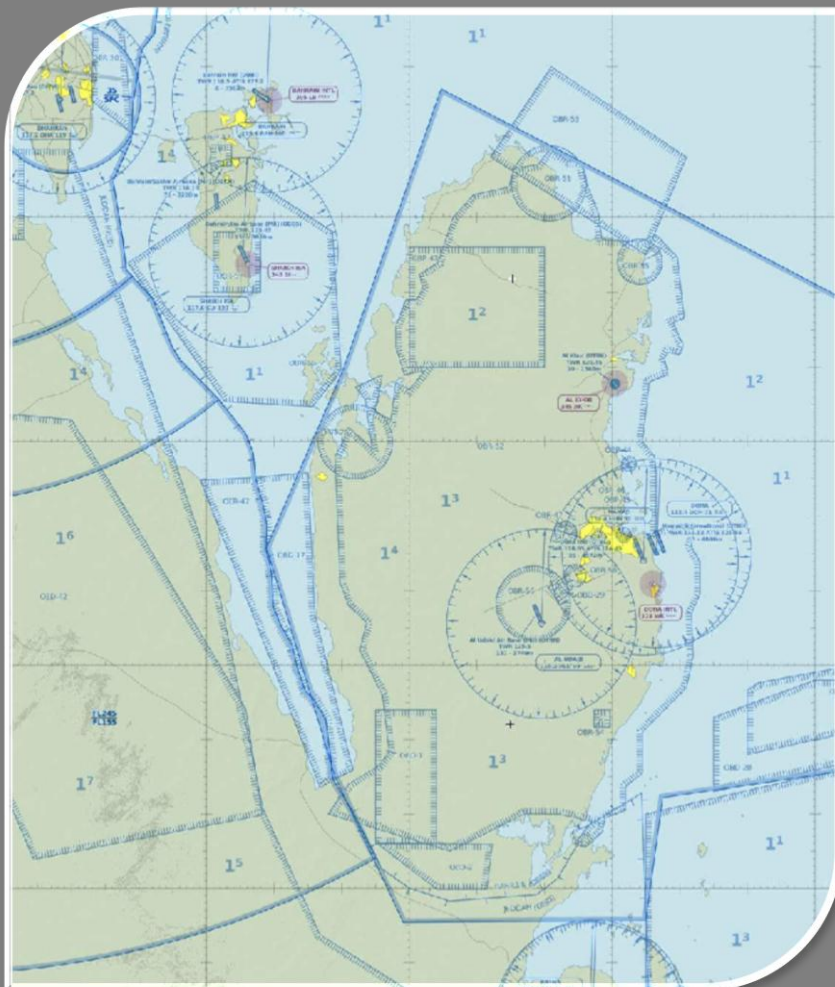


II / 2014

QATAR, AERONAUTICAL CHART - ICAO PROPOSAL



INDOAVIS NUSANTARA
INDOAVIS NUSANTARA, INC
II / 2014





Aeronautical Chart – ICAO

1:500 000

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I. INTRODUCTION

PT INDOAVIS NUSANTARA, as an Indonesian National Company, has for 15 (fifteen) years, experience in Geo Informatics and Aeronautical Navigation Support, and has proven its ability and proven in the ability to serve the needs of the Nation. Since 1998 Indoavis has produced various Aeronautical Product and services, among others, the need of VFR Chart (the ONC and SAC), which previously the Indonesian Aviation Industry, has been heavily relying on US DOD VFR Charts.

In 2004, Indoavis has been requested by the Indonesia government (DGCA) to create the AIP (Aeronautical Information Publication) 7th Edition of Indonesia. The Indonesian Airforce has been supplied with FLIP (Flight Information Publication), off all military airport by Indoavis. Oil company operating in Indonesia requested to provide Helicopter procedure for the landing procedure scale 1:125.000.

Also been entrusted by German Lido Lufthansa to supply GIS on all Airport World wide, The Indoavis Product and services has served Indonesia and surrounding countries, be it the Government, Private and Oil Companies.

The Qatar AIS, has request Indoavis of the possibility to Generate The Qatar Aeronautical Chart-ICAO 1:500.000, and we are very pleased to attend to the request. For further details, please visit our website <http://www.indoavis.co.id>.

II. AERONAUTICAL CHART-ICAO

Aeronautical Chart-ICAO cover land areas at a standard size and scale (1:500,000) for navigation by moderate speed aircraft and aircraft operating at high altitudes. The topographical information includes city tints, principal roads, railroads, distinctive landmarks, drainage patterns and relief. The aeronautical information includes visual and radio aids to navigation, airports, airways, restricted areas, obstructions and other pertinent data. These charts are revised and updated annually.

FUNCTION

This chart shall provide information to satisfy the requirements of visual air navigation for low speed, short- or medium-range operations at low and intermediate altitudes.

Note 1. *This chart may be used:*

- *to serve as a basic aeronautical chart*
- *to provide a suitable medium for basic pilot and navigation training*
- *to supplement highly specialized charts which do not provide essential visual information*
- *in pre-flight planning.*

Note 2; *It is intended that these charts be provided for land areas where charts of this scale are required for civil air operations employing visual air navigation independently or in support of other forms of air navigation.*

Note 3; *where States produce charts of this series covering their national territories, the entire area being portrayed is usually treated on a regional basis.*

Availability

Recommendation; The Aeronautical Chart — ICAO 1:500 000 should be made available in the manner prescribed in 1.3.2 for all areas delineated in Appendix 5.

III. RESPONSIBILITY

The authority responsible for the production of aeronautical charts is the Qatar Civil Aviation Authority.

Aeronautical charts have been prepared in accordance with the standards and recommended practices of ICAO (Annex 4) Chapter 17 – Aeronautical Charts, and the guidance material in the ICAO Aeronautical Charts Manual (Doc 8697 - AN/889/2).

State Responsibility

- Copyright by : Qatar Civil Aviation Authority
- Publication by : Qatar Civil Aviation Authority
- Data compilers by : Indoavis Nusantara
- Production by : Indoavis Nusantara

IV. TYPE OF REQUIREMENTS DATA

Requirements in the manufacture of aeronautical maps with a scale 1:500.000 ICAO format require official data sources, sourced from the local government and resource providers that can be accounted, it relates to insurance and aviation safety.

The requirements are as follows:

1. AERONAUTICAL DATA

A. AIP (Aeronautical Information Publication)

AIP used by INDOAVIS in generating AC-ICAO-1: 500,000 is eAIP Bahrain web address (<http://bahrainaims.com/aisjan2014/2014-02-06-AIRAC/html/index-en-BH.html>), with effective 06 FEB 2014 Issued by the State Kingdom of Bahrain

B. POINT DATA REFERENCES

Source data Aerodrome (ARP), Navigation Aids (VORDME, NDB, VORTAC) Aerodrome and Runway Elevation and dimension of data are obtained from AIP , the recorded airports are as much as 7 (Seven) Airports that is :

- | | | | |
|----|--------|--------------------------|----------------|
| 1. | (OBBI) | BAHRAIN INTERNATIONAL | 06 FEB 2014 |
| 2. | (OBBS) | BAHRAIN / ISA AIRBASE | 06 FEB 2014 |
| 3. | (OBKH) | BAHRAIN / SAKHIR AIRBASE | 06 FEB 2014 |
| 4. | (OTBD) | DOHA INTERNATIONAL | 06 FEB 2014 |
| 5. | (OTBK) | AL KHOR | 06 FEB 2014 |
| 6. | (OTHH) | HAMAD INTERNATIONAL | 06 FEB 2014 |
| 7. | (OTBH) | AL-UDAID | SUPP (19/2013) |

Note: For airport DHAHRAN (Saudi Arabia) and Dalma (United Arab Emirates) are obtained from WAC-ICAO map sources code 2547, 2004 Bahrain scale 1:1,000,000. Navigation and maps contained in the AIP PDF files, such as: Aerodrome Index Chart, Radio Facility Index chart, Area Chart Edition 9.1.2014

C. POLYGON DATA REFERENCES

For data sources, and special use airspace, the Airspace Data are taken from ENR5.1 AIP-2 s / d 1-4, ENR 2.1 FIR, UIR, TMA, CTA edition of 6 February 2014, and for terminals acquired from the AD 2:17 Airspace ATS airspace at each respective airports.

2. TOPOGRAPHICAL DATA

Topographic data (Roads, shore lines, lakes, residential areas, network power voltage and political map) obtained from the QATAR GIS PORTAL, (geoportal.gisqatar.org.qa/qmap/index.html) with tracking on a digitized reference map of the Google Earth satellite image, by projecting the appearance of the objects were visible on satellite images.

ELEVATION DATA

Elevation data (contours), spot high, MEF (Minimum Elevation Figure) image and DEM (digital elevation model) is processed using the SRTM 30m Satellite Data, issued by NASA.

Data of Obstacles are retrieved from the AIP Bahrain source, page AD 2:10 Aerodrome obstacles, at any airport within a radius of each aerodrome circling the area.

V. SOFTWARE USE IN PRODUCTION

In the generation of the AC-ICAO Indoavis is using GIS Software and Map Design Software, whilst, as for the TSB software, we use the followings:

- a. Autocad Map 2005.
- b. Global Mapper v-15
- c. ESRI Arcview
- d. Google earth Convert KLM
- e. Adobe Illustrator CS3
- f. Adobe Photoshop CS3

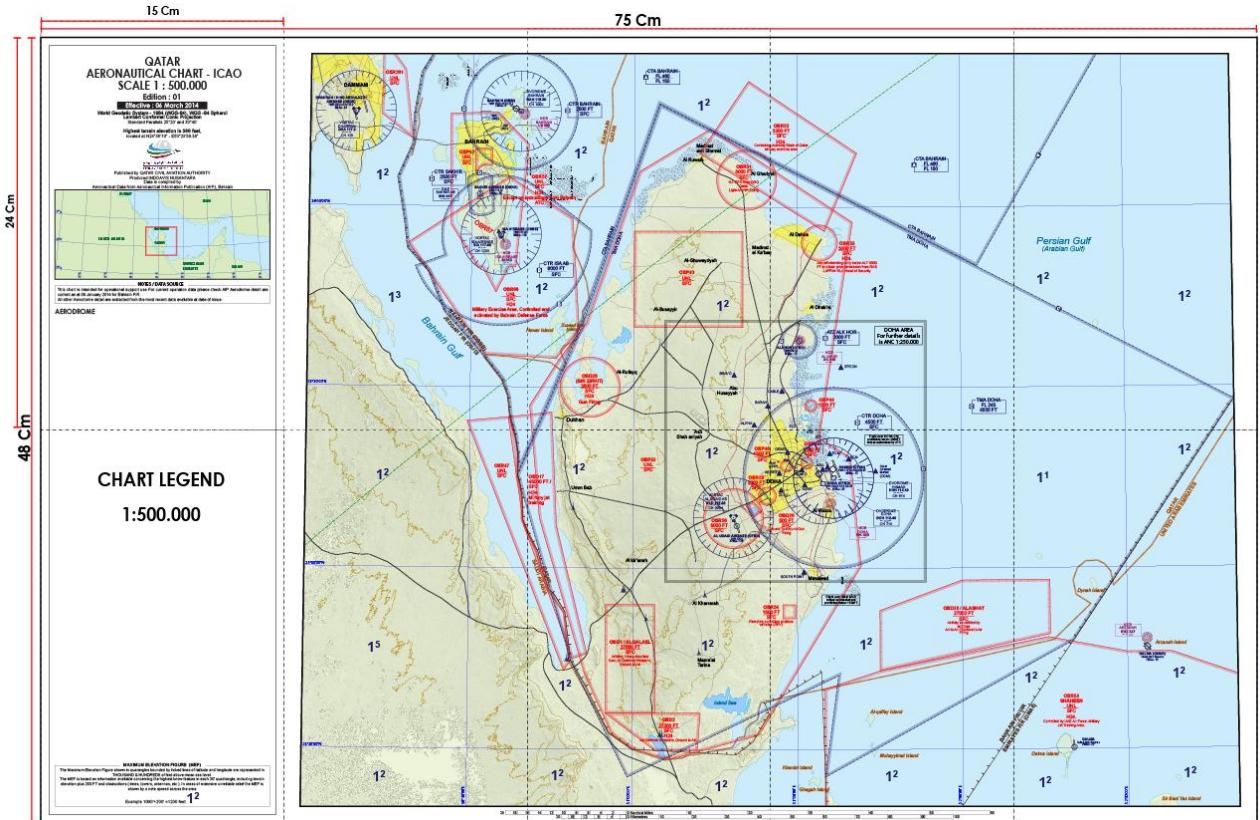
VI. MAINTENANCE OF CHART

Data changes on the Aeronautical Chart will be based on and derived from changes in the AIP, NOTAM, issued by the Civil Aviation Authorities. The Changes will be in accordance with the ICAO- AIRAC. For the Aeronautical Chart AC-ICAO QATAR Publication, Indoavis will be issuing Files sent in every 62(sixty-two) days, calculated from twice AIRAC Dates.

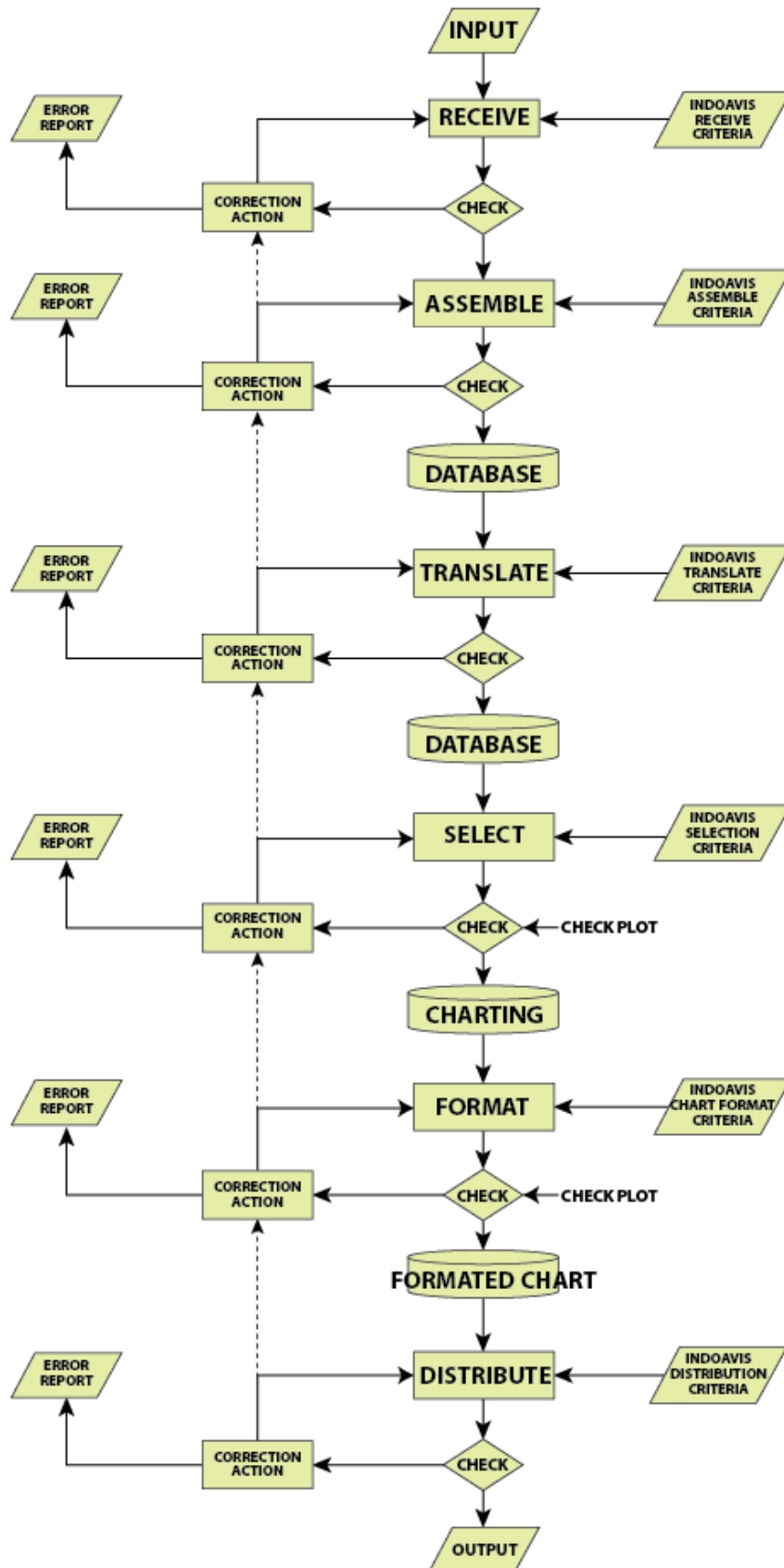
VII. CHART SPESIFICATION FORMAT

- Chart Format : ICAO Standard
- Symbol Format : ICAO Annex 4 (Aeronautical Chart)
- Paper Size : 75 x 48 Cm
- Geographic Coverage
 - Latitude : (26°25'00"N, 50°00'00"E)
 - Longitude : (24°20'00"N, 52°50'00"E)
- Grid interval : 30' (minute)
- Chart Projection : Lambert conform projection
- Variation magnetic : VAR 2.2°E (2012)

CHART DESIGNET



A GENERAL CHART DATA PROCESSING



VIII. TECHNICAL SPECIFICATION

TYPE OF CHART	ICAO VFR-CHART (Visual Flight Rules)
DATA COMPILED AND PRODUCED	PT. INDOAVIS NUSANTARA
UNIT OF MEASUREMENT	1:500.000 / 1Cm : 2.7Nm
CHART SIZE	57 x 45 Cm
PAPER SIZE	75 x 48 Cm
CHART PROJECTION	Lambert conformal conic
COORDINATE REFERENCE	Geographical (latitude/longitude) & World Geographic Reference System (WGS 84)
ELEVATION	In Feet (1 Feet : 0.305 Meters)
MEF (Elevation Figure)	(Maximum Elevation Figure) Based on information available concerning the highest known features in each quadrangle, including terrain and obstruction (trees, towers, antennas, etc)
SPOT ELEVATION	Accuracy based on mean sea level
CONTOUR INTERVAL	250 feet Basic and 125 feet Intermediate
MAGNETIC DECLINATION	Magnetic variation, 2012 is Approximately 2.2°E easterly over the entire chart
PERIOD AERONAUTICAL	When a significant change occurs but not more revisions offer than 62 Days
PREPARED AND PUBLISHED BY	Qatar Civil Aviation Authority
REFERENCE DOCUMENTS	ICAO-ANNEX 2 (Rules of the Air) ICAO-ANNEX 4 (Aeronautical Chart) ICAO-ANNEX 5 (Units of Measurement to be Used in Air Ground Operations) ICAO-Doc.8697 (Aeronautical Chart Manual) ICAO-Doc.9674 (World Geodetic System)
AERONAUTICAL DATA SOURCE	<ul style="list-style-type: none"> • AIP (Aeronautical Information Publication) • NOTAM and Supplement and AIP Amendment
TOPOGRAPHY DATA SOURCE	<ul style="list-style-type: none"> • SRTM (Shuttle Radar Topography Mission) NASA • Google Earth KLM file. • Basic background political map is from digital chart of Qatar geoportal.gisqatar.org.qa

IX. PRICE SPECIFICATION

Price structure

TYPE OF WORK	DURATION	QTT	PRICE (USD)
Processing of Topographical data	██████	██████	██████
Compilation data	██████	██████	██████
Cartographic analysis	██████	██████	██████
Aeronautical analysis	██████	██████	██████
Digital Charting	██████	██████	██████
Plotting and Quality check	██████	██████	██████
Office Operational Cost	-	Office	██████
Total Days :		██████	██████

Yearly Chart Maintenance Cost USD ██████

Maintenance products means are data changing that affect the product during the period changes every 62 days, in a year.

- Data Changing according the information we get from the local government, by attaching an official source (AIP Supplement, Amendment or NOTAM).
- The Product that we fixed will be send by electronic media (TIFF or PDF Files)
- Shipping by media post mail will be charged according to the applicable rate

X. METHODS AND SCHEDULE OF PAYMENTS

a. Payments will be made as follows:

██
 ██
 ██ when the Original Files of the chart is transmitted to Qatar.

b. Payment should be transferred to:

SWWIFT-BEIIDJA (for payment from overseas)
 Bank Mandiri KCP Halim perdanakusuma
 Jakarta 1360 - Indonesia
 Acc No: **006-00-0467213-9**
 a.n. PT INDOAVIS NUSANTARA

XI. TIME SCHEDULE PLAN

Estimated processing time to delivery of project work products, the demand of the buyer no later than the date 20 April 2014

- March, 21 2014 --> COMPLETE PROPOSAL AERONAUTICAL CHART OF QATAR
- March, 24 2014 --> Expected Approval and Firm Order from Qatar
- March, 27 2014 --> Invoice from Indoavis and Down Payment 60% from Qatar
- March, 28 2014 --> Production
- April, 11 2014--> Chart Draft I sent to Qatar for approval
- April, 13 2014--> Chart Draft II sent to Qatar if approved
- April, 15 2014 --> Final Draft sent to Qatar when approved, then
- April, 17 2014 --> Sending Digital File by e-Mail to Qatar and Final Payments

XII. CONTACT INFORMATION



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: <http://www.indoavis.net>
Email : info@indoavis.co.id
: marketing.indoavis@gmail.com