to the stand after landing at its destination.
- b) Charts provided shall be as per Appendix 1 to Annex 4. And All charts coming within the scope of Annex 4 and bearing the aeronautical information date of 19 November 2009 or later shall conform to the Standards relevant to the particular chart.
- c) Each chart shall provide information relevant to the function of the chart and its design shall observe Human Factors principles which facilitate its optimum use.

Note: Guidance on Human Factors principles can be found in ICAO Doc 9683, Human Factors Training Manual.

- d) Each type of chart shall provide information appropriate to the phase of flight, to ensure the safe and expeditious operation of the aircraft.
- e) Presentation of information shall:
 - 1. Be accurate, unambiguous, readable in all normal operating conditions and free

- from distortion and clutter; and
2. Be in a form which enables the pilot to acquire it in a reasonable time consistent with workload and operating conditions; and
 3. Permit a smooth transition from chart to chart as appropriate to the phase of flight.
- f) Colour, tints and font size used shall be such that the chart can be easily read and interpreted in varying conditions of natural and artificial light. Colors used on charts shall conform to Appendix 3 to Annex 4.
- g) Aeronautical Charts shall be orientated to True North except where permitted otherwise in the relevant chapters 3 to 21 inclusive of ICAO Annex 4. The basic sheet size of the charts should be 210 × 148 mm (8.27 × 5.82 in) (A5).
- h) The title of an aeronautical chart prepared in accordance with the specifications contained in YCAR 2.29, and intended to satisfy the function of the chart, shall be that of the relevant chapters 3 to 21 inclusive of ICAO Annex 4, modified by any different standard initiated by An Aeronautical Information Service provider the AIP service and approved by the Authority. The use of the word -ICAO shall not be used in the title where the Annex 4 standards have been modified.
- i) The marginal note layout for each chart shall be as given in Appendix 1 to ICAO Annex 4, except where otherwise specified in chapters 3 to 21, of Annex 4 for the relevant chart.
- j) The following information shall be shown on the face of each chart, except where otherwise stated in chapters 3 to 21, of Annex 4 for the relevant chart:
1. Designation or title of the chart/ series; and
 2. The name and reference of the sheet; and
 3. Where applicable, on each margin, an indication of the adjoining sheet.
- k) The name and address of the producing agency shall be shown in the margin of the chart unless the chart is published as part of an aeronautical document, in which case, the information shall be placed in the front of the document.
- l) A legend to the symbols and abbreviations used shall be provided. The legend shall be either:
1. On the face or reverse of the each chart; or
 2. Where space precludes the requirement of YCAR 2.29.l).1, a separate legend page/s may be published.
- m) Symbols used shall conform to those shown in Appendix 2 to ICAO Annex

4 except, where it is desired to show special features or items of importance to aviation for which no ICAO symbol is provided, an appropriate symbol may be chosen provided that it does not cause confusion with an ICAO symbol or impair the legibility of the chart.

- n) The size and prominence of symbols and the thickness and spacing of lines may be varied according to the scale and functions of the chart, with due regard to the importance of the information they convey. To represent ground-based navigation aids, intersections and waypoints, the same basic symbol shall be used on all charts on which they appear, regardless of chart purpose. The symbol used for significant points shall be based on a hierarchy of symbols and selected in the following order: ground-based navigation aid, intersection, waypoint symbol. A waypoint symbol shall be used only when a particular significant point does not already exist as either a ground-based navigation aid or intersection and shall ensure that as of 18 November 2010, symbols are shown in the manner specified in this item and annex 4, Appendix 2 — ICAO Chart Symbols, symbol number 121.
- o) Units of measurement shall be as follows:
 - 1. Distances shall be;
 - i. Geodesic distance
 - ii. In either kilometers or nautical miles, or both provided the units are clearly differentiated,
 - 2. Altitudes, elevations and heights shall be expressed as either meters or feet, or both provided the units are clearly differentiated,
 - 3. Linear dimensions on aerodromes and short distances shall be expressed in meters,
 - 4. The order of resolution of distances, dimensions, elevations and heights shall be that specified for a particular chart,
 - 5. The units of measurement used to express distances, altitudes, elevations and heights shall be conspicuously stated on each chart,
 - 6. Conversion scales (km/nm, m/ft) shall be provided on each chart on which distances, elevations or elevations are shown. The conversion scales shall be placed on the face of each chart.
- p) For charts of large areas, the name, basic parameters and scale of the projection used shall be indicated. On charts of smaller areas, a linear scale only shall be indicated.
- q) The date of validity of aeronautical information shall be clearly shown on the face of each chart.
- r) The symbols of the Roman alphabet shall be used for all writing. The names of places and of geographical features in countries which officially use varieties of the Roman alphabet shall be accepted in their official spelling,

- including the accents and diacritical marks used in the respective alphabets.
- s) Where a geographical term such as –cape, –point, –gulf is abbreviated on any particular chart that word shall be spelt out in full in respect to the most important example of each type Punctuation marks shall not be used in abbreviations within the body of a chart.
 - t) In areas where Romanized names have not been officially produced or adopted, and outside the territory of Yemen, names should be transliterated form the non-Roman alphabet form by the system generally used by the producing agency.
 - u) Abbreviations shall be used on aeronautical charts whenever they are appropriate. Where applicable, abbreviations shall be selected from the abbreviations and codes contained in ICAO Doc 8400.
 - v) International boundaries shall be shown, but may be interrupted if data more important to the use of the chart would be obscured. Where the name of more than one State appears on a chart, the names of the countries shall be indicated.
 - w) Relief, where shown, shall be portrayed in a manner that will satisfy the chart users' need for:
 - 1. Orientation and identification;
 - 2. Safe terrain clearance;
 - 3. Clarity of aeronautical information when shown;
 - 4. Planning.
 - x) Relief shall be portrayed by a combination of contours, hypsometric tints, spot elevations and hill shading, the choice of method being affected by the nature and scale of the chart and its intended use. Where relief is shown by hypsometric tints, the tints used shall be based on those shown in Appendix 4 to ICAO Annex 4. Where spot elevations are used they shall be shown for selected critical points. The value of spot elevations of doubtful accuracy shall be followed by the sign \pm .
 - y) Prohibited, restricted or danger areas shall be shown where their presence could affect the aircraft operation for which the chart is applicable. Where the areas are shown, the reference or other identification shall be included, except that the nationality letters may be omitted.
 - z) When air traffic services airspace is shown on a chart, the class of airspace, the type, name or call sign, the vertical limits and the radio frequencies to be used shall be indicated. The horizontal airspace limits shall be shown in accordance with Appendix 2 to ICAO Annex 4. On charts used for visual flight, relevant elements of the ATS airspace classification table shall be shown either on the face or reverse of the chart.
 - aa) True north and the magnetic variation shall be indicated. The order of resolution of magnetic variation shall be that specified for the particular chart. When magnetic variation is shown on a chart, the values shown should be

those for the year nearest the date of publication that is divisible by 5. In exceptional cases where the current value would be more than one degree different, after applying the calculation for annual change, an interim date and value should be quoted. For instrument procedure charts, the publication of a magnetic variation change should be completed within a maximum of six AIRAC cycles. In large terminal areas with multiple aerodromes, a single rounded value of magnetic variation should be applied so that the procedures that service multiple aerodromes use a single, common variation value.

- bb) The Aeronautical Chart Manual (ICAO Doc 8697) contains samples of type suitable for use in aeronautical charts.
- cc) Aeronautical data used for aeronautical charts shall comply with the integrity, resolution and quality requirements of YCAR 2.17.i) to YCAR 2.17.k) inclusive.
- dd) Aeronautical data and data sets shall be protected in accordance with data error detection, security, and authentication techniques.

Note.— Doc 8126 contains guidance material on data error detection, security and authentication techniques.

- ee) Guidance on the aeronautical data quality requirements is contained in the WGS-84 Manual (ICAO Doc 9674)
- ff) Common reference systems shall be used for horizontal, vertical and temporal references see YCAR 2.15(h).

gg) **Types of Aeronautical Charts :**

1. Aerodrome Obstacle Chart— ICAO Type A

- i. **Function** This chart, in combination with the relevant information published in the YEMEN AIP, shall provide the data necessary to enable an operator to comply with the operating limitations of Annex 6, Part I, Chapter 5, and Part III, Section II, Chapter 3.
- ii. **Availability** Aerodrome Obstacle Charts — ICAO Type A (Operating Limitations) shall be made available in the manner prescribed in YCAR 2.24a, b and e, for all aerodromes regularly used by international civil aviation, except for those aerodromes where there are no obstacles in the take-off flight path areas or where the Aerodrome Terrain and Obstacle Chart — ICAO (Electronic) is provided in accordance with Chapter 5. Annex 4.
 - Where a chart is not required because no obstacles exist in the take-off flight path area, a notification to this effect shall be published in the YEMEN AIP.
- iii. **Units of measurement** Elevations shall be shown to the nearest half- meter or to the nearest foot.
 - Linear dimensions shall be shown to the nearest half-meter.
- iv. **Coverage and scale** The extent of each plan shall be sufficient to cover all obstacles.
 - The horizontal scale shall be within the range of 1:10 000 to 1:15 000.
 - The horizontal scale should be 1:10 000.

- The vertical scale shall be ten times the horizontal scale.
- Linear scales. Horizontal and vertical linear scales showing both meters and feet shall be included in the charts.

v. Format The charts shall depict a plan and profile of each runway, any associated stopway or clearway, the take-off flight path area and obstacles.

- The profile for each runway, stopway, clearway and the obstacles in the take-off flight path area shall be shown above its corresponding plan. The profile of an alternative take-off flight path area shall comprise a linear projection of the full take-off flight path and shall be disposed above its corresponding plan in the manner most suited to the ready interpretation of the information.
- A profile grid shall be ruled over the entire profile area exclusive of the runway. The zero for vertical coordinates shall be mean sea level. The zero for horizontal coordinates shall be the end of the runway furthest from the take-off flight path area concerned. Graduation marks indicating the sub-divisions of intervals shall be shown along the base of the grid and along the vertical margins.
- The vertical grid should have intervals of 30 m (100 ft) and the horizontal grid should have intervals of 300 m (1 000 ft).
- The chart shall include:
 - a) a box for recording the operational data specified in 1.viii.c
 - b) a box for recording amendments and dates thereof.

vi. Identification The chart shall be identified by YEMEN in which the aerodrome is located, the name of the city or town or area which the aerodrome serves, the name of the aerodrome and the designator(s) of the runway(s).

vii. Magnetic Variation The magnetic variation to the nearest degree and date of information shall be indicated.

viii. Aeronautical data

- Obstacles** : Objects in the take-off flight path area which project above a plane surface having a 1.2 per cent slope and having a common origin with the take-off flight path area shall be regarded as obstacles, except that obstacles lying wholly below the shadow of other obstacles as defined in (1.viii.a.i) need not be shown. Mobile objects such as boats, trains and trucks, which may project above the 1.2 per cent plane, shall be considered obstacles but shall not be considered as being capable of creating a shadow.
- The shadow of an obstacle is considered to be a plane surface originating at a horizontal line passing through the top of the obstacle at right angles to the centre line of the take-off flight path area. The plane covers the complete width of the take-off flight path area and extends to the plane defined (in 1.viii.a) or to the next higher obstacle if it occurs first. For the first 300 m (1 000 ft) of the take-off flight path area, the shadow planes are horizontal and beyond this point such planes have an upward slope of 1.2 per cent.
- If the obstacle creating a shadow is likely to be removed, objects that would become obstacles by its removal shall be shown.
 - The take-off flight path area** The take-off flight path area consists of a quadrilateral area on the surface of the earth lying directly below, and symmetrically disposed about, the take-off flight path. This area has the following characteristics:
 - 1) it commences at the end of the area declared suitable for take-off (i.e. at the end of the runway

- or clearway as appropriate);
- 2) its width at the point of origin is 180 m (600 ft) and this width increases at the rate of 0.25D to a maximum of 1 800 m (6 000 ft), where D is the distance from the point of origin;
- 3) it extends to the point beyond which no obstacles exist or to a distance of 10.0 km (5.4 NM), whichever is the lesser.
- For runways serving aircraft having operating limitations which do not preclude the use of a take-off flight path gradient of less than 1.2 per cent, the extent of the take-off flight path area specified in 1.viii.b.3 shall be increased to not less than 12.0 km (6.5 NM) and the slope of the plane surface specified in 1.viii.a and 1.viii.a.i shall be reduced to 1.0 per cent or less.

c) **Declared distances** The following information for each direction of each runway shall be entered in the space provided:

- 1) take-off run available;
- 2) accelerate-stop distance available;
- 3) take-off distance available;
- 4) landing distance available.

Where a declared distance is not provided because a runway is usable in one direction only, that runway should be identified as “not usable for take-off, landing or both”.

d) **Plan and profile views** The plan view shall show:

- 1) the outline of the runways by a solid line, including the length and width, the magnetic bearing to the nearest degree, and the runway number;
- 2) the outline of the clearways by a broken line, including the length and identification as such;
- 3) take-off flight path areas by a dashed line and the centre line by a fine line consisting of short and long dashes;
- 4) alternative take-off flight path areas. When alternative take-off flight path areas not centred on the extension of the runway centre line are shown, notes shall be provided explaining the significance of such areas;
- 5) obstacles, including:
 - i) the exact location of each obstacle together with a symbol indicative of its type;
 - ii) the elevation and identification of each obstacle;
 - iii) the limits of penetration of obstacles of large extent in a distinctive manner identified in the legend.

- The nature of the runway and stopway surfaces should be indicated.
- Stopways should be identified as such and should be shown by a broken line.
- When stopways are shown, the length of each stopway shall be indicated.
- The profile view shall show:

- a) the profile of the centre line of the runway by a solid line and the profile of the centre line of any associated stopways and clearways by a broken line;
- b) the elevation of the runway centre line at each end of the runway, at the stopway and at the origin of each take-off flight path area, and at each significant change in slope of runway and stopway;
- c) obstacles, including:
 - 1) each obstacle by a solid vertical line extending from a convenient grid line over at least one other grid line to the elevation of the top of the obstacle;
 - 2) identification of each obstacle;
 - 3) the limits of penetration of obstacles of large extent in a distinctive manner identified in the legend.

- ix. **Accuracy** The order of accuracy attained shall be shown on the chart.
- The horizontal dimensions and the elevations of the runway, stopway and clearway to be printed on the chart should be determined to the nearest 0.5 m (1 ft).
The order of accuracy of the field work and the precision of chart production should be such that measurements in the take-off flight path areas can be taken from the chart within the following maximum deviations:
 - a) horizontal distances: 5 m (15 ft) at a point of origin increasing at a rate of 1 per 500;
 - b) vertical distances: 0.5 m (1.5 ft) in the first 300 m (1 000ft) and increasing at a rate of 1 per 1 000.
 - Datum. Where no accurate datum for vertical reference is available, the elevation of the datum used shall be stated and shall be identified as assumed.

2. AERODROME OBSTACLE CHART —ICAO TYPE B

- i. **Function** This chart shall provide information to satisfy the following functions:
- a) the determination of minimum safe altitudes/heights including those for circling procedures;
 - b) the determination of procedures for use in the event of an emergency during take-off or landing;
 - c) the application of obstacle clearing and marking criteria; and
 - d) the provision of source material for aeronautical charts.
- ii. **Availability** prescribed in YCAR2.24a,b and e, for all aerodromes regularly used by international civil aviation except for those aerodromes where the Aerodrome Terrain and Obstacle Chart — ICAO (Electronic) is provided in accordance with Chapter 5 in Annex 4.
- When a chart combining the specifications of YCAR2.29.gg.1 and 2 are made available, it shall be called the Aerodrome Obstacle Chart — ICAO (Comprehensive).
- iii. **Units of measurement** Elevations shall be shown to the nearest half-metre or to the nearest foot.
- Linear dimensions shall be shown to the nearest half-metre.
- iv. **Coverage and scale** The horizontal scale shall be within the range of 1:10 000 to 1:20 000.
- A horizontal linear scale showing both meters and feet shall be included in the chart. When necessary, a linear scale for kilometers and a linear scale for nautical miles shall also be shown.
- v. **Format** The charts shall include:
- a) any necessary explanation of the projection used;
 - b) any necessary identification of the grid used;
 - c) a notation indicating that obstacles are those which penetrate the surfaces specified in Annex 14, Volume I, Chapter 4;
 - d) a box for recording amendments and dates thereof; and
 - e) outside the neat line, every minute of latitude and longitude marked in degrees and minutes
- vi. **Identification** The chart shall be identified by the name of the country in which the aerodrome is located, the name of the city or town or area which the aerodrome serves, and the name of the aerodrome.

- vii. Culture and topography** Drainage and hydrographic details shall be kept to a minimum.
- Buildings and other salient features associated with the aerodrome shall be shown. Wherever possible, they shall be shown to scale.
 - All objects, either cultural or natural, that project above the take-off and approach surfaces specified in 4.9 or the clearing and marking surfaces specified in Annex 14, Volume I, Chapter 4, shall be shown.
 - Roads and railroads within the take-off and approach area, and less than 600 m (2 000 ft) from the end of the runway or runway extensions, shall be shown.
- viii. Magnetic variation** The chart shall show a compass rose orientated to the True North, or a North point, showing the magnetic variation to the nearest degree with the date of magnetic information and annual change.
- ix. Aeronautical data** The charts shall show:
- a) the aerodrome reference point and its geographical coordinates in degrees, minutes and seconds;
 - b) the outline of the runways by a solid line;
 - c) the length and width of the runway;
 - d) the magnetic bearing to the nearest degree of the runway and the runway number;
 - e) the elevation of the runway centre line at each end of the runway, at the stopway, at the origin of each take-off and approach area, and at each significant change of slope of runway and stopway;
 - f) taxiways, aprons and parking areas identified as such, and the outlines by a solid line;
 - g) stopways identified as such and depicted by a broken line;
 - h) the length of each stopway;
 - i) clearways identified as such and depicted by a broken line;
 - j) the length of each clearway;
 - k) take-off and approach surfaces identified as such and depicted by a broken line;
 - l) take-off and approach areas;
- Note.— The take-off area is described in 1.viii.b.(1) The approach area consists of an area on the surface of the earth lying directly below the approach surface as specified in Annex 14, Volume I, Chapter 4.
- m) obstacles at their exact location, including:
 - 1) a symbol indicative of their type;
 - 2) elevation;
 - 3) identification;
 - 4) limits of penetration of large extent in a distinctive manner identified in the legend;
 - n) any additional obstacles, as determined by 1.viii.a.1 including the obstacles in the shadow of an obstacle, which would otherwise be exempted.
- The nature of the runway and stopway surfaces should be given.
 - Wherever practicable, the highest object or obstacle between adjacent approach areas within a radius of 5 000 m (15 000 ft) from the aerodrome reference point should be indicated in a prominent manner.
 - The extent of tree areas and relief features, part of which constitute obstacles, should be shown.
- x. Accuracy** The order of accuracy attained shall be shown on the chart.

- The horizontal dimensions and the elevations of the movement area, stopways and clearways to be printed on the chart should be determined to the nearest 0.5 m (1 ft).
- The order of accuracy of the field work and the precision of chart production should be such that the resulting data will be within the maximum deviations indicated herein:
 - a) Take-off and approach areas:
 - 1) horizontal distances: 5 m (15 ft) at point of origin increasing at a rate of 1 per 500;
 - 2) vertical distances: 0.5 m (1.5 ft) in the first 300 m (1 000 ft) and increasing at a rate of 1 per 1 000.
 - b) Other areas:
 - 1) horizontal distances: 5 m (15 ft) within 5 000 m (15 000 ft) of the aerodrome reference point and 12 m (40 ft) beyond that area;
 - 2) vertical distances: 1 m (3 ft) within 1 500 m (5 000 ft) of the aerodrome reference point increasing at a rate of 1 per 1 000.

3. AERODROME TERRAIN AND OBSTACLE CHART—ICAO (ELECTRONIC) : RESERVED

4. PRECISION APPROACH TERRAIN CHART—ICAO : RESERVED

5. ENROUTE CHART—ICAO

- i. **Function** This chart shall provide flight crews with information to facilitate navigation along ATS routes in compliance with air traffic services procedures.
- ii. **Availability** The En-route Chart — ICAO shall be made available in the manner prescribed in YCAR2.24a,b and e, for all areas where flight information regions have been established.
 - Where different air traffic services routes, position reporting requirements or lateral limits of flight information regions or control areas exist in different layers of airspace and cannot be shown with sufficient clarity on one chart, separate charts shall be provided.
- iii. **Coverage and scale**
 - The layout of sheet lines should be determined by the density and pattern of the ATS route structure.
 - Large variations of scale between adjacent charts showing a continuous route structure shall be avoided.
 - An adequate overlap of charts shall be provided to ensure continuity of navigation.
- iv. **Projection**
 - A conformal projection on which a straight line approximates a great circle should be used.
 - Parallels and meridians shall be shown at suitable intervals.
 - Graduation marks shall be placed at consistent intervals along selected parallels and meridians.
- v. **Identification** Each sheet shall be identified by chart series and number.

vi. Culture and topography Generalized shore lines of all open water areas, large lakes and rivers shall be shown except where they conflict with data more applicable to the function of the chart.

- Within each quadrilateral formed by the parallels and meridians, the area minimum altitude shall be shown, except In areas of high latitude where it is determined by the appropriate authority that True North orientation of the chart is impractical, the area minimum altitude should be shown within each quadrilateral formed by reference lines of the graticule (grid) used.

Note 1.— Quadrilaterals formed by the parallels and meridians normally correspond to the whole degree of latitude and longitude. Regardless of the chart scale being used, the area minimum altitude relates to the consequent quadrilateral.

Note 2. — Refer to the Procedures for Air Navigation — Aircraft Operations (PANS OPS, Doc 8168), Volume II, Part I, Section 2, Chapter 1, 1.8, for method for determination of area minimum altitude.

- Where charts are not True North orientated, this fact and the selected orientation used shall be clearly indicated.

vii. Magnetic variation

The Isogonals should be indicated and the date of the isogonic information given.

viii. Bearings, tracks and radials Bearings, tracks and radials shall be magnetic, except In areas of high latitude where it is determined by the appropriate authority that reference to Magnetic North is impractical, another suitable reference, i.e. True North or Grid North, should be used . Where bearings and tracks are additionally provided as true values for RNAV segments, they shall be shown in parentheses to the nearest tenth of a degree, e.g. 290° (294.9°T).

- In areas of high latitude where it is determined by the appropriate authority that reference to Magnetic North is impractical, another suitable reference, i.e. True North or Grid North, should be used.
- Where bearings, tracks or radials are given with reference to True North or Grid North, this shall be clearly indicated. When Grid North is used, its reference grid meridian shall be identified.

ix. Aeronautical data All aerodromes used by international civil aviation to which an instrument approach can be made shall be shown.

- Prohibited, restricted and danger areas Prohibited, restricted and danger areas relevant to the layer of airspace shall be depicted with their identification and vertical limits.
- Where appropriate, the components of the established air traffic services system shall be shown.
- The components shall include the following:
 - a) the radio navigation aids associated with the air traffic services system together with their names, identifications, frequencies and geographical coordinates in degrees, minutes and seconds;
 - b) in respect of DME, additionally the elevation of the transmitting antenna of the DME to the nearest 30 m (100 ft);
 - c) an indication of all designated airspace, including lateral and vertical limits and the appropriate class of airspace;

- d) All ATS routes for en-route flight including route designators, the track to the nearest degree in both directions along each segment of the routes and, where established, the designation of the navigation specification(s) including any limitations and the direction of traffic flow;
 - e) all significant points which define the ATS routes and are not marked by the position of a radio navigation aid, together with their name-codes and geographical coordinates in degrees, minutes and seconds;
 - f) in respect of waypoints defining VOR/DME area navigation routes, additionally,
 - 1) the station identification and radio frequency of the reference VOR/DME;
 - 2) the bearing to the nearest tenth of a degree and the distance to the nearest two-tenths of a kilometer (tenth of a nautical mile) from the reference VOR/ DME, if the waypoint is not collocated with it;
 - g) an indication of all compulsory and “on-request” reporting points and ATS/MET reporting points;
 - h) the distances to the nearest kilometer or nautical mile between significant points constituting turning points or reporting points;
 - i) change-over points on route segments defined by reference to very high frequency omnidirectional radio ranges, indicating the distances to the nearest kilometre or nautical mile to the navigation aids;
 - j) minimum en-route altitudes and minimum obstacle clearance altitudes, on ATS routes to the nearest higher 50 meters or 100 feet (see Annex 11, 2.22);
 - k) communication facilities listed with their channels and, if applicable, logon address;
 - l) air defence identification zone (ADIZ) properly identified.
- Details of departure and arrival routes and associated holding patterns in terminal areas shall be shown unless they are shown on an Area Chart, a Standard Departure Chart — Instrument (SID) — ICAO or a Standard Arrival Chart — Instrument (STAR) — ICAO.
 - Where established, altimeter setting regions shall be shown and identified.

6. AREA CHART — ICAO

- i. **Function** This chart shall provide the flight crew with information to facilitate the following phases of instrument flight:

- a) the transition between the en-route phase and approach to an aerodrome;
- b) the transition between take-off/missed approach and en-route phase of flight; and
- c) flights through areas of complex ATS routes or airspace structure.

Note.— The function described in 6.i c) may be satisfied by a separate chart or an inset on an En-route Chart — ICAO.

- ii. **Availability** The Area Chart — ICAO shall be made available in the manner prescribed in YCAR2.24a,b and e, where the air traffic services routes or position reporting requirements are complex and cannot be adequately shown on an En-route Chart — ICAO.

- Where air traffic services routes or position reporting requirements are different for arrivals and for departures, and these cannot be shown with sufficient clarity on one chart, separate charts shall be provided.

- iii. **Coverage and scale** The coverage of each chart shall extend to points that effectively show departure and arrival routes.
- The chart shall be drawn to scale and a scale-bar shown.
- iv. **Projection**
- A conformal projection on which a straight line approximates a great circle should be used.
 - Parallels and meridians shall be shown at suitable intervals.
 - Graduation marks shall be placed at consistent intervals along the neat lines, as appropriate.
- v. **Identification** The chart shall be identified by a name associated with the airspace portrayed. Note.— The name may be that of the air traffic services centre, the name of the largest city or town situated in the area covered by the chart or the name of the city that the aerodrome serves. Where more than one aerodrome serves the city or town, the name of the aerodrome on which the procedures are based should be added
- vi. **Culture and topography** Generalized shorelines of all open water areas, large lakes and rivers shall be shown except where they conflict with data more applicable to the function of the chart.
- To improve situational awareness in areas where significant relief exists, all relief exceeding 300 m (1 000 ft) above the elevation of the primary aerodrome should be shown by smoothed contour lines, contour values and layer tints printed in brown. Appropriate spot elevations, including the highest elevation within each top contour line, should be shown printed in black. Obstacles should also be shown.
- vii. **Magnetic variation** Magnetic variation used in determining the magnetic bearings, tracks and radials shall be shown to the nearest degree.
- viii. **Bearings, tracks and radials** Bearings, tracks and radials shall be magnetic, except as provided for in Where bearings, tracks or radials are given with reference to True North or Grid North, this shall be clearly indicated. When Grid North is used, its reference grid meridian shall be identified. Where bearings and tracks are additionally provided as true values for RNAV segments, they shall be shown in parentheses to the nearest tenth of a degree, e.g. 290° (294.9°T).
- In areas of high latitude, where it is determined by the appropriate authority that reference to Magnetic North is impractical, another suitable reference, i.e. True North or Grid North, should be used.
- ix. **Aeronautical data** All aerodromes which affect the terminal routings shall be shown. Where appropriate, a runway pattern symbol shall be used.
- Prohibited, restricted and danger areas Prohibited, restricted and danger areas shall be depicted with their identification and vertical limits.
 - Area minimum altitudes Area minimum altitudes shall be shown within quadrilaterals formed by the parallels and meridians.
 - The components of the established relevant air traffic services system shall be shown.
 - The components shall include the following:
 - a) the radio navigation aids associated with the air traffic services system, together with their names, identifications, frequencies and geographical coordinates in degrees, minutes and

- seconds;
- b) in respect of DME, additionally the elevation of the transmitting antenna of the DME to the nearest 30 m (100 ft);
- c) terminal radio aids which are required for outbound and inbound traffic and for holding patterns;
- d) the lateral and vertical limits of all designated airspace and the appropriate class of airspace;
- e) the designation of the navigation specification(s) including any limitations, where established;
- f) holding patterns and terminal routings, together with the route designators, and the track to the nearest degree along each segment of the prescribed airways and terminal routings;
- g) all significant points which define the terminal routings and are not marked by the position of a radio navigation aid, together with their name-codes and geographical coordinates in degrees, minutes and seconds;
- h) in respect of waypoints defining VOR/DME area navigation routes, additionally,
 - 1) the station identification and radio frequency of the reference VOR/DME;
 - 2) the bearing to the nearest tenth of a degree and the distance to the nearest two-tenths of a kilometer (tenth of a nautical mile) from the reference VOR/DME, if the waypoint is not collocated with it;
- i) an indication of all compulsory and “on-request” reporting points;
- j) the distances to the nearest kilometer or nautical mile between significant points constituting turning points or reporting points;
- k) change-over points on route segments defined by reference to very high frequency omnidirectional radio ranges, indicating the distances to the nearest kilometer or nautical mile to the radio navigation aids;
- l) minimum en-route altitudes and minimum obstacle clearance altitudes, on ATS routes to the nearest higher 50 meters or 100 feet (see Annex 11, 2.22);
- m) established minimum vectoring altitudes to the nearest higher 50 m or 100 ft, clearly identified;
- n) area speed and level/altitude restrictions where established;
- o) communication facilities listed with their channels and, if applicable, logon address.
- p) an indication of “flyover” significant points.

7. STANDARD DEPARTURE CHART(SID) — INSTRUMENT — ICAO

- i. **Function** This chart shall provide the flight crew with information to enable it to comply with the designated standard departure route — instrument from take-off phase to the en-route phase.
- ii. **Availability** The Standard Departure Chart — Instrument (SID) — ICAO shall be made available wherever a standard departure route — instrument has been established and cannot be shown with sufficient clarity on the Area Chart — ICAO.
- iii. **Coverage and scale** The coverage of the chart shall be sufficient to indicate the point where the departure route begins and the specified significant point at which the en-route phase of flight along a designated air traffic services route can be commenced.
 - The chart should be drawn to scale.
 - If the chart is drawn to scale, a scale-bar shall be shown.
 - When the chart is not drawn to scale, the annotation “NOT TO SCALE” shall be shown and the symbol for scale break shall be used on tracks and other aspects of the chart which are too large to be drawn to scale.
- iv. **Projection**
 - A conformal projection on which a straight line approximates a great circle should be used.

- When the chart is drawn to scale, parallels and meridians should be shown at suitable intervals.
 - Graduation marks shall be placed at consistent intervals along the neat lines.
- v. Identification** The chart shall be identified by the name of the city or town or area which the aerodrome/heliport serves, the name of the aerodrome and the identification of the standard departure route(s) — instrument as established in accordance with the Procedures for Air Navigation Services — Aircraft Operations (PANS-OPS, Doc 8168), Volume II, Part I, Section 3, Chapter 5.
- vi. Culture and topography** Where the chart is drawn to scale, generalized shore lines of all open water areas, large lakes and rivers shall be shown except where they conflict with data more applicable to the function of the chart.
- To improve situational awareness in areas where significant relief exists, the chart should be drawn to scale and all relief exceeding 300 m (1 000 ft) above the aerodrome elevation should be shown by smoothed contour lines, contour values and layer tints printed in brown. Appropriate spot elevations, including the highest elevation within each top contour line, should be shown printed in black. Obstacles should also be shown.
- vii. Aeronautical data** The aerodrome of departure shall be shown by the runway pattern.
- All aerodromes which affect the designated standard departure route — instrument shall be shown and identified. Where appropriate, the aerodrome runway patterns shall be shown.
 - Prohibited, restricted and danger areas which may affect the execution of the procedures shall be shown with their identification and vertical limits.
 - The established minimum sector altitude, based on a navigation aid associated with the procedure, shall be shown with a clear indication of the sector to which it applies.
 - Where the minimum sector altitude has not been established, the chart shall be drawn to scale and area minimum altitudes shall be shown within quadrilaterals formed by the parallels and meridians. Area minimum altitudes shall also be shown in those parts of the chart not covered by the minimum sector altitude.
 - Air traffic services system
 - The components of the established relevant air traffic services system shall be shown.
 - The components shall comprise the following:
 - a) a graphic portrayal of each standard departure route — instrument, including:
 - 1) route designator;
 - 2) significant points defining the route;
 - 3) track or radial to the nearest degree along each segment of the route;
 - 4) distances to the nearest kilometer or nautical mile between significant points;
 - 5) minimum obstacle clearance altitudes, along the route or route segments and altitudes required by the procedure to the nearest higher 50 m or 100 ft and flight level restrictions where established;
 - 6) where the chart is drawn to scale and vectoring on departure is provided, established minimum vectoring altitudes to the nearest higher 50 m or 100 ft, clearly identified;
 - b) the radio navigation aid(s) associated with the route(s) including:
 - 1) plain language name;
 - 2) identification;
 - 3) frequency;

- 4) geographical coordinates in degrees, minutes and seconds;
- 5) for DME, the channel and the elevation of the transmitting antenna of the DME to the nearest 30 m (100 ft);
- c) the name-codes of the significant points not marked by the position of a radio navigation aid, their geographical coordinates in degrees, minutes and seconds and the bearing to the nearest tenth of a degree and distance to the nearest two-tenths of a kilometer (tenth of a nautical mile) from the reference radio navigation aid;
- d) applicable holding patterns;
- e) transition altitude/height to the nearest higher 300 m or 1 000 ft;
- f) the position and height of close-in obstacles which penetrate the obstacle identification surface (OIS). A note shall be included whenever close-in obstacles penetrating the OIS exist but which were not considered for the published procedure design gradient;
- g) area speed restrictions, where established;
- h) the designation of the navigation specification(s) including any limitations, where established;
- i) all compulsory and “on-request” reporting points;
- j) radio communication procedures, including:
 - 1) call sign(s) of ATS unit(s);
 - 2) frequency;
 - 3) transponder setting, where appropriate;
- k) an indication of “flyover” significant points.
- A textual description of standard departure route(s) — instrument (SID) and relevant communication failure procedures should be provided and should, whenever feasible, be shown on the chart or on the same page which contains the chart.
- Aeronautical database requirements Appropriate data to support navigation database coding shall be published in accordance with the Procedures for Air Navigation Services — Aircraft Operations (PANS-OPS, Doc 8168), Volume II, Part III, Section 5, Chapter 2, 2.1, on the verso of the chart or as a separate, properly referenced sheet.

8. STANDARD ARRIVAL CHART — INSTRUMENT (STAR) — ICAO

- i. **Function** This chart shall provide the flight crew with information to enable it to comply with the designated standard arrival route—instrument from the en-route phase to the approach phase.

Note 1.— Standard arrival routes — instrument are to be interpreted as including “standard descent profiles”, “continuous descent approach”, and other non-standard descriptions. In the case of a standard descent profile, the depiction of a cross-section is not required.

Note 2.— Provisions governing the identification of standard arrival routes are in Annex 11, Appendix 3; guidance material relating to the establishment of such routes is contained in the Air Traffic Services Planning Manual (Doc 9426).
- ii. **Availability** The Standard Arrival Chart — Instrument (STAR) — ICAO shall be made available wherever a standard arrival route —instrument has been established and cannot be shown with sufficient clarity on the Area Chart .
- iii. **Coverage and scale** The coverage of the chart shall be sufficient to indicate the points where the en-route phase ends and the approach phase begins.
 - The chart should be drawn to scale.

- If the chart is drawn to scale, a scale-bar shall be shown.
- When the chart is not drawn to scale, the annotation “NOT TO SCALE” shall be shown and the symbol for scale break shall be used on tracks and other aspects of the chart which are too large to be drawn to scale.

iv. Projection

- A conformal projection on which a straight line approximates a great circle should be used.
- When the chart is drawn to scale, parallels and meridians should be shown at suitable intervals.
- Graduation marks shall be placed at consistent intervals along the neat lines.

v. Identification The chart shall be identified by the name of the city or town or area which the aerodrome serves, the name of the aerodrome, and the identification of the standard arrival route(s) — instrument as established in accordance with the Procedures for Air Navigation Services — Aircraft Operations (PANS-OPS, Doc 8168), Volume II, Part I, Section 4, Chapter 2.

Note.— The identification of the standard arrival route(s) — instrument is provided by the procedures specialist.

vi. Culture and topography Where the chart is drawn to scale, generalized shore lines of all open water areas, large lakes and rivers shall be shown except where they conflict with data more applicable to the function of the chart.

- To improve situational awareness in areas where significant relief exists, the chart should be drawn to scale and all relief exceeding 300 m (1 000 ft) above the aerodrome elevation should be shown by smoothed contour lines, contour values and layer tints printed in brown. Appropriate spot elevations, including the highest elevation within each top contour line, should be shown printed in black. Obstacles should also be shown.

Note 1.— The next higher suitable contour line appearing on base topographic maps exceeding 300 m (1 000 ft) above the aerodrome elevation may be selected to start layer tinting.

Note 2.— An appropriate brown colour, on which half-tone layer tinting is to be based, is specified in Appendix 3 — Colour Guide for contours and topographic features.

Note 3.— Appropriate spot elevations and obstacles are those provided by the procedures specialist .

vii. Magnetic variation Magnetic variation used in determining the magnetic bearings, tracks and radials shall be shown to the nearest degree.

viii. Bearings, tracks and radials Bearings, tracks and radials shall be magnetic, except as provided for in 10.8.2. Where bearings and tracks are additionally provided as true values for RNAV segments, they shall be shown in parentheses to the nearest tenth of a degree, e.g.290° (294.9°T).

Note.— A note to this effect may be included on the chart.

- In areas of high latitude, where it is determined by the appropriate authority that reference to

Magnetic North is impractical, another suitable reference, i.e. True North or Grid North, should be used.

- Where bearings, tracks or radials are given with reference to True North or Grid North, this shall be clearly indicated. When Grid North is used, its reference grid meridian shall be identified.

ix. Aeronautical data

- Aerodromes : The aerodrome of landing shall be shown by the runway pattern.
- All aerodromes which affect the designated standard arrival route — instrument shall be shown and identified. Where appropriate, the aerodrome runway patterns shall be shown.
- Prohibited, restricted and danger areas which may affect the execution of the procedures shall be shown with their identification and vertical limits.
- Minimum sector altitude The established minimum sector altitude shall be shown with a clear indication of the sector to which it applies.
- Where the minimum sector altitude has not been established, the chart shall be drawn to scale and area minimum altitudes shall be shown within quadrilaterals formed by the parallels and meridians. Area minimum altitudes shall also be shown in those parts of the chart not covered by the minimum sector altitude.

Note 1.— Quadrilaterals formed by the parallels and meridians normally correspond to the half degree of latitude and longitude. Regardless of the chart scale being used, the area minimum altitude relates to the consequent quadrilateral.

Note 2.— Refer to the Procedures for Air Navigation — Aircraft Operations (PANS OPS, Doc 8168), Volume II, Part I, Section 2, Chapter 1, 1.8, for method for determination of area minimum altitude.

- Air traffic services system The components of the established relevant air traffic services system shall be shown.
- The components shall comprise the following:
 - a) a graphic portrayal of each standard arrival route — instrument, including:
 - 1) route designator;
 - 2) significant points defining the route;
 - 3) track or radial to the nearest degree along each segment of the route;
 - 4) distances to the nearest kilometer or nautical mile between significant points;
 - 5) minimum obstacle clearance altitudes, along the route or route segments and altitudes required by the procedure to the nearest higher 50 m or 100 ft and flight level restrictions where established;
 - 6) where the chart is drawn to scale and vectoring on arrival is provided, established minimum vectoring altitudes to the nearest higher 50 m or 100 ft, clearly identified;

Note 1.— Where ATS surveillance systems are used to vector aircraft to or from significant points on a published standard arrival route or to issue clearance for descent below the minimum sector altitude during arrival, the relevant procedures may be shown on the Standard Arrival Chart — Instrument (STAR) — ICAO unless excessive chart clutter will result.

Note 2.— Where excessive chart clutter will result, an ATC Surveillance Minimum Altitude Chart — ICAO may be provided (see Chapter 21 of annex 4), in which case the elements indicated by a) 6 of this item), need not be duplicated on the Standard Arrival Chart — Instrument (STAR) — ICAO.

- b) the radio navigation aid(s) associated with the route(s) including:
 - 1) plain language name;
 - 2) identification;
 - 3) frequency;
 - 4) geographical coordinates in degrees, minutes and seconds;
 - 5) for DME, the channel and the elevation of the transmitting antenna of the DME to the nearest 30 m (100 ft);
- c) the name-codes of the significant points not marked by the position of a radio navigation aid, their geographical coordinates in degrees, minutes and seconds and the bearing to the nearest tenth of a degree and distance to the nearest two-tenths of a kilometer (tenth of a nautical mile) from the reference radio navigation aid;
- d) applicable holding patterns;
- e) transition altitude/height to the nearest higher 300 m or 1 000 ft;
- f) area speed restrictions, where established;
- g) the designation of the navigation specification(s) including any limitations, where established;
- h) all compulsory and “on-request” reporting points;
- i) radio communication procedures, including:
 - 1) call sign(s) of ATS unit(s);
 - 2) frequency and, if applicable, SATVOICE number;
 - 3) transponder setting, where appropriate;
- j) an indication of “flyover” significant waypoints; and
- k) for arrival procedures to an instrument approach designed specifically for helicopters, the term “CAT H” shall be depicted in the arrival chart plan view.

-A textual description of standard arrival route(s) — instrument (STAR) and relevant communication failure procedures should be provided and should, whenever feasible, be shown on the chart or on the same page which contains the chart.

- Aeronautical database requirements Appropriate data to support navigation database coding shall be published in accordance with the Procedures for Air Navigation Services — Aircraft Operations (PANS-OPS, Doc 8168), Volume II, Part III, Section 5, Chapter 2, 2.2, on the verso of

the chart or as a separate, properly referenced sheet.

Note.— Appropriate data are those provided by the procedures specialist

9. INSTRUMENT APPROACH CHART — ICAO

- i. **Function** This chart shall provide flight crews with information which will enable them to perform an approved instrument approach procedure to the runway of intended landing including the missed approach procedure and, where applicable, associated holding patterns.
- ii. **Availability** Instrument Approach Charts — ICAO shall be made available for all aerodromes used by international civil aviation where instrument approach procedures have been established by YCAMA.
 - A separate Instrument Approach Chart — ICAO shall normally be provided for each precision approach procedure established by YCAMA.
 - A separate Instrument Approach Chart — ICAO shall normally be provided for each non-precision approach procedure established by YCAMA.
 - When the values for track, time or altitude differ between categories of aircraft on other than the final approach segment of the instrument approach procedures and the listing of these differences on a single chart could cause clutter or confusion, more than one chart shall be provided.
 - Instrument Approach Charts — ICAO shall be revised whenever information essential to safe operation becomes out of date.
- iii. **Coverage and scale** The coverage of the chart shall be sufficient to include all segments of the instrument approach procedure and such additional areas as may be necessary for the type of approach intended.
 - The scale selected shall ensure optimum legibility consistent with:
 - a) the procedure shown on the chart;
 - b) sheet size.
 - A scale indication shall be given
 - Except where this is not practicable, a distance circle with a radius of 20 km (10 NM) centred on a DME located on or close to the aerodrome, or on the aerodrome reference point where no suitable DME is available, shall be shown; its radius shall be indicated on the circumference.
 - A distance scale should be shown directly below the profile.
- iv. **Format**
 - The sheet size should be 210× 148 mm (8.27 × 5.82 in).
- v. **Projection** A conformal projection on which a straight line approximates a great circle shall be used.
 - Graduation marks should be placed at consistent intervals along the neat lines.
- vi. **Identification** The chart shall be identified by the name of the city or town or area which the aerodrome serves, the name of the aerodrome and the identification of the instrument approach procedure as established in accordance with the Procedures for Air Navigation Services — Aircraft Operations (PANS-OPS, Doc 8168), Volume II, Part I, Section 4, Chapter 9.

Note.— The identification of the instrument approach procedure is provided by the procedures specialist

vii. Culture and topography Culture and topographic information pertinent to the safe execution of the instrument approach procedure, including the missed approach procedure, associated holding procedures and visual manoeuvring (circling) procedure when established, shall be shown. Topographic information shall be named, only when necessary, to facilitate the understanding of such information, and the minimum shall be a delineation of land masses and significant lakes and rivers.

- a) Relief shall be shown in a manner best suited to the particular elevation characteristics of the area. In areas where relief exceeds 1 200 m (4 000 ft) above the aerodrome elevation within the coverage of the chart or 600 m (2 000 ft) within 11 km (6 NM) of the aerodrome reference point or when final approach or missed approach procedure

gradient is steeper than optimal due to terrain, all relief exceeding 150 m (500 ft) above the aerodrome elevation shall be shown by smoothed contour lines, contour values and layer tints printed in brown. Appropriate spot elevations, including the highest elevation within each top contour line, shall also be shown printed in black.

- In areas where relief is lower than specified in 9.vii.a, all relief exceeding 150 m (500 ft) above the aerodrome elevation should be shown by smoothed contour lines, contour values and layer tints printed in brown. Appropriate spot elevations, including the highest elevation within each top contour line, should also be shown printed in black.

viii. Magnetic variation

- The magnetic variation should be shown.
- When shown, the value of the variation, indicated to the nearest degree, shall agree with that used in determining magnetic bearings, tracks and radials.

ix. Bearings, tracks and radials shall be magnetic, except as provided for in 11.9.2. Where bearings and tracks are additionally provided as true values for RNAV segments, they shall be shown in parentheses to the nearest tenth of a degree, e.g. 290° (294.9°T).

Note.— A note to this effect may be included on the chart.

- In areas of high latitude, where it is determined by the appropriate authority that reference to Magnetic North is impractical, another suitable reference, i.e. True North or Grid North, should be used.
- Where bearings, tracks or radials are given with reference to True North or Grid North, this shall be clearly indicated. When Grid North is used, its reference grid meridian shall be identified.

x. Aeronautical data All aerodromes which show a distinctive pattern from the air shall be shown by the appropriate symbol. Abandoned aerodromes shall be identified as abandoned.

- The runway pattern, at a scale sufficiently large to show it clearly, shall be shown for:
 - a) the aerodrome on which the procedure is based;
 - b) aerodromes affecting the traffic pattern or so situated as to be likely, under adverse weather conditions, to be mistaken for the aerodrome of intended landing.
- The aerodrome elevation shall be shown to the nearest meter or foot in a prominent position on the chart.
- The threshold elevation or, where applicable, the highest elevation of the touchdown zone shall be shown to the nearest meter or foot.
- Obstacles shall be shown on the plan view of the chart.

- If one or more obstacles are the determining factor of an obstacle clearance altitude/height, those obstacles should be identified.
- The elevation of the top of obstacles shall be shown to the nearest (next higher) meter or foot.
- The heights of obstacles above a datum other than mean sea level (see 8.viii item before this item) should be shown. When shown, they should be given in parentheses on the chart.
- When the heights of obstacles above a datum other than mean sea level are shown, the datum shall be the aerodrome elevation except that, at aerodromes having an instrument runway (or runways) with a threshold elevation more than 2 m (7 ft) below the aerodrome elevation, the chart datum shall be the threshold elevation of the runway to which the instrument approach is related.
- Where a datum other than mean sea level is used, it shall be stated in a prominent position on the chart.
- Where an obstacle free zone has not been established for a precision approach runway Category I, this shall be indicated.
- Obstacles that penetrate the visual segment surface shall be identified on the chart.

Note.— Guidance on the charting of visual segment surface (VSS) penetrations can be found in the Aeronautical Chart Manual (Doc 8697)

- Prohibited areas, restricted areas, and danger areas which may affect the execution of the procedures shall be shown with their identification and vertical limits.
- Radio navigation aids required for the procedures together with their frequencies, identifications and track-defining characteristics, if any, shall be shown. In the case of a procedure in which more than one station is located on the final approach track, the facility to be used for track guidance for final approach shall be clearly identified. In addition, consideration shall be given to the elimination from the approach chart of those facilities that are not used by the procedure.
- The initial approach fix (IAF), the intermediate approach fix (IF), the final approach fix (FAF) (or final approach point (FAP) for an ILS approach procedure), the missed approach point (MAPt), where established, and other essential fixes or points comprising the procedure shall be shown and identified.
- The final approach fix (or final approach point for an ILS approach procedure) should be identified with its geographical coordinates in degrees, minutes and seconds.
- Radio navigation aids that might be used in diversionary procedures together with their track-defining characteristics, if any, shall be shown or indicated on the chart.
- Radio communication frequencies, including call signs, that are required for the execution of the procedures shall be shown.
- When required by the procedures, the distance to the aerodrome from each radio navigation aid concerned with the final approach shall be shown to the nearest kilometer or nautical mile. When no track-defining aid indicates the bearing of the aerodrome, the bearing shall also be shown to the nearest degree.
- The minimum sector altitude or terminal arrival altitude established by the competent authority shall be shown, with a clear indication of the sector to which it applies.
- Portrayal of procedure tracks.
- The plan view shall show the following information in the manner indicated:
 - a) the approach procedure track by an arrowed continuous line indicating the direction of flight;

- b) the missed approach procedure track by an arrowed broken line;
- c) any additional procedure track, other than those specified in a) and b), by an arrowed dotted line;
- d) bearings, tracks, radials to the nearest degree and distances to the nearest two-tenths of a kilometer or tenth of a nautical mile or times required for the procedure;
- e) where no track-defining aid is available, the magnetic bearing to the nearest degree to the aerodrome from the radio navigation aids concerned with the final approach;

- f) the boundaries of any sector in which visual manoeuvring (circling) is prohibited;
- g) where specified, the holding pattern and minimum holding altitude/height associated with the approach and missed approach;
- h) caution notes where required, prominently displayed on the face of the chart;
- i) an indication of "flyover" significant points.
- The plan view should show the distance to the aerodrome from each radio navigation aid concerned with the final approach.
- A profile shall be provided normally below the plan view showing the following data:
 - a) the aerodrome by a solid block at aerodrome elevation;
 - b) the profile of the approach procedure segments by an arrowed continuous line indicating the direction of flight;
 - c) the profile of the missed approach procedure segment by an arrowed broken line and a description of the procedure;
 - d) the profile of any additional procedure segment, other than those specified in b) and c), by an arrowed dotted line;
 - e) bearings, tracks, radials to the nearest degree and distances to the nearest two-tenths of a kilometer or tenth of a nautical mile or times required for the procedure;
 - f) altitudes/heights required by the procedures, including transition altitude and procedure altitudes/heights, where established;
 - g) limiting distance to the nearest kilometer or nautical mile on procedure turn, when specified;
 - h) the intermediate approach fix or point, on procedures where no course reversal is authorized;
 - i) a line representing the aerodrome elevation or threshold elevation, as appropriate, extended across the width of the chart including a distance scale with its origin at the runway threshold.
- Heights required by procedures should be shown in parentheses, using the height datum selected in accordance with the areas of high latitude, where it is determined by the appropriate authority that reference to Magnetic North is impractical, another suitable reference, i.e. True North or Grid North, should be used.
- The profile view should include a ground profile or a minimum altitude/height portrayal as follows:
 - a) a ground profile shown by a solid line depicting the highest elevations of the relief occurring within the primary area of the final approach segment. The highest elevations of the relief occurring in the secondary areas of the final approach segment shown by a dashed line; or
 - b) minimum altitudes/heights in the intermediate and final approach segments indicated within bounded shaded blocks.

- Aerodrome operating minima when established by the State shall be shown.
- The obstacle clearance altitudes/heights for the aircraft categories for which the procedure is

designed shall be shown; for precision approach procedures, additional OCA/H for Cat DL aircraft (wing span between 65 m and 80 m and/or vertical distance between the flight path of the wheels and the glide path antenna between 7 m and 8 m) shall be published, when necessary.

- Supplementary information : When the missed approach point is defined by:
 - a) a distance from the final approach fix, or
 - b) a facility or a fix and the corresponding distance from the final approach fix, the distance to the nearest two-tenths of a kilometer or tenth of a nautical mile and a table showing ground speeds and times from the final approach fix to the missed approach point shall be shown.
- When DME is required for use in the final approach segment, a table showing altitudes/heights for each 2 km or 1 NM, as appropriate, shall be shown. The table shall not include distances which would correspond to altitudes/heights below the OCA/H.
- For procedures in which DME is not required for use in the final approach segment but where a suitably located DME is available to provide advisory descent profile information, a table showing the altitudes/heights should be included.
- A rate of descent table should be shown.
- For non-precision approach procedures with a final approach fix, the final approach descent gradient to the nearest one-tenth of a per cent and, in parentheses, descent angle to the nearest one-tenth of a degree shall be shown.
- For precision approach procedures and approach procedures with vertical guidance, the reference datum height to the nearest half meter or foot and the glide path/elevation/vertical path angle to the nearest one-tenth of a degree shall be shown.
- When a final approach fix is specified at the final approach point for ILS, a clear indication shall be given whether it applies to the ILS, the associated ILS localizer only procedure, or both. In the case of MLS, a clear indication shall be given when an FAF has been specified at the final approach point.
- If the final approach descent gradient/angle for any type of instrument approach procedure exceeds the maximum value specified in the Procedures for Air Navigation Services — Aircraft Operations (PANS-OPS, Doc 8168), Volume II, Part I, Section 4, Chapter 5, a cautionary note shall be included.
- Aeronautical database requirements Appropriate data to support navigation database coding shall be published in accordance with the Procedures for Air Navigation Services — Aircraft Operations (PANS-OPS, Doc 8168), Volume II, Part III, Section 5, Chapter 2, 2.3, for RNAV procedures and Volume II, Part I, Section 4, Chapter 9, 9.4.1.3, for non-RNAV procedures, on the verso of the chart or as a separate, properly referenced sheet.

10. VISUAL APPROACH CHART — ICAO

- i. **Function** This chart shall provide flight crews with information which will enable them to transit from the en-route/descent to approach phases of flight to the runway of intended landing by means of visual reference.
- ii. **Availability** The Visual Approach Chart — ICAO shall be made available in the manner prescribed in YCAR2.24.a/b/e for all aerodromes used by international civil aviation where:
 - a) only limited navigation facilities are available; or
 - b) radio communication facilities are not available; or
 - c) no adequate aeronautical charts of the aerodrome and its surroundings at 1:500 000

or greater scale are available; or
d) visual approach procedures have been established.

iii. **Scale** The scale shall be sufficiently large to permit depiction of significant features and indication of the aerodrome layout.

- The scale should not be smaller than 1:500 000.
- When an Instrument Approach Chart is available for a given aerodrome, the Visual Approach Chart should be drawn to the same scale.

iv. **Format**

The sheet size should be 210 × 148 mm (8.27 × 5.82 in).

Note.— It would be advantageous to print the charts in several colours, selected to provide maximum legibility in varying degrees and kinds of light

v. **Projection** A conformal projection on which a straight line approximates a great circle shall be used.

- Graduation marks should be placed at consistent intervals along the neat lines

vi. **Identification** The chart shall be identified by the name of the city or town which the aerodrome serves and the name of the aerodrome.

vii. **Culture and topography** Natural and cultural landmarks shall be shown (e.g. bluffs, cliffs, sand dunes, cities, towns, roads, railroads, isolated lighthouses).

- Geographical place names should be included only when they are required to avoid confusion or ambiguity.
- Shore lines, lakes, rivers and streams shall be shown.
- Relief shall be shown in a manner best suited to the particular elevation and obstacle characteristics of the area covered by the chart.
- When shown, spot elevations should be carefully selected.
- The figures relating to different reference levels shall be clearly differentiated in their presentation.

viii. **Magnetic variation** The magnetic variation shall be shown.

ix. **Bearings, tracks and radials** shall be magnetic except as provided for in areas of high latitude, where it is determined by the appropriate authority that reference to Magnetic North is impractical, another suitable reference, i.e. True North or Grid North, should be used.

- Where bearings, tracks or radials are given with reference to True North or Grid North, this shall be clearly indicated. When Grid North is used, its reference grid meridian shall be identified.

x. **Aeronautical data**

a) Aerodromes

- All aerodromes shall be shown by the runway pattern. Restrictions on the use of any landing direction shall be indicated. Where there is any risk of confusion between two neighboring

- aerodromes, this shall be indicated. Abandoned aerodromes shall be identified as abandoned.
- The aerodrome elevation shall be shown in a prominent position on the chart.
- b) Obstacles:** shall be shown and identified.
 - The elevation of the top of obstacles shall be shown to the nearest (next higher) meter or foot.
 - The heights of obstacles above the aerodrome elevation should be shown.
 - When the heights of obstacles are shown, the height datum shall be stated in a prominent position on the chart and the heights shall be given in parentheses on the chart.
- c) Prohibited, restricted and danger areas** Prohibited areas, restricted areas, and danger areas: shall be depicted with their identification and vertical limits.
- d) Designated airspace** Where applicable, control zones and aerodrome traffic zones shall be depicted with their vertical limits and the appropriate class of airspace.
- e) Visual approach information**
 - Visual approach procedures shall be shown where applicable.
 - Visual aids for navigation shall be shown as appropriate.
 - Location and type of the visual approach slope indicator systems with their nominal approach slope angle(s), minimum eye height(s) over the threshold of the on-slope signal(s), and where the axis of the system is not parallel to the runway centre line, the angle and direction of displacement, i.e. left or right, shall be shown.
- f) Supplementary information**
 - Radio navigation aids together with their frequencies and identifications shall be shown as appropriate.
 - Radio communication facilities with their frequencies shall be shown as appropriate.

11. AERODROME/HELIPORT CHART — ICAO

- i. Function** This chart shall provide flight crews with information which will facilitate the ground movement of aircraft:
 - a) from the aircraft stand to the runway; and
 - b) from the runway to the aircraft stand;
 and helicopter movement:
 - a) from the helicopter stand to the touchdown and lift-off area and to the final approach and take-off area;
 - b) from the final approach and take-off area to the touchdown and lift-off area and to the helicopter stand;
 - c) along helicopter ground and air taxiways; and
 - d) along air transit routes;
 it shall also provide essential operational information at the aerodrome/heliport.
- ii. Availability** The Aerodrome/Heliport Chart — ICAO shall be made available in the manner prescribed in YCAR2.24a./b and e, for all aerodromes/heliports regularly used by international civil aviation.
 - The Aerodrome/Heliport Chart — ICAO should be made available also, in the manner prescribed in YCAR2.24a,b and e, for all other aerodromes/heliports available for use by international civil aviation.
- iii. Coverage and scale** The coverage and scale shall be sufficiently large to show clearly all the elements listed in 11.vi.
 - A linear scale shall be shown.

- iv. Identification** The chart shall be identified by the name of the city or town or area which the aerodrome/heliport serves and the name of the aerodrome/heliport.
- v. Magnetic variation** True and Magnetic North arrows and magnetic variation to the nearest degree and annual change of the magnetic variation shall be shown.
- vi. Aerodrome/heliport data** This chart shall show:
- a) geographical coordinates in degrees, minutes and seconds for the aerodrome/heliport reference point;
 - b) elevations, to the nearest meter or foot, of the aerodrome/heliport and apron (altimeter checkpoint locations) where applicable; and for non-precision approaches, elevations and geoid undulations of runway thresholds and the geometric centre of the touchdown and lift-off area;
 - c) elevations and geoid undulations, to the nearest half-meter or foot, of the precision approach runway threshold, the geometric centre of the touchdown and lift-off area, and at the highest elevation of the touchdown zone of a precision approach runway;
 - d) all runways including those under construction with designation number, length and width to the nearest meter, bearing strength, displaced thresholds, stopways, clearways, runway directions to the nearest degree magnetic, type of surface and runway markings;
 - e) all aprons, with aircraft/helicopter stands, lighting, markings and other visual guidance and control aids, where applicable, including location and type of visual docking guidance systems, type of surface for heliports, and bearing strengths or aircraft type restrictions where the bearing strength is less than that of the associated runways;
 - f) geographical coordinates in degrees, minutes and seconds for thresholds, geometric centre of touchdown and lift-off area and/or thresholds of the final approach and take-off area (where appropriate);
 - g) all taxiways, helicopter air and ground taxiways with type of surface, helicopter air transit routes, with designations, width, lighting, markings (including runway-holding positions and, where established, intermediate holding positions), stop bars, other visual guidance and control aids, and bearing strength or aircraft type restrictions where the bearing strength is less than that of the associated runways;
 - h) where established, hot spot locations with additional information properly annotated;
 - i) geographical coordinates in degrees, minutes, seconds and hundredths of seconds for appropriate taxiway centre line points and aircraft stands;
 - j) where established, standard routes for taxiing aircraft with their designators;
 - k) the boundaries of the air traffic control service;
 - l) position of runway visual range (RVR) observation sites;
 - m) approach and runway lighting;
 - n) location and type of the visual approach slope indicator systems with their nominal approach slope angle(s), minimum eye height(s) over the threshold of the on-slope signal(s), and where the axis of the system is not parallel to the runway centre line, the angle and direction of the displacement, i.e. left or right;
 - o) relevant communication facilities listed with their channels and, if applicable, logon address;
 - p) obstacles to taxiing;
 - q) aircraft servicing areas and buildings of operational significance;
 - r) VOR checkpoint and radio frequency of the aid concerned;

- s) any part of the depicted movement area permanently unsuitable for aircraft, clearly identified as such.
- In addition to the items in 11.vi. relating to heliports, the chart shall show:
 - a) heliport type;
 - b) touchdown and lift-off area including dimensions to the nearest meter, slope, type of surface and bearing strength in tonnes;
 - c) final approach and take-off area including type, true bearing to the nearest degree, designation number (where appropriate), length and width to the nearest meter, slope and type of surface;
 - d) safety area including length, width and type of surface;
 - e) helicopter clearway including length and ground profile;
 - f) obstacles including type and elevation of the top of the obstacles to the nearest (next higher) meter or foot;
 - g) visual aids for approach procedures, marking and lighting of final approach and take-off area, and of touchdown and lift-off area;
 - h) declared distances to the nearest meter for heliports, where relevant, including:
 - 1) take-off distance available;
 - 2) rejected take-off distance available;
 - 3) landing distance available.

12. AERODROME GROUND MOVEMENT CHART — ICAO

- i. **Function** This supplementary chart shall provide flight crews with detailed information to facilitate the ground movement of aircraft to and from the aircraft stands and the parking/docking of aircraft.
- ii. **Availability**
 - The Aerodrome Ground Movement Chart — ICAO should be made available in the manner prescribed in YCAR2.24a./b/e, where, due to congestion of information, details necessary for the ground movement of aircraft along the taxiways to and from the aircraft stands cannot be shown with sufficient clarity on the Aerodrome/Heliport Chart — ICAO.
- iii. **Coverage and scale** The coverage and scale shall be sufficiently large to show clearly all the elements listed in 12.vi.
 - A linear scale should be shown.
- iv. **Identification** The chart shall be identified by the name of the city or town or area which the aerodrome serves and the name of the aerodrome.
- v. **Magnetic variation** A True North arrow shall be shown.
 - Magnetic variation to the nearest degree and its annual change should be shown.
- vi. **Aerodrome data** This chart shall show in a similar manner all the information on the Aerodrome/Heliport Chart — ICAO relevant to the area depicted, including:
 - a) apron elevation to the nearest meter or foot;
 - b) aprons with aircraft stands, bearing strengths or aircraft type restrictions, lighting, marking and other visual guidance and control aids, where applicable, including location and type of

- visual docking guidance systems;
- c) geographical coordinates in degrees, minutes, seconds and hundredths of seconds for aircraft stands;
- d) taxiways with designations, width to the nearest meter, bearing strength or aircraft type restrictions where applicable, lighting, markings (including runway-holding positions and, where established, intermediate holding positions), stop bars, and other visual guidance and control aids;
- e) where established, hot spot locations with additional information properly annotated;
- f) where established, standard routes for taxiing aircraft, with their designators;
- g) geographical coordinates in degrees, minutes, seconds and hundredths of seconds for appropriate taxiway centre line points;
- h) the boundaries of the air traffic control service;
- i) relevant communication facilities listed with their channels and, if applicable, logon address;
- j) obstacles to taxiing;
- k) aircraft servicing areas and buildings of operational significance;
- l) VOR checkpoint and radio frequency of the aid concerned;
- m) any part of the depicted movement area permanently unsuitable for aircraft, clearly identified as such.

13. AIRCRAFT PARKING/DOCKING CHART — ICAO

- i. **Function** This supplementary chart shall provide flight crews with detailed information to facilitate the ground movement of aircraft between the taxiways and the aircraft stands and the parking/docking of aircraft.
- ii. **Availability**
 - The Aircraft Parking/Docking Chart — ICAO should be made available in the manner prescribed in YCAR2.24a./b/e, where, due to the complexity of the terminal facilities, the information cannot be shown with sufficient clarity on the Aerodrome/Heliport Chart — ICAO or on the Aerodrome Ground Movement Chart — ICAO.
- iii. **Coverage and scale** The coverage and scale shall be sufficiently large to show clearly all the elements listed in 13.vi.
 - A linear scale should be shown.
- iv. **Identification** The chart shall be identified by the name of the city or town or area which the aerodrome serves and the name of the aerodrome.
- v. **Magnetic variation** A True North arrow shall be shown.
 - Magnetic variation to the nearest degree and its annual change should be shown.
 - Note.— This chart need not be True North orientated.
- vi. **Aerodrome data** This chart shall show in a similar manner all the information on the Aerodrome/Heliport Chart — ICAO and the Aerodrome Ground Movement Chart — ICAO relevant to the area depicted, including:
 - a) apron elevation to the nearest meter or foot;

- b) aprons with aircraft stands, bearing strengths or aircraft type restrictions, lighting, marking and other visual guidance and control aids, where applicable, including location and type of visual docking guidance systems;
- c) geographical coordinates in degrees, minutes, seconds and hundredths of seconds for aircraft stands;
- d) taxiway entries with designations, including runway-holding positions and, where established, intermediate holding positions, and stop bars;
- e) where established, hot spot locations with additional information properly annotated;
- f) geographical coordinates in degrees, minutes, seconds and hundredths of seconds for appropriate taxiway centre line points;
- g) the boundaries of the air traffic control service;
- h) relevant communication facilities listed with their channels and, if applicable, logon address;
- i) obstacles to taxiing;
- j) aircraft servicing areas and buildings of operational significance;
- k) VOR checkpoint and radio frequency of the aid concerned;
- l) any part of the depicted movement area permanently unsuitable for aircraft, clearly identified as such.

14. WORLD AERONAUTICAL CHART — ICAO 1:1 000 000

- i. **Function** This chart shall provide information to satisfy the requirements of visual air navigation.
Note.— This chart may also serve:
 - a) as a basic aeronautical chart:
 - 1) when highly specialized charts lacking visual information do not provide essential data;
 - 2) to provide complete world coverage at a constant scale with a uniform presentation of plan metric data;
 - 3) in the production of other charts required by international civil aviation;
 - b) as a pre-flight planning chart.
- ii. **Availability** The World Aeronautical Chart — ICAO 1:1 000 000 shall be made available in the manner prescribed in YCAR2.24a,b and e, for all areas delineated in Appendix 5. Annex 4
Note.— When operational or chart production considerations indicate that operational requirements can be effectively satisfied by Aeronautical Charts — ICAO 1:500 000 or Aeronautical Navigation Charts — ICAO Small Scale, either of these charts may be made available instead of the basic 1:1 000 000 chart.
 - To ensure complete coverage of all land areas and adequate continuity in any one coordinated series, the selection of a scale of other than 1:1 000 000 should be determined by regional agreement.
- iii. **Scales** Linear scales for kilometers and nautical miles arranged in the following order:
 - kilometers,
 - nautical miles, with their zero points in the same vertical line shall be shown in the margin.
 - The length of the linear scales should represent at least 200 km (110 NM).
 - conversion scale (meters/feet) shall be shown in the margin.

iv. **Format**

- The title and marginal notes should be in one of the working languages of ICAO.
- The information regarding the number of the adjoining sheets and the unit of measurement to express elevations shall be so located as to be clearly visible when the sheet is folded.
- The method of folding should be as follows:
Fold the chart on the long axis near the mid-parallel of latitude, face out, with the bottom part of the chart face upward. Fold inward near the meridian, and fold both halves backward in accordion folds.
- Whenever practicable, the sheet lines should conform with those shown in the index in Appendix 5. Annex 4
- Overlaps should be provided by extending the chart area on the top and right side beyond the area given on the index. This overlap area should contain all aeronautical, topographical, hydrographical and cultural information. The overlap should extend up to 28 km (15 NM), if possible, but in any case from the limiting parallels and meridians of each chart to the neat line.

v. Projection The projections shall be as follows:

- between the Equator and 80° latitude: the Lambert conformal conic projection, in separate bands for each tier of charts. The standard parallels for each 4° band shall be 40' south of the northern parallel and 40' north of the southern parallel;
- between 80° and 90° latitude: the Polar stereographic projection with scale matching that of the Lambert conformal conic projection at latitude 80°, except that in the northern hemisphere the Lambert conformal conic projection may be used between 80° and 84° latitude and the Polar stereographic projection between 84° and 90° with the scales matching at 84° North.

- Graticules and graduations shall be shown as follows:

A) Parallels:

Graduations on parallels	Distance between	Latitude
1	30	0° to 72°
5	30	72° to 84°
1°	30	84° to 89°
5°	30	89° to 90°
(Only on degree parallels from 72° to 89°)		

b) Meridians:

Graduations on	Interval between	Latitude
1	30	0° to 52°
1	30	52° to 72°
(Only on even numbered meridians)		
1	1°	72° to 84°
1	5°	84° to 89°
1	15°	89° to 90°
(Only on every fourth meridian)		

- The graduation marks at 1' and 5' intervals shall extend away from the Greenwich Meridian and from the Equator. Each 10' interval shall be shown by a mark on both sides of the graticule

line.

- The length of the graduation marks should be approximately 1.3 mm (0.05 in) for the 1' intervals, and 2 mm (0.08 in) for the 5' intervals and 2 mm (0.08 in) extending on both sides of the graticule line for the 10' intervals.
- All meridians and parallels shown shall be numbered in the borders of the chart. In addition, each parallel shall be numbered within the body of the chart in such a manner that the parallel can be readily identified when the chart is folded.
- The name and basic parameters of the projection shall be indicated in the margin.

vi. Identification Sheet numbering shall be in conformity with the index in Appendix 5.ANNEX 4

vii. Culture and topography

a) Built-up areas : Cities, towns and villages shall be selected and shown according to their relative importance to visual air navigation.

- Cities and towns of sufficient size should be indicated by the outline of their built-up areas and not of their established city limits.

b) Railroads: All railroads having landmark value shall be shown.

- Important tunnels should be shown.

Note.— A descriptive note may be added.

c) Highways and roads: Road systems shall be shown in sufficient detail to indicate significant patterns from the air.

- Roads should not be shown in built-up areas unless they can be distinguished from the air as definite landmarks.

Note.— The numbers or names of important highways may be shown.

d) Landmarks

- Natural and cultural landmarks, such as bridges, prominent transmission lines, permanent cable car installations, wind turbines, mine structures, forts, ruins, levees, pipelines, rocks, bluffs, cliffs, sand dunes, isolated lighthouses and lightships, when considered to be of importance for visual air navigation, should be shown.

e) Political boundaries: International boundaries shall be shown. Undemarcated and undefined boundaries shall be distinguished by descriptive notes.

f) Hydrography: All water features compatible with the scale of the chart comprising shore lines, lakes, rivers and streams (including those non-perennial in nature), salt lakes, glaciers and ice caps shall be shown.

- The tint covering large open water areas should be kept very light.
- Reefs and shoals, including rocky ledges, tidal flats, isolated rocks, sand, gravel, stone and all similar areas, should be shown by symbols when of significant landmark value.

g) Contours : Contours shall be shown. The selection of intervals shall be governed by the requirement to depict clearly the relief features required in air navigation.

- The values of the contours used shall be shown.

h) Hypsometric tints : When hypsometric tints are used, the range of elevations for the tints shall be shown.

- The scale of the hypsometric tints used on the chart shall be shown in the margin.

i) Spot elevations : Spot elevations shall be shown at selected critical points. The elevations selected shall always be the highest in the immediate vicinity and shall generally indicate the top of a peak, ridge, etc. Elevations in valleys and at lake surface levels which are of special value to the aviator shall be shown. The position of each selected elevation shall be indicated by a dot.

- The elevation (in meters or feet) of the highest point on the chart and its geographical position to the nearest five minutes shall be indicated in the margin.

- The spot elevation of the highest point in any sheet should be cleared of hypsometric tinting.

j) Incomplete or unreliable relief : Areas that have not been surveyed for contour information shall be labeled "Relief data incomplete".

- Charts on which spot elevations are generally unreliable shall bear a warning note prominently displayed on the face of the chart in the colour used for aeronautical information, as follows:
"Warning — The reliability of relief information on this chart is doubtful and elevations should be used with caution."

k) Escarpments

- Escarpments should be shown when they are prominent landmarks or when cultural detail is very sparse.

l) Wooded areas

- Wooded areas should be shown.

- Where shown, the approximate extreme northern or southern limits of tree growth shall be indicated by a dashed black line and shall be appropriately labeled.

m) Date of topographic information : The date of latest information shown on the topographic base shall be indicated in the margin.

n) Magnetic variation : Isogonic lines shall be shown.

- The date of the isogonic information shall be indicated in the margin.

o) Aeronautical data

- General Aeronautical data shown shall be kept to a minimum consistent with the use of the chart for visual navigation and the revision cycle (see F).

- Aerodromes Land and water aerodromes and heliports shall be shown with their names, to the extent that they do not produce undesirable congestion on the chart, priority being given to those of greatest aeronautical significance.

- The aerodrome elevation, the lighting available, the type of runway surface and the length of the longest runway or channel, shown in abbreviated form for each aerodrome in conformity with the example given in Appendix 2, Annex 4. provided they do not cause undesirable clutter on the chart, shall be indicated.

- Abandoned aerodromes which are still recognizable as aerodromes from the air shall be shown and identified as abandoned.

- Obstacles : shall be shown.

- When considered of importance to visual flight, prominent transmission lines, permanent cable car installations and wind turbines, which are obstacles, shall be shown.
- Prohibited, restricted and danger areas : shall be shown.
- Air traffic services system : Significant elements of the air traffic services system including, where practicable, control zones, aerodrome traffic zones, control areas, flight information regions and other airspaces in which VFR flights operate shall be shown together with the appropriate class of airspace.
- Where appropriate, the air defence identification zone (ADIZ) shall be shown and properly identified.
- Radio navigation aids shall be shown by the appropriate symbol and named, but excluding their frequencies, coded designators, times of operation and other characteristics unless any or all of this information which is shown is kept up to date by means of new editions of the chart.
- Supplementary information Aeronautical ground lights together with their characteristics or their identifications or both shall be shown.
- Marine lights on outer prominent coastal or isolated features of not less than 28 km (15 NM) visibility range shall be shown:
 - a) where they are not less distinguishable than more powerful marine lights in the vicinity;
 - b) where they are readily distinguishable from other marine or other types of lights in the vicinity of built-up coastal areas;
 - c) where they are the only lights of significance available.

15. AERONAUTICAL CHART — ICAO 1:500 000 : RESERVED

16. AERONAUTICAL NAVIGATION CHART — ICAO SMALL SCALE : RESERVED

17. PLOTTING CHART — ICAO : RESERVED

18. ELECTRONIC AERONAUTICAL CHART DISPLAY — ICAO : RESERVED

19. ATC SURVEILLANCE MINIMUM ALTITUDE CHART — ICAO : RESERVED

SECTION E — NOTAM SERVICE

YCAR 2.30 NOTAM Services General

- a) Each applicant for the grant of an Aeronautical Information Service Certificate for the NOTAM service shall:
 - 1. Designate a NOF for Yemen; and
 - 2. Operate the NOF on a 24 hour basis; and
 - 1 Establish agreements with other international NOTAM offices for the exchange of NOTAM; and
 - 4. Ensure that:
 - i. The NOF is connected to the AFS; and
 - ii. The AFS connection provides for printed communication; and
 - iii. The NOF has appropriate facilities to issue and receive NOTAM distributed by means of telecommunication; and
 - iv. Connected, through the aeronautical fixed service (AFS), to the following points within the territory for which it provides service:
 - a. Area control centers and flight information centers;
 - b. Aerodromes/heliports at which an information service is established in accordance with Section F.
 - 5. Promptly issue a NOTAM that is in accordance with this Section whenever information received under YCAR 2.14.b).1 requires the issue of a NOTAM; and
 - 6. At intervals of not more than one month, issue a checklist via the AFS of the NOTAM that are currently in force.
 - 7. Establish and operate an automated NOTAM management system.
 - 8. Subject to availability, satisfactory operation and bilateral/multilateral and/or regional air navigation agreements, the use of public Internet should be permitted for exchange of non-time critical types of aeronautical information.

Note- Guidance material on non- time critical types of aeronautical information and relevant aspects of the public Internet is provided in the Guidelines on the Use of the Public Internet for Aeronautical Applications (Doc 9855).

YCAR 2.31 Specifications for NOTAM

- a) A NOTAM shall be originated and issued promptly whenever:
 - 1. The information to be promulgated is of a temporary nature and of short duration; or
 - 2. Operationally significant permanent changes or temporary changes of long duration are made at short notice, except that:
 - 3. For information of short duration with extensive text or graphics, when an AIP Supplement should be issued.

- b) Operationally significant changes concerning circumstances listed in Annex 15, Appendix 4, and Part 1 are issued under the AIRAC system.
- c) The regulated system (AIRAC) should also be used for the provision of information relating to the establishment and withdrawal of, and premeditated significant changes in, the issues listed in Annex 15, Appendix 4, Part 2.
- d) A NOTAM shall be originated and issued concerning the following information:
 - 1. Establishment, closure or significant changes in operation of aerodrome(s)/heliport(s) or runways;
 - 2. Establishment, withdrawal and significant changes in operation of aeronautical services (AGA, AIS, ATS, CNS, MET, SAR, etc.);
 - 3. Establishment, withdrawal and significant changes in operational capability of radio navigation and air-ground communication services. This includes: interruption or return to operation, change of frequencies, change in notified hours of service, change of identification, change of orientation (directional aids), change of location, power increase or decrease amounting to 50 per cent or more, change in broadcast schedules or contents, or irregularity or unreliability of operation of any radio navigation and air-ground communication services;
 - 4. Establishment, withdrawal or significant changes made to visual aids;
 - 5. Interruption of or return to operation of major components of aerodrome lighting systems;
 - 6. Establishment, withdrawal or significant changes made to procedures for air navigation services;
 - 7. Occurrence or correction of major defects or impediments in the manoeuvring area;
 - 8. Changes to and limitations on availability of fuel, oil and oxygen;
 - 9. Major changes to search and rescue facilities and services available;
 - 10. Establishment, withdrawal or return to operation of hazard beacons marking obstacles to air navigation;
 - 11. Changes in regulations requiring immediate action, e.g. prohibited areas for SAR action;
 - 12. Presence of hazards which affect air navigation (including obstacles, military exercises, displays, races and major parachuting events outside promulgated sites);

13. Erecting or removal of, or changes to, obstacles to air navigation in the take-off/climb, missed approach, approach areas and runway strip;
14. Establishment or discontinuance (including activation or deactivation) as applicable, or changes in the status of prohibited, restricted or danger areas;
15. Establishment or discontinuance of areas or routes or portions thereof where the possibility of interception exists and where the maintenance of guard on the VHF emergency frequency 121.5 MHz is required;
16. Allocation, cancellation or change of location indicators;
17. Significant changes in the level of protection normally available at an aerodrome/heliport for rescue and firefighting
18. Purposes. NOTAM shall be originated only when a change of category is involved and such change of category shall be clearly stated (see Annex 14, Volume I, Chapter 9, and Attachment A, Section 17) YCAR PART IX SUBPART 2;
19. Presence or removal of, or significant changes in, hazardous conditions due to slush, ice, radioactive material, toxic chemicals, volcanic ash deposition or water on the movement area;
20. Outbreaks of epidemics necessitating changes in notified requirements for inoculations and quarantine measures;
21. Forecasts of solar cosmic radiation, where provided;
22. An operationally significant change in volcanic activity, the location, date and time of volcanic eruptions and/or horizontal and vertical extent of volcanic ash cloud, including direction of movement, flight levels and routes or portions of routes which could be affected;
23. Release into the atmosphere of radioactive materials or toxic chemicals following a nuclear or chemical incident, the location, date and time of the incident, the flight levels and routes or portions thereof which could be affected and the direction of movement;
24. Establishment of operations of humanitarian relief missions, such as those undertaken under the auspices of the United Nations, together with procedures and/or limitations which affect air navigation; and
25. Implementation of short-term contingency measures in cases of disruption, or partial disruption, of air traffic services and related supporting services.
26. When the last friction measurement test shows that paved runway surface friction characteristics are below the Minimum Friction Level the Aerodrome Operator **shall issue a NOTAM** to advise that a runway or portion thereof may be slippery when wet.

Note.— See Annex 11, 2.28 and Attachment D to that Annex.

- e) The need for a NOTAM should be considered in other situations which may affect the operations of aircraft.
- f) The following information shall not be notified by NOTAM:
 - 1. Routine maintenance on aprons or taxiways which will not affect the safe movement of aircraft; or
 - 2. Runway marking work, when aircraft operations can safely be conducted on other runways, or when the equipment can be removed when necessary; or
 - 3. Temporary obstructions in the vicinity of an aerodrome or heliport that do not affect the safe operation of aircraft; or
 - 4. Partial failure of aerodrome or heliport lighting facilities when such failure does not directly affect aircraft operations; or
 - 5. Partial temporary failure of air ground communications when suitable alternative frequencies are known to be available and are operative; or
 - 6. The lack of apron marshaling services or road traffic control; or
 - 7. The unserviceability of location, destination of other instructional signs on the aerodrome movement area; or
 - 8. Parachuting in uncontrolled airspace under VFR, when controlled, at promulgated sites or within danger or prohibited areas; or
 - 9. Other information of similar temporary nature.
- g) At least seven days' advance notice shall be given of the activation of established prohibited, restricted or danger areas and of activities requiring temporary airspace restrictions other than for emergency operations. Notice of any subsequent cancellation of activities, reduction of effective hours or the dimensions of the airspace shall be given as soon as possible.
- h) NOTAM notifying unserviceability of aids to air navigation, facilities or communication services shall give an estimate of the period of unserviceability or the time at which restoration of service is expected.
- i) When an AIP Amendment or an AIP Supplement is issued in accordance with AIRAC procedures, a NOTAM shall be issued giving a brief description of the contents, effective date and reference number of the Amendment or Supplement. This NOTAM shall come into force on the effective date of the Amendment or Supplement and shall remain valid in the preflight bulletin for a period of fourteen days.

Note: See ICAO document 8126 for guidance on the issue of such “trigger” NOTAM

- j) Each NOTAM shall contain the information in the order shown in the NOTAM format in Appendix 6 to ICAO Annex 15. NOTAM text shall be composed of the abbreviated phraseology assigned to the ICAO NOTAM Code complemented by ICAO abbreviations, indicators, designators, call signs, frequencies, figures and plain English language.

Note: The ICAO NOTAM Code, abbreviated phraseologies and abbreviations are contained in ICAO Doc 8400.

- k) When NOTAM is selected for international distribution, English text shall be included for those parts expressed in plain language
- l) NOTAM shall be issued in either of two series:
 - 1. Series A containing information on all airports, facilities and procedures available for use by international civil aviation which are promulgated both internationally and nationally, and
 - 2. Series B containing information of concern to aircraft other than those engaged in international civil aviation promulgated nationally and to selected adjacent States on request.
- m) The NOTAM originator shall allocate to each NOTAM a series identified by a letter and each NOTAM shall be issued a 4 digit serial number by the NOTAM office, starting with 0001 at 0001 UTC on January 01 each year followed by a stroke and a 2 digit number for the year.
- n) When errors occur in a NOTAM, a NOTAM with a new number to replace the erroneous NOTAM shall be issued or the erroneous NOTAM shall be cancelled and a new NOTAM issued.
- o) When a NOTAM is issued which cancels or replaces a previous NOTAM, the series and number of the previous NOTAM shall be indicated. The series, location indicator and subject of both NOTAM shall be the same. Only one NOTAM shall be cancelled or replaced by a NOTAM.
- p) Each NOTAM shall:
 - 1. Be as brief as possible and compiled so that its meaning is clear without the need to refer to another document.
 - 2. Be transmitted as a single telecommunication message
 - 3. Deal with only one subject and one condition of the subject.

Note: Doc 8126 contains guidance on the combination of subject and condition of the subject in accordance with the NOTAM Selection Criteria.
- q) A NOTAM containing permanent or temporary information of long duration shall contain the appropriate AIP or AIP Supplement references.
- r) Location indicators used in a NOTAM shall conform to those in ICAO Doc 7910. A curtailed form of the location indicator shall not be used. Where no location indicator is assigned to the location, the name of the location spelt in accordance with YCAR 2.15.b).8 shall be entered in the text of the NOTAM in plain language
- s) The NOTAM checklist required under YCAR 2.30.a).6 shall:
 - 1. Be issued for each series; and
 - 2. Refer to the latest AIP Amendments, AIP Supplements and the internationally distributed AICs; and
 - 3. Be distributed to the same distribution list as the actual NOTAM series to

which the checklist refers and be clearly identified as a checklist.

- t) A monthly printed plain-language list of valid NOTAM, including indications of the latest AIP Amendments, AIC issued and a checklist of AIP Supplements, shall be prepared with a minimum of delay and forwarded by the most expeditious means to recipients of the Integrated Aeronautical Information Package.
- u) Information concerning an operationally significant change in volcanic activity, a volcanic eruption and/or volcanic ash cloud shall, when reported by means of an ASHTAM, contain the information in the order shown in the ASHTAM Format in Appendix 3 of annex 15.

YCAR 2.32 Distribution of NOTAM

- a) The CAMA shall determine which NOTAM are to be given international distribution.
 - b) NOTAM shall:
 - 1. Be distributed on the basis of a request from an authorized originator of NOTAM; and
 - 2. Be prepared in conformity with the relevant provisions of ICAO communication procedures; and
 - 3. Use the AFS whenever practicable for distribution.
 - c) International exchange of NOTAM shall take place in accordance with agreements detailed in YCAR 2.30.a).3. When such a NOTAM exchange sent by means other than the AFS, a six digit date time group indicating the date and time of NOTAM origination, and the identification of the originator shall be used, preceding the text.
 - d) The exchanges of NOTAM between international NOF shall, as far as is practicable, be limited to the requirements of the receiving States concerned by means of separate series providing for at least international and domestic flights.
 - e) Selective predetermined NOTAM distribution lists should be used when practicable.
- Note:** Guidance material related to distribution lists is contained in ICAO Doc 8126.
- f) The international exchange of ASHTAM (see YCAR2.31(u)), and NOTAM where States continue to use NOTAM for distribution of information on volcanic activity, shall include volcanic ash advisory centers and the centers designated by regional air navigation agreement for the operation of AFS satellite distribution systems (satellite distribution system for information relating to air navigation (SADIS) and international satellite communications system (ISCS)), and shall take account of the requirements of long-range operations .
 - g) A predetermined distribution system for NOTAM transmitted on the AFS in accordance with Annex15 Appendix 5 shall be used whenever possible, subject to the requirements of YCAR2.32 item (f).

SECTION F — PRE-FLIGHT INFORMATION SERVICE

YCAR 2.33 Pre-Flight Information Services General

- a) Each applicant for the grant of an Aeronautical Information Service Certificate the pre-flight information service shall, for the pre-flight service/s listed in their exposition, specify:
 - 1. The geographic area; and
 - 2. The aerodrome/s and the route stages originating from those aerodromes.
- b) The holder of an Aeronautical Information Service Certificate for the Pre- Flight Information Service shall ensure that, at any aerodrome or heliport normally used for international air operations, aeronautical information essential for the safety, regularity and efficiency of navigation on international routes and destinations relative to the aerodrome or heliport, is made available to flight operations personnel, including flight crews, and services responsible for pre- flight information.
- c) Aeronautical information provided the pre-flight planning purposes at the aerodromes or heliports referred to in YCAR 2.33.b), shall include relevant elements of the Integrated Aeronautical Information Package and relevant maps and charts. These documents may be limited to national publication and when practicable, those of immediately adjacent States, provided a complete library of aeronautical information is available at a central location and means of direct communications are available between an aerodrome briefing office and that library.
- d) Additional current information relating to the aerodrome of departure shall be provided concerning the following:
 - 1. Construction or maintenance work on or immediately adjacent to the manoeuvring area;
 - 2. Rough portions of any part of the manoeuvring area whether marked or not;
 - 3. The presence and depth of water on runways and taxiways, including the effect on surface friction;
 - 4. Parked aircraft or other objects on or immediately adjacent to taxiways;
 - 5. The presence of other temporary hazards;
 - 6. The presence of birds or other wildlife constituting a potential hazard to aircraft operations;
 - 7. Failure or irregular operation of part or all of the aerodrome lighting system including approach, threshold, runway, taxiway, obstruction and manoeuvring area unserviceability lights and aerodrome power supply;
 - 8. failure, irregular operation and changes in the operational status of SSR, ADS-B, ADS-C, CPDLC, D-ATIS, D-VOLMET, radio navigation services, VHF aeromobile

channels, RVR observing system, and secondary power supply; and;

9. presence and operation of humanitarian relief missions, such as those undertaken under the auspices of the United Nations, together with any associated procedures and/or limitations applied thereof.
- e) A recapitulation of current NOTAM and other information of urgent character shall be made available to flight crews in the form of plain-language pre-flight information bulletins (PIB).
- f) The holder of an Aeronautical Information Service Certificate shall ensure that arrangements are made to receive information concerning the state and operation of air navigation facilities or services noted by air crew and shall ensure that such information is made available to the aeronautical information services for such distribution as the circumstances necessitate.

Note.— Guidance on the preparation of PIB is contained in the Aeronautical Information Services Manual (Doc 8126).

YCAR 2.34 Automated Pre-Flight Information Services General

- a) Each applicant for the grant of an Aeronautical Information Service Certificate for the pre – flight information service who wishes to automate the PIB shall obtain CAMA acceptance of the automated system in accordance with YCAR Part VIII, Subpart 1 YCAR 1.13.a).
- b) Automated pre-flight information systems shall be used to make aeronautical data and aeronautical information available to operations personnel including flight crew members for self-briefing, flight planning and flight information service purposes. The aeronautical data and aeronautical information made available shall comply with the provisions of YCAR2.33.c) and 2.33.e).
- c) Self-briefing facilities of an automated pre-flight information system shall provide access to operations personnel, including flight crew members and other aeronautical personnel concerned, for consultation as necessary with the AIS by telephone or other suitable telecommunications means. The human/machine interface of such facilities shall ensure easy access in a guided manner to all relevant information/data.
- d) Each applicant shall establish procedures to ensure that Automated pre-flight information systems for the supply of aeronautical data and aeronautical information for self-briefing, flight planning and flight information service shall provide:
 1. The documents referred to in YCAR 2.33.c) to YCAR 2.33.e) inclusive;
 2. Meteorological information as required by ICAO Annex 3, Chapter 9, subject to agreement with the Meteorological Authority;
 3. NOTAM relevant to the destination airport, alternate airport and the route stage to be flown;
 4. Access to the system by operations personnel including flight crew members and other aeronautical personnel concerned, shall include:

5. easy access in a guided manner to all relevant information and data;
6. consultation as necessary with AIS and Meteorological staff;
7. Continuous and timely updating of the system database;
8. Monitoring of the validity and quality of the aeronautical information stored;
9. Provision for paper printed versions of the information accessible;
10. A rapid response to user inputs.
11. Use access and interrogation procedures based on abbreviated plain language and ICAO location indicators, as appropriate, or based on a menu-driven user interface or other appropriate mechanism as agreed between the civil aviation authority and operator concerned.

Note. — ICAO abbreviations and codes and location indicators are given respectively in the Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC, Doc 8400) and Location Indicators (Doc 7910).

YCAR 2.35 Post Flight information

- a) Each applicant for the grant of an Aeronautical Information Service Certificate for the pre-flight information service shall ensure that arrangements are made to receive at aerodromes/heliports information concerning the state and operation of air navigation facilities or services noted by aircrews and shall ensure that such information is made available to the aeronautical information service for such distribution as the circumstances necessitate.
- b) Ensure that arrangements are made to receive at aerodromes/heliports information concerning the presence of birds observed by aircrews and shall ensure that such information is made available to the aeronautical information service for such distribution as the circumstances necessitate.

Note. — See Annex 14, Volume I, Chapter 9, Section 9.4.

SECTION G — ELECTRONIC TERRAIN, OBSTACLE DATA AND AERODROME MAPPING DATA

YCAR 2.36 ELECTRONIC TERRAIN AND OBSTACLE DATA

Note.— Electronic terrain and obstacle data are intended to be used in the following air navigation applications:

- a) Ground proximity warning system with forward looking terrain avoidance function and minimum safe altitude warning system;
- b) Determination of contingency procedures for use in the event of an emergency during a missed approach or take-off;
- c) Aircraft operating limitations analysis;
- d) Instrument procedure design (including circling procedure);
- e) Determination of en-route “drift-down” procedure and en-route emergency landing location;
- f) Advanced surface movement guidance and control system; and
- g) Aeronautical chart production and on-board databases.

The data may also be used in other applications such as flight simulator and synthetic vision systems, and may assist in determining the height restriction or removal of obstacles that pose a hazard to air navigation.

- a) Coverage areas and requirements for data provision .
 - 1) The coverage areas for sets of electronic terrain and obstacle data shall be specified as:
 - Area 1: The entire territory of a State;
 - Area 2: Within the vicinity of an aerodrome, subdivided as follows:
 - Area 2a: A rectangular area around a runway that comprises the runway strip plus any clearway that exists;
 - Area 2b: An area extending from the ends of Area 2a in the direction of departure, with a length of 10 km and a splay of 15 per cent to each side;
 - Area 2c: An area extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a; and
 - Area 2d: An area outside the Areas 2a, 2b and 2c up to a distance of 45 km from the aerodrome reference point, or to an existing terminal control area (TMA) boundary, whichever is nearest;
 - Area 3: The area bordering an aerodrome movement area that extends horizontally

from the edge of a runway to 90 m from the runway center line and 50 m from the edge of all other parts of the aerodrome movement area; and

- Area 4: The area extending 900 m prior to the runway threshold and 60 m each side of the extended runway center line in the direction of the approach on a precision approach runway, Category II or III.

Note.— See Annex 14, Volume I, Chapter 3, for dimensions for runway strip.

Note.— See Appendix 8 of Annex 15 for descriptions and graphical illustrations of the coverage areas.

- 2) Where the terrain at a distance greater than 900 m (3 000 ft) from the runway threshold is mountainous or otherwise significant, the length of Area 4 should be extended to a distance not exceeding 2 000 m (6 500 ft) from the runway threshold.
- 3) Electronic terrain data shall be provided for Area 1. The obstacle data shall be provided for obstacles in Area 1 higher than 100 m above ground.
- 4) At aerodromes regularly used by international civil aviation, electronic obstacle data shall be provided for all obstacles within Area 2 that are assessed as being a hazard to air navigation.
- 5) At aerodromes regularly used by international civil aviation, electronic terrain data shall be provided for:
 - i) Area 2a;
 - ii) the take-off flight path area; and
 - iii) an area bounded by the lateral extent of the aerodrome obstacle limitation surfaces.
- 6) At aerodromes regularly used by international civil aviation, electronic obstacle data shall be provided for:
 - i) Area 2a for those obstacles that penetrate the relevant obstacle data collection surface specified in Appendix 8 of Annex 15;
 - ii) objects in the take-off flight path area which project above a plane surface having a 1.2 per cent slope and having a common origin with the take-off flight path area; and
 - iii) penetrations of the aerodrome obstacle limitation surfaces.

Note.— Take-off flight path areas are specified in Annex 4, 3.8.2. Aerodrome obstacle limitation surfaces are specified in Annex 14, Volume 1, Chapter 4.

- 7) At aerodromes regularly used by international civil aviation, electronic terrain and obstacle data should be provided for Areas 2b, 2c and 2d for obstacles and terrain that penetrate the relevant terrain and obstacle data collection surface specified in Appendix 8 of Annex 15, except that data need not be collected for obstacles less than a height of 3

m above ground in Area 2b and less than a height of 15 m above ground in Area 2c.

- 8) At aerodromes regularly used by international civil aviation, electronic terrain and obstacle data should be provided for Area 3 for terrain and obstacles that penetrate the relevant obstacle data collection surface specified in Appendix 8, Figure A8-3 of Annex 15.
- 9) At aerodromes regularly used by international civil aviation, electronic terrain and obstacle data shall be provided for Area 4 for terrain and obstacles that penetrate the relevant obstacle data collection surface specified in Appendix 8 of Annex 15, for all runways where precision approach Category II or III operations have been established and where detailed terrain information is required by operators to enable them to assess the effect of terrain on decision height determination by use of radio altimeters.

Note.— Area 4 terrain data and Area 2 obstacle data are normally sufficient to support the production of the Precision Approach Terrain Chart — ICAO. When more detailed obstacle data are required for Area 4, these may be provided in accordance with the Area 4 obstacle data requirements specified in Appendix 8, Table A8-2 of Annex 15. Guidance material on accordance with the Area 4 obstacle data requirements specified in Appendix 8, Table A8-2. Guidance material on appropriate obstacles for this chart is given in the Aeronautical Chart Manual (Doc 8697).

- 10) Where additional electronic obstacle or terrain data are collected to meet other aeronautical requirements, the obstacle and terrain data sets should be expanded to include these additional data.
- 11) Arrangements should be made for the coordination of providing Area 2 electronic terrain and obstacle data for adjacent aerodromes where their respective coverage areas overlap to assure that the data for the same obstacle or terrain are correct.
- 12) At those aerodromes located near Sanna'a territorial boundaries, arrangements should be made among Sanna'a FIR and adjacent FIR concerned to share Area 2 electronic terrain and obstacle data.

b) Terrain data set — Content, numerical specification and structure :-

- 1) A terrain data set shall contain digital sets of data representing terrain surface in the form of continuous elevation values at all intersections (points) of a defined grid, referenced to common datum. A terrain grid shall be angular or linear and shall be of regular or irregular shape.

Note — In regions of higher latitudes, latitude grid spacing may be adjusted to maintain a constant linear density of measurement points.

- 2) Sets of electronic terrain data shall include spatial (position and elevation), thematic and temporal aspects for the surface of the Earth containing naturally occurring features such as mountains, hills, ridges, valleys, bodies of water, permanent ice and snow, and excluding obstacles. In practical terms, depending on the acquisition method used, this shall represent

the continuous surface that exists at the bare Earth, the top of the canopy or something in-between, also known as “first reflective surface”.

- 3) In terrain data sets, only one feature type, i.e. terrain, shall be provided. Feature attributes describing terrain shall be those listed in Table A8-3 of Annex 15. The terrain feature attributes listed in Table A8-3 represent the minimum set of terrain attributes, and those annotated as mandatory shall be recorded in the terrain data set.
- 4) Electronic terrain data for each area shall conform to the applicable numerical requirements in Appendix 8, Table A8-1 of Annex 15.

c) Obstacle data set — Content, numerical specification and structure:-

- 1) Obstacle data shall comprise the digital representation of the vertical and horizontal extent of the obstacle. Obstacles shall not be included in terrain data sets. Obstacle data elements are features that shall be represented in the data sets by points, lines or polygons.
- 2) In an obstacle data set, all defined obstacle feature types shall be provided and each of them shall be described according to the list of mandatory attributes provided in Annex 15, Appendix 8, Table A8-4.

Note.— By definition, obstacles can be fixed (permanent or temporary) or mobile. Specific attributes associated with mobile (feature operations) and temporary types of obstacles are annotated in Annex 15, Appendix 8, Table A8-4, as optional attributes. If these types of obstacles are to be provided in the data set, appropriate attributes describing such obstacles are also required.

- 3) Electronic obstacle data for each area shall conform to the applicable numerical requirements in Annex 15, Appendix 8, Table A8-2.

d) Terrain and obstacle data product specifications:-

- 1) To allow and support the interchange and use of sets of electronic terrain and obstacle data among different data providers and data users, the ISO 19100 series of standards for geographic information shall be used as a general data modeling framework.
- 2) A comprehensive statement of available electronic terrain and obstacle data sets shall be provided in the form of terrain data product specifications as well as obstacle data product specifications on which basis air navigation users will be able to evaluate the products and determine whether they fulfill the requirements for their intended use (application).

Note.— ISO Standard 19131 specifies the requirements and outline of data product specifications for geographic information.

- 3) Each terrain data product specification shall include an overview, specification scope, data product identification, data content and structure, reference system, data quality, data

capture, data maintenance, data portrayal, data product delivery, additional information and metadata.

- 4) The overview of terrain data product specifications or obstacle data product specifications shall provide an informal description of the product and shall contain general information about the data product. Specification of terrain data may not be homogenous across the whole data product but may vary for different parts of the data sets. For each such subset of data, a specification scope shall be identified. Identification information concerning both terrain and obstacle data products shall include the title of the product; a brief narrative summary of the content, purpose, and spatial resolution if appropriate (a general statement about the density of spatial data); the geographic area covered by the data product; and supplemental information.
- 5) Content information of feature-based terrain data sets or of feature-based obstacle data sets shall each be described in terms of an application schema and a feature catalogue. Application schema shall provide a formal description of the data structure and content of data sets while the feature catalogue shall provide the semantics of all feature types together with their attributes and attribute value domains, association types between feature types and feature operations, inheritance relations and constraints. Coverage is considered a subtype of a feature and can be derived from a collection of features that have common attributes. Both terrain and obstacle data product specifications shall identify clearly the coverage and/or imagery they include and shall provide a narrative description of each of them.

Note 1.— ISO Standard 19109 contains rules for application schema while ISO Standard 19110 describes the feature cataloguing methodology for geographic information.

Note 2.— ISO Standard 19123 contains schema for coverage geometry and functions.

- 6) Both terrain and obstacle data product specifications shall include information that identifies the reference system used in the data product. This shall include the spatial reference system and temporal reference system. Additionally, both data product specifications shall identify the data quality requirements for each data product. This shall include a statement on acceptable conformance quality levels and corresponding data quality measures. This statement shall cover all the data quality elements and data quality sub-elements, even if only to state that a specific data quality element or sub-element is not applicable.

Note.— ISO Standard 19113 contains quality principles for geographic information while ISO Standard 19114 covers quality evaluation procedures.

- 7) Terrain data product specifications shall include a data capture statement which shall be a general description of the sources and of processes applied for the capture of terrain data. The principles and criteria applied in the maintenance of terrain data sets and obstacle data sets shall also be provided with the data specifications, including the frequency with which data products are updated. Of particular importance shall be the maintenance information of obstacle data sets and an indication of the principles, methods and criteria applied for

obstacle data maintenance.

- 8) Terrain data product specifications shall contain information on how data held with data sets are presented, i.e. as a graphic output, as a plot or as an image. The product specifications for both terrain and obstacles shall also contain data product delivery information which shall include delivery formats and delivery medium information.

Note.— ISO Standard 19117 contains a definition of the schema describing the portrayal of geographic information including the methodology for describing symbols and mapping of the schema to an application schema.

- 9) The core terrain and obstacle metadata elements shall be included in the data product specifications. Any additional metadata items required to be supplied shall be stated in each product specification together with the format and encoding of the metadata.

Note.— ISO Standard 19115 specifies requirements for geographic information metadata

- 10) The obstacle data product specification, supported by geographical coordinates for each aerodrome included within the dataset, shall describe the following areas:

- Areas 2a, 2b, 2c, 2d;
- the take-off flight path area; and
- the obstacle limitation surfaces.

YCAR 2.37 AERODROME MAPPING DATA

Note 1.— Aerodrome mapping data include aerodrome geographic information that supports applications which improve the user's situational awareness or supplements surface navigation, thereby increasing safety margins and operational efficiency. Aerodrome mapping data sets with appropriate data element accuracy support requirements for collaborative decision making, common situational awareness, and aerodrome guidance applications are intended to be used, among others, in the following air navigation applications:

- a) Position and route awareness including moving maps with own ship position, surface guidance and navigation (such as advanced surface movement guidance and control system);
- b) Traffic awareness including surveillance and runway incursion detection and alerting;
- c) Facilitation of aerodrome-related aeronautical information, including NOTAM;
- d) Resource and aerodrome facility management; and
- e) Aeronautical chart production.

The data may also be used in other applications such as flight simulator and synthetic vision systems.

Note 2.— Aerodrome mapping data are organized and arranged in aerodrome mapping databases (AMDBs) for ease of electronic storage and usage by appropriate applications.

a) Aerodrome mapping data — Requirements for provision :-

- 1) Aerodrome mapping data should be supported by electronic terrain and obstacle data for Area 3 in order to ensure consistency and quality of all geographical data related to the aerodrome.

Note 1.— Accuracy and integrity requirements for aerodrome mapping data are contained in Annex 14, Volume I, Appendix 5.

Note 2.— Electronic terrain and obstacle data pertaining to Area 3 and aerodrome mapping data may be originated using common acquisition techniques and managed within a single geographic information system (GIS).

Note 3.— Supporting material with respect to the processing of electronic terrain and obstacle data and aerodrome mapping data is contained in Radio Technical Commission for Aeronautics (RTCA) Document DO-200A and European Organization for Civil Aviation Equipment (EUROCAE) Document ED-76 — Standards for Processing Aeronautical Data.

b) Aerodrome mapping data product specification :-

- 1) The ISO 19100 series of standards for geographic information shall be used as a reference framework.

Note.— This is intended to facilitate and support the use and exchange of aerodrome mapping data between data providers and data users.

- 2) Aerodrome mapping data products shall be described following the ISO 19131 data product specification standard.

Note.— This includes an overview, specification scope, data product identification, data content and structure, reference system, data quality, data capture, data maintenance, data portrayal, data product delivery, additional information and metadata.

c) Aerodrome mapping database — Data set content and structure :-

- 1) The content and structure of aerodrome mapping data sets shall be defined in terms of an application schema and a feature catalogue.

Note.— ISO Standard 19109 contains rules for application schema while ISO Standard 19110 describes the feature cataloguing methodology for geographic information.

- 2) Aerodrome mapping data sets shall contain aerodrome mapping data consisting of aerodrome features.

Note 1.— Aerodrome features consist of attributes and geometries, which are characterized as

points, lines or polygons. Examples include runway thresholds, taxiway guidance lines and parking stand areas.

Note 2.— Aerodrome mapping data feature definitions, constraints and rules applicable to aerodrome mapping data are contained in RTCA Document DO-272C and EUROCAE Document ED-99C — User Requirements for Aerodrome Mapping Information. These constraints ensure the connectivity between features on a spatial and functional level in accordance with the connections observed in the real world.

Note 3.— An application schema applicable to aerodrome mapping data feature definitions may be found in RTCA Document DO-291B and EUROCAE Document ED-119B — Interchange Standards for Terrain, Obstacle, and Aerodrome Mapping Data. This application schema contains a feature catalogue which specifies the feature types and associated attributes.

3) Aerodrome mapping metadata shall comply with ISO 19115.

Note.— Metadata elements applicable to aerodrome mapping data are contained in RTCA Document DO-291B and EUROCAE Document ED-119B.

SECTION H — FLIGHT PLANS

YCAR 2.38 Flight Plans

- (a) Each applicant for the grant of aeronautical information services certificate shall establish procedures for the acceptance and processing of flight plans in accordance with YCAR Part VIII SUBPART (4), unless this function has been allocated to AIS HQ. flight planning office, when necessary for the provision of aeronautical information services including –
 - (1) A check for compliance with any prescribed flight plan format and data conventions; and
 - (2) A check for completeness, and, to the extent practical, for accuracy; and
 - (3) Provision for any action necessary to make the plan acceptable to ATS.
- (b) The applicant for the grant of aeronautical information services certificate operating a HQ. flight planning office shall ensure that the office is equipped with –
 - (1) Appropriate communication facilities, for the acceptance of flight plans from aircraft operators and any other ATS unit; and
 - (2) Facilities for the advance filing, retention, and activation of standard or repetitive elements of flight plan information.
- (c) Procedures for the submission of a flight plan:
 - (1) A flight plan shall be submitted prior to operating any flight.
 - (2) Except for repetitive flight plans, a flight plan shall be submitted at least 60 minutes prior to EOBT, or if submitted during flight, at a time which will ensure its receipt by the appropriate air traffic services unit at least ten minutes before the aircraft is estimated to reach;
 - i. the intended point of entry into a control area or advisory area; or
 - ii. the point of crossing an airway or advisory route.
 - (3) 30 minutes delay is granted after the approved EOBT.
 - (4) Flight plans shall be submitted at AIS aerodrome unit, AFS: OYSNZPZX, or at ATS unit of the aerodrome of departure.
 - (5) In the absence of such unit at the aerodrome of departure, a flight plan shall be submitted by telephone or by any communication means available to the nearest AIS or ATS unit.
- (c) Any applicant intending to provide aeronautical information services from more than one location may nominate a single AIS unit within the service provider to accept filed flight plans on behalf of any or every unit;
- (d) Each applicant for the grant of an aeronautical information services certificate intending to operate a HQ. flight planning office shall ensure that the office is equipped with:

- (1) AFS, facsimile, and computer facilities, for the acceptance of flight plans from aircraft operators and any other AIS unit; and
 - (2) Facilities for the advance filing , retention, and activation of standard or repetitive elements of flight plan information.
- (e) Each applicant shall ensure that the acceptance procedures required by paragraph (a) include, for the first AIS unit receiving any types of the flight plans (except RPL) this shall include:
- (1) A check for compliance with any prescribed flight plan format and data conventions;
 - (2) A check for completeness, and to the extent practical, for accuracy;
 - (3) Provision for any action necessary to make the flight plan acceptable to AIS.
 - (4) Indicate acceptance of the flight plan or change thereto, to the originator.
- .
- (f) Requirements related to RVSM airspace:
- (1) Flights will not be given access to Yemen RVSM airspace when:
 - (a) No flight plan has been received, or
 - (b) A flight plan has been received, but the required RVSM data has not been included in the flight plan.
 - (2) Except as indicated in item (4) below, flight between FL 290 to FL 410 is for exclusive use of RVSM approved aircraft. Non-RVSM certified aircraft shall not flight plan accordingly in RVSM airspace.
 - (3) Operators of RVSM certified aircraft shall insert the letter "W" in item 10 of the flight plan regardless of the requested level.
 - (4) Acceptance of non-RVSM State aircraft for flight at RVSM levels is subject to prevailing traffic conditions. RVSM certified aircraft will be afforded priority in order to make maximum use of airspace capacity. So, consequently operators of State aircraft intending to navigate within Sana'a FIR are advised to flight plan at non-RVSM levels.
 - (5) Operators of non-RVSM certified State aircraft requesting a flight level within RVSM airspace shall insert the phrase "STS/NON-RVSM" IN ITEM 18 of the flight plan.
 - (6) Operator shall ensure prior departure:
 - i. If the flight is intended to operate on an route/area where a required navigation performance (RNP) type is prescribed, the aircraft has an appropriate RNP approval, and that all conditions applying to that approval will be satisfied; and.
 - ii. Ensure that, where operation in RVSM airspace is planned, the aircraft has the required RVSM approval.
- (g) RNAV Navigation requirements:

Refer to YCAR Part VIII Subpart 4.

- (h) Each applicant for the grant of aeronautical information services certificate shall establish procedures acceptable to the CAMA for the acceptance and auctioning of repetitive flight plans in accordance with document 4444 and document 7030 (ICAO regional supplementary procedures);
- (i) Incidental changes and cancellations of RPL relating to departures from Yemen aerodromes shall be notified as early as possible and not later than 60 minutes before departure;
- (j) A check for compliance with any repetitive flight plan format and data conventions; and
- (k) The first ATS unit receiving a repetitive flight plan, flight plan or change thereto, shall:
 - (1) check it for compliance with the format and data conventions;
 - (2) check it for completeness and, to the extent possible, for accuracy;
 - (3) Take action, if necessary, to make it acceptable to the air traffic services.
- (l) Each applicant for the grant of an aeronautical information services certificate shall establish procedures for the acceptance of AFTN flight plan and associated messages;
- (m) Each applicant shall ensure that the acceptance procedures required by paragraph (a) include, for each aerodrome AIS unit receiving the AFS flight plan and associated messages at which the aircraft of such type of flight plan will arrive:

YCAR 2.39 Shift Administration

- (a) Each applicant for the grant of aeronautical information services certification shall establish a procedure to ensure that:
 - (1) Adequate time is provided at the beginning and end of each shifts, for the performance of those duties required:
 - (i) Before providing an aeronautical information services; and
 - (ii) After ceasing to provide an aeronautical information services.
 - (2) A minimum of 10-minutes is provided for each transfer of watch at an AIS operational position.

SUBPART 2: Appendix 1

APPENDIX 1 - APPLICATION FOR AN AIS PROVIDERS CERTIFICATE

**Civil Aviation and Met. Authority
P.O. Box 7251
Sana'a - Yemen**

Name of Unit	
Administrative Authority	

One copy of the AIS Organization's Exposition, prepared in accordance with the Civil Aviation Regulations, is enclosed with this application.

The Certificate will be based on the particulars contained in the AIS Organization's Exposition

On behalf of the Administrative Authority named above, I certify that the information contained in the AIS Organization Exposition is correct in every respect and that no relevant information has been withheld.

Name

Signature

Date

AIS Form 01:

NPA COMMENT-RESPONSE TOOL (CRT)

CRT Terms of use

NPA 01-2020 RESPONSE SHEET

Please return this response sheet by E-mail: legislation.dir@cama.gov.ye and [cc: civilaviation@y.net.ye](mailto:civilaviation@y.net.ye) Please indicate your acceptance or otherwise of the proposal by ticking [✓] the appropriate box below. Any additional constructive comments, suggested amendments or alternative action will be welcome and may be provided on this response sheet or by separate correspondence.

- ☐ The proposals are ***acceptable without change.***
- ☐ The proposals are ***acceptable but would be improved if the following changes were made:*** (Please provide explanatory comment).

.....

.....

.....

.....

- ☐ The proposals are ***not acceptable but would be acceptable if the following changes were made:*** (Please provide explanatory comment).

.....

.....

.....

.....

- ☐ The proposals are ***not acceptable under any circumstances.*** (Please provide explanatory comment).

.....

.....

.....

Name.....Orgnaisation:.....

Address/Contact No:.....

Signed: Date: