



Agenda Item 4: Other Business

Guidance Material for Aeronautical Chart – ICAO 1: 500 000

(Presented by the Secretariat)

Summary	
<p>This working paper presents the Guidance Material for Aeronautical Charts ICAO 1 : 500 000 that has been developed to harmonize and standardize charts by the ICAO Chart Harmonization Focus Group. It contains additional information to the documents ICAO Annex 4 and ICAO Document 8697 (Aeronautical Chart manual). The content of this material will be used for the chart production of Aeronautical Charts ICAO 1:500.000 in Europe.</p>	
<p>References:</p> <ul style="list-style-type: none"> • ICAO Annex 4 • Aeronautical Information Services Manual (Doc 8126) 	
ICAO Strategic Objectives:	<p><i>A. Safety</i></p> <p><i>C. Environmental Protection and Sustainable Development of Air Transport</i></p>

1 Background

1.1 The Participants of the ICAO Chart Harmonization Focus Group that developed the Guidance Material for Aeronautical Charts ICAO 1:500.000 were experts of Belgium, Czech Republic, Finland, France, Germany, Italy, Latvia, Netherlands, Poland, Serbia and Montenegro, Slovak Republic, Slovenia, Switzerland, United Kingdom, and Eurocontrol and Jeppesen.

2 Discussion

2.1 This Guidance Contained in **Appendix A** to this working paper is used in Europe to develop the Aeronautical Charts 1:500.000.

3. Suggested action

3.1 Based on the foregoing, the Meeting is invited to take note of the information contained in **Appendix A** to this working paper, and make the comments considered necessary.

APPENDIX A

GUIDANCE MATERIAL FOR AERONAUTICAL CHARTS ICAO 1 : 500 000

Guidance Material for Aeronautical Chart – ICAO 1 : 500 000

Version 1.4

ICAO Chart Harmonization Focus Group, EUROCONTROL

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Changes

Version	Date	Revised Pages	Comments
1.0	20-May-2009	All	First edition
1.1	30-JUNE-2009	All	Results of the meeting Brussels 3/4 JUNE 09
1.2	07-SEPTEMBER-2009	All	Results of the meeting Brussels 3/4 JUNE 09
1.3	15-MARCH-2010	All	Results of the meeting Prague 10/11 NOV 09
1.4	19-JULY-2010	1-5, 12, 14-22	Results of the meeting Warsaw 23/24 MAR 10

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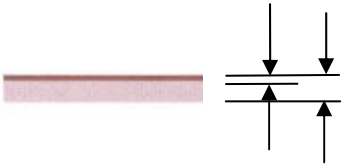
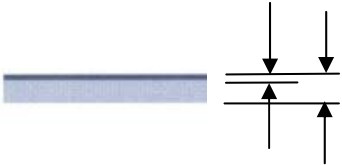


1 Introduction

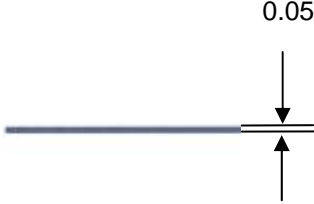
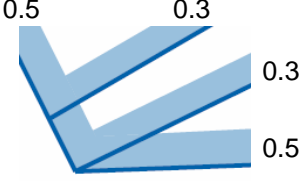
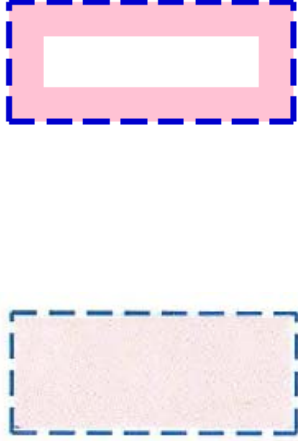
The Guidance Material for Aeronautical Charts ICAO 1 : 500 000 has been developed to harmonize and standardize charts within Europe. It contains additional information to the documents ICAO Annex 4 and ICAO Document 8697 (Aeronautical Chart manual).

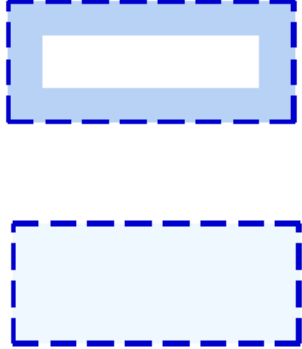

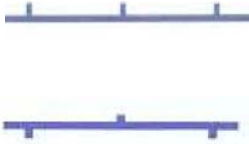
Deviations to ICAO Annex 4 are conclusions of the ICAO Chart Harmonization Focus Group. A proposal will be worked out and send out via EUROCONTROL.

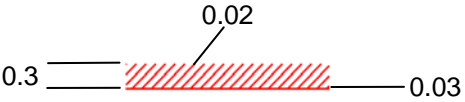


The content of this material are conclusions of the ICAO Chart Harmonization Focus Group and will be used for the chart production of Aeronautical Charts ICAO 1 : 500 000.

Participants of the ICAO Chart Harmonization Focus Group of the following States worked out this document: Belgium, Czech Republic, Finland, France, Germany, Italy, Latvia, Netherlands, Poland, Serbia and Montenegro, Slovak Republic, Slovenia, Switzerland, United Kingdom, Eurocontrol and Jeppesen.

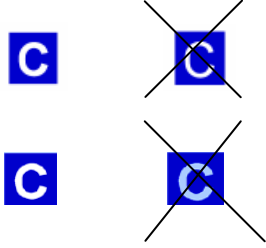




Annex 4 Reference	Details	Illustration / Recommended Size (cm)
2.1	Airspace classifications	
2.1.1	Airspace class A	
2.1.1.1	Airspace class A shall be displayed by a red line and a red band according to ICAO Annex 4, App 2-19.	<p style="text-align: center;">0.05 0.3</p> 
2.1.2	Airspace class B, C and D	
2.1.2.1	Airspace class B, C and D shall be displayed by a blue line and a blue band according to ICAO Annex 4, App 2-19.	<p style="text-align: center;">0.05 0.3</p> 
2.1.3	Airspace class E	
2.1.3.1	<p>Airspace class E shall be displayed by a blue line.</p> <p>It is recommended to display the line thicker than for airspace A, B, C and D.</p> <p><i>Note.- Depiction deviates from ICAO Annex 4. For explanation see 3.0.1</i></p>	<p style="text-align: center;">0.07</p> 
2.1.4	Airspace class F	
2.1.4.1	Airspace class F shall be displayed by a blue line according to ICAO Annex 4, App 2-19.	<p style="text-align: center;">0.05</p> 







Annex 4 Reference	Details	Illustration / Size (cm)
2.1.5	Airspace class G	
2.1.5.1	Airspace class G shall be displayed by a blue line. <i>Note.- Depiction deviates from ICAO Annex 4. For explanation see 3.0.2</i>	
2.2	Airspace classifications - sectors	
2.2.1	Airspace sectors shall be displayed in the same way as outer boundaries, refer to 2.1 It is recommended to display the band for the outer boundary of airspace A, B, C and D thicker than for sectors located within the airspace.	
2.3	Air traffic services – control zone	
2.3.1	Airspace CTR class A	
2.3.1.1	Airspace CTR shall be displayed: by a blue dashed line and a red band or by a blue dashed line and a red shading covering the whole CTR. It is recommended to display the shading brighter as the band to make other information better readable.	









<i>Annex 4 Reference</i>	<i>Details</i>	<i>Illustration / Size (cm)</i>
2.3.2	Airspace CTR class B, C or D	
2.3.2.1	<p>Airspace CTR shall be displayed: by a blue dashed line and a blue band</p> <p>or</p> <p>by a blue dashed line and a blue shading covering the whole CTR.</p> <p>It is recommended to display the shading brighter as the band to make other information better readable.</p>	
2.4	Air traffic services – aerodrome traffic zone	
2.4.1	Aerodrome traffic zone shall be displayed by a blue squared dotted line according to ICAO Annex 4, App 2-18.	
2.5	Air traffic services – flight information region	
2.5.1	<p>Flight information region shall be displayed by a blue ticked line according to ICAO Annex 4, App 2-18.</p> <p>It is recommended to display the ticks in both directions where Flight information regions are located.</p>	

Annex 4 Reference	Details	Illustration / Size (cm)
2.6	Airspace restrictions	
2.6.1	Restricted airspace (TRA, TSA, prohibited, restricted or danger area)	
2.6.1.1	<p>Airspace restrictions like TRA, TSA, prohibited, restricted and danger areas shall be displayed with a red line and a red hatched band.</p> <p><i>Note 1.- Depiction deviates from ICAO Annex 4. For explanation see 3.0</i></p> <p><i>Note 2 – State exceptions concerning TRA and TSA: For explanation see 3.0.3</i></p>	
2.7	Flight information service	
2.7.1	Flight information service shall be displayed by a green dashed line, if published on the chart.	
2.8	Nature reserved areas	
2.8.1	Nature reserved areas shall be displayed by a green line.	

<i>Annex 4 Reference</i>	<i>Details</i>	<i>Illustration / Size (cm)</i>
2.9	Indication of lower/upper level of airspace	
2.9.1	GND	
2.9.1.1	The abbreviation GND shall be used when airspace is starting at ground level.	<u>2000 AGL</u> GND
2.9.2	AGL	
2.9.2.1	The abbreviation AGL shall be used when airspace is related to a defined height above ground. AGL values shall be displayed with the abbreviation “AGL” on the chart.	<u>8000 AGL</u> 2000 AGL
2.9.3	AMSL / MSL	
2.9.3.1	The abbreviation AMSL shall be used instead of MSL when airspace is related to a defined altitude above MSL. The abbreviation AMSL shall be omitted (to have more space on the chart for other information) but it has to be depicted clearly in the legend that AMSL is used.	<u>8000</u> 2000
2.9.4	AMSL / AGL	
2.9.4.1	The abbreviation AMSL shall be omitted and the abbreviation AGL shall be shown on the chart when both values are used for the same airspace.	<u>8000</u> 2000 or 1000 AGL
2.9.5	Abbreviation for feet “ft” or metres “m”	
2.9.5.1	The abbreviation “ft” or “m” shall be omitted on the chart but it has to be depicted clearly in the legend which values are used.	800 AGL 800 m AGL 800 ft AGL








<i>Annex 4 Reference</i>	<i>Details</i>	<i>Illustration / Size (cm)</i>
2.10	Airspace tag	
2.10.1	Airspace tag shall be displayed with a bold letter for a better readability. Airspace tag shall be masked out for a better readability.	
2.10.2	Airspace tag class A shall be displayed squared with a red inverted colour according to ICAO Annex 4 App 2-19	
2.10.3	Airspace tag class B, C, D, E, F and G shall be displayed squared with a blue inverted colour according to ICAO Annex 4 App 2-19	
2.11	Airspace text line/text box	
2.11.1	Layout of the Text line	
2.11.1.1	The text line should be displayed with the callsign and the frequency. The values of the lower/upper limit and the tag should be displayed along the airspace border or as a separate box.	
2.11.2	Layout of the Text box	
2.11.2.1	The text box should be displayed with the values of the lower/upper limit and the tag along the airspace border or as a separate box. Follow cartographic rules for the best placement and legibility.	





<i>Annex 4 Reference</i>	<i>Details</i>	<i>Illustration</i>
2.12	Airspace name	
2.12.1	Airspace name should be shown if necessary.	
2.13	Indication of upper level of airspace on the chart	
2.13.1	<p>The upper limit of the airspace displayed on the chart should be around FL 100.</p> <p>In special cases e.g. due to high terrain, a higher level of the airspace might be necessary.</p> <p>The upper limit of the chart should be displayed on the title/legend prominently</p>	
2.14	Aerodrome symbols	
2.14.1	Aerodrome symbols shall be displayed according to ICAO Annex 4, App 2-16	
2.14.1.1	Civil Land	
2.14.1.2	Civil Water	
2.14.1.3	Military Land	
2.14.1.4	Military Water	







<i>Annex 4 Reference</i>	<i>Details</i>	<i>Illustration</i>
2.14.1.5	Joint civil and military Land	
2.14.1.6	Joint civil and military Water	
2.14.1.7	Emergency aerodrome or aerodrome with no facilities	
2.14.1.8	Abandoned or closed aerodrome It is recommended to display the crossed line thinner as a runway pattern. The line should be extended to the circle. <i>Note.- Depiction deviates from ICAO Annex 4. For explanation see 3.0.4</i>	
2.14.1.9	Sheltered anchorage	
2.14.1.10	Heliport	
2.15	Runway pattern	
2.15.1	Runway pattern shall be displayed according to ICAO Annex 4, App 2-16 when classified as a major or international airport.	
2.15.2	Paved runways shall be displayed with a solid line. Unpaved runways shall be displayed with a encircled line. Runway pattern shall be displayed together with the aerodrome symbol when not classified as a major or international airport.	


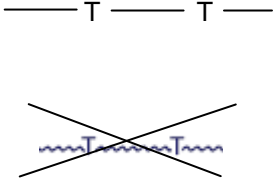

<i>Annex 4 Reference</i>	<i>Details</i>	<i>Illustration</i>
2.16	Aerodrome text	
2.16.1	Aerodrome Name	
2.16.1.1	The aerodrome name shall be displayed according to ICAO Annex 4, App 2-17.	LIVINGSTONE
2.16.2	Aerodrome elevation	
2.16.2.1	<p>The elevation shall be displayed in bold according to ICAO Annex 4, App 2-17.</p> <p>The units of measurement (metres or feet) shall be omitted on the chart but it has to be explained clearly in the legend which values are used.</p> <p>The reference point (AMSL or Elev) shall be omitted on the chart but it has to be explained clearly in the legend which reference point is used.</p>	357
2.16.3	Runway length	
2.16.3.1	<p>The length of the longest runway shall be displayed according to ICAO Annex 4, App 2-17.</p> <p>The length shall be shown in hundreds of metres or feet on the chart. It has to be explained clearly in the legend that the distance is displayed in values of hundreds.</p> <p>The units of measurement (metres or feet) shall be omitted on the chart but it has to be explained clearly in the legend which values are used.</p> <p>The length shall not be displayed in bold to distinguish between the aerodrome elevation.</p> <p>The whole runway length should be rounded to the lower value of the next hundred meters or feet.</p>	95

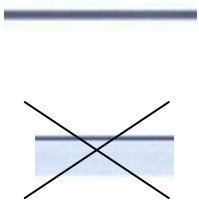
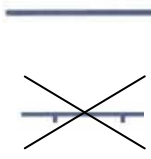
<i>Annex 4 Reference</i>	<i>Details</i>	<i>Illustration</i>
2.16.4	Aerodrome frequency	
2.16.4.1	The aerodrome frequency should be displayed. It is recommended to display the frequency on the chart.	119.175
2.16.5	Aerodrome location indicator	
2.16.5.1	The aerodrome location indicator should be displayed.	EADD
2.16.6	Aerodrome lighting	
2.16.6.1	The lighting should not be displayed. <i>Note.- Depiction deviates from ICAO Annex 4. For explanation see 3.5</i>	LIVINGSTONE 357 L H 95
2.16.7	Runway surface	
2.16.7.1	The aerodrome surface should not be displayed if a runway pattern is displayed on the chart. Refer to 2.15 <i>Note.- Depiction deviates from ICAO Annex 4. For explanation see 3.6</i>	LIVINGSTONE 357 L H 95

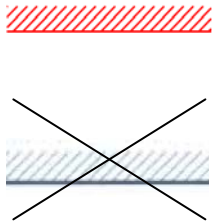


<i>Annex 4 Reference</i>	<i>Details</i>	<i>Illustration</i>
2.17	Navaid symbol	
2.17.1	Navaid symbols shall be displayed according to ICAO Annex 4, App 2-17	
2.17.2	VOR	
2.17.3	DME	
2.17.4	VOR/DME	
2.17.5	TACAN	
2.17.6	VORTAC	
2.17.7	NDB It is recommended to display a smaller symbol if clutter on the chart apply.	
2.17.8	Basic radio navigation aid	


<i>Annex 4 Reference</i>	<i>Details</i>	<i>Illustration</i>
2.17.9	<p>Compass rose</p> <p>Compass rose shall be orientated with the alignment of the station (normally Magnetic north) according to ICAO Annex 4, App 2-17.</p>	
2.18	Navaid text	
2.18.1.	The frequency shall be displayed on the chart together with the belonging symbol.	114.300
2.18.2	The ident shall be displayed on the chart together with the belonging symbol.	CAA
2.18.3	The morse could be displayed on the chart optional	
2.18.4	The coordinates should be omitted on the chart.	52° 22' 54" N 031° 44' 36" W
2.19	Obstacle symbol	
2.19.1	Obstacle symbol shall be displayed according to ICAO Annex 4, App 2-19 if the type is unknown.	
2.19.1.1	Obstacle	
2.19.1.2	Lighted obstacle	

<i>Annex 4 Reference</i>	<i>Details</i>	<i>Illustration</i>
2.19.1.3	Group obstacles	
2.19.1.4	Lighted group obstacles	
2.19.2	Exceptionally high obstacle symbol shall be displayed according to ICAO Annex 4, App 2-19	
2.19.2.1	Obstacle It is optional to display the symbol as it looks in reality (type known)	
2.19.2.2	Obstacle - lighted It is optional to display the symbol as it looks in reality (type known)	
2.19.3	Special obstacle symbol shall be displayed if the type is known.	
2.19.3.1	Wind turbine – unlighted and lighted shall be displayed according to ICAO Annex 4, App 2-19	
2.19.3.2	Wind turbines – minor group and group in major area, lighted shall be displayed according to ICAO Annex 4, App 2-19	

<i>Annex 4 Reference</i>	<i>Details</i>	<i>Illustration</i>
2.20	Obstacle text	
2.20.1	<p>The elevation of the top shall be shown according to Annex 4, App 2-19.</p> <p>The height can be shown optional.</p>	<p style="text-align: center;">52</p> 
2.21	Transmission line	
2.21.1	<p>Transmission lines shall be displayed with a straight line instead of a wavy line between the “T”.</p> <p>It is optional to display Transmission lines.</p> <p><i>Note.- Depiction deviates from ICAO Annex 4. For explanation see 3.7</i></p>	
2.22	Isogonic line	
2.22.1	<p>Isogonic line shall be displayed according to ICAO Annex 4, App 2-20</p>	

<i>Annex 4 Reference</i>	<i>Details</i>	<i>Illustration / Size (cm)</i>
3.0	Deviations from ICAO Annex 4	
3.1	Airspace class E	
3.1.1	<p>Airspace class E shall be displayed by a blue line.</p> <p>The blue band as described by ICAO Annex 4, App 2.19 shall be omitted in order to differentiate between airspace “not requiring ATC clearance” (E) and airspace “requiring ATC clearance” (B, C, D).</p> <p>It is recommended to display the line thicker than for airspace A, B, C and D to distinguish clearly between these airspaces.</p> <p>Note: A change proposal for ICAO Annex 4 will be worked out by the Focus Group.</p>	
3.2	Airspace class G	
3.2.1	<p>Airspace class G shall be displayed by a blue line.</p> <p>ICAO Annex 4 requires the same symbol for depicting airspace class G and the flight Information region (FIR).</p> <p>The blue ticks shall be omitted to avoid misreading between airspace class G and the FIR.</p> <p>Note: A change proposal for ICAO Annex 4 will be worked out by the Focus Group.</p>	

Annex 4 Reference	Details	Illustration / Size (cm)
3.3	Restricted airspace (TRA, TSA, prohibited, restricted or danger area)	
3.3.1	<p>The line and the hatched band should be displayed in a red colour instead of blue as required by ICAO Annex 4.</p> <p>A red colour shall be used to distinguish clearly between airspace class B, C, D, E, F and G which shall be displayed with a blue colour.</p> <p>The colour red shall be used to associate this airspace with danger.</p> <p>Note 1: A change proposal for ICAO will be worked out by the Focus Group.</p>	
3.4	Aerodrome symbol Abandoned or closed aerodrome	
3.4.1	<p>Abandoned or closed aerodrome shall be displayed by a blue colour.</p> <p>It is recommended to display the crossed line thinner and the circle thicker to avoid misreading between abandoned/closed aerodrome and runway pattern.</p>	
3.5	Aerodrome text Aerodrome lighting	
3.5.1	<p>Aerodrome lighting shall be omitted on the chart except required for special operations.</p> <p>Note: A change proposal for ICAO Annex 4 will be worked out by the focus group.</p>	

<i>Annex 4 Reference</i>	<i>Details</i>	<i>Illustration / Size (cm)</i>
3.6	Aerodrome text Aerodrome surface	
3.6.1	<p>Aerodrome surface shall be omitted on the chart if the runway pattern is displayed with a symbol as paved or unpaved.</p> <p>Note: A change proposal for ICAO Annex 4 will be worked out by the focus group.</p>	
3.7	Transmission line	
3.7.1	<p>Transmission lines shall be displayed with a straight line instead of a wavy line between the "T" to make the chart better readable.</p> <p>Note: A change proposal for ICAO Annex 4 will be worked out by the focus group.</p>	