



Update on the Application of Photo Standards in the E-MRTD Issuing Process

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**New Technology Working Group (NTWG)
TAG/MRTD 18**

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Introduction

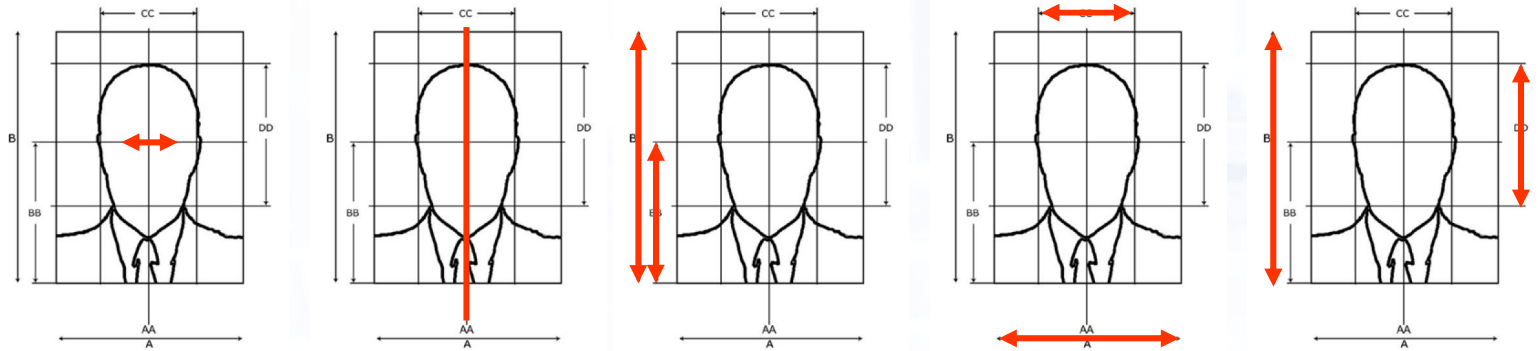
- Part 1 of ICAO Doc 9303 references the specifications set out in ISO/IEC 19794-5, *Biometric Data Interchange Format - Face Image Data*, for the compliance of biometrically suitable passport images.
- Experiences of various issuing authorities that have applied these specifications suggest that a number of key specifications within in the ISO/IEC 19794-5 Standard may need to be modified.
- The NTWG was given approval at TAG-17 to give immediate consideration to identifying potential solutions, including revised practices and/or tolerance adjustments, to ensure that issuing agencies are able to meet specifications for “Biometric Data Interchange Format - Face Image Data” within Part 1 of ICAO Doc 9303.



Current Status

- At its meeting in Tel Aviv, January 2008, the subcommittee ISO/JTC1/SC37 agreed on the **Technical Corrigendum** to the ISO/IEC 19794-5 standard “*Biometric Data Interchange Formats – Part 5: Face Image Data*”.
- It is now forwarded to ISO publication.
- This Technical Corrigendum reflects the analysis and the recommendations given by the NTWG work group at TAG/MRTD-17 in 2007.

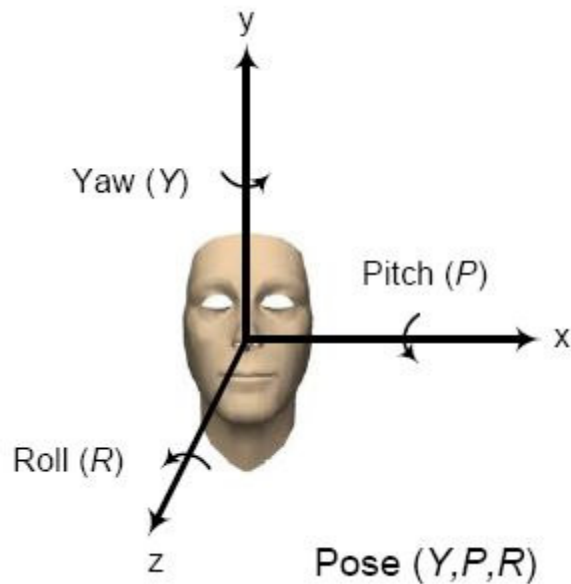
New ISO 19794-5 limits and tolerances



Limits	Eye Distance	Relative Horizontal Position	Relative Vertical Position*	Head Width Ratio	Head Height Ratio
Old – Min	90 px	0,5	0,5	0,5	0,7
Old – Max	+INF	0,5	0,7	0,71	0,8
New – Min	90 px	0,45	0,5	0,5	0,6
New – Max	+INF	0,55	0,7	0,75	0,9

The Pose Issue

- The Corrigendum calls for relaxing the tolerance in head roll (tilt) to $\pm 8^\circ$. The tolerances for the deviations from the frontal pose in the pitch- and the yaw-axis remain unchanged at $\pm 5^\circ$.

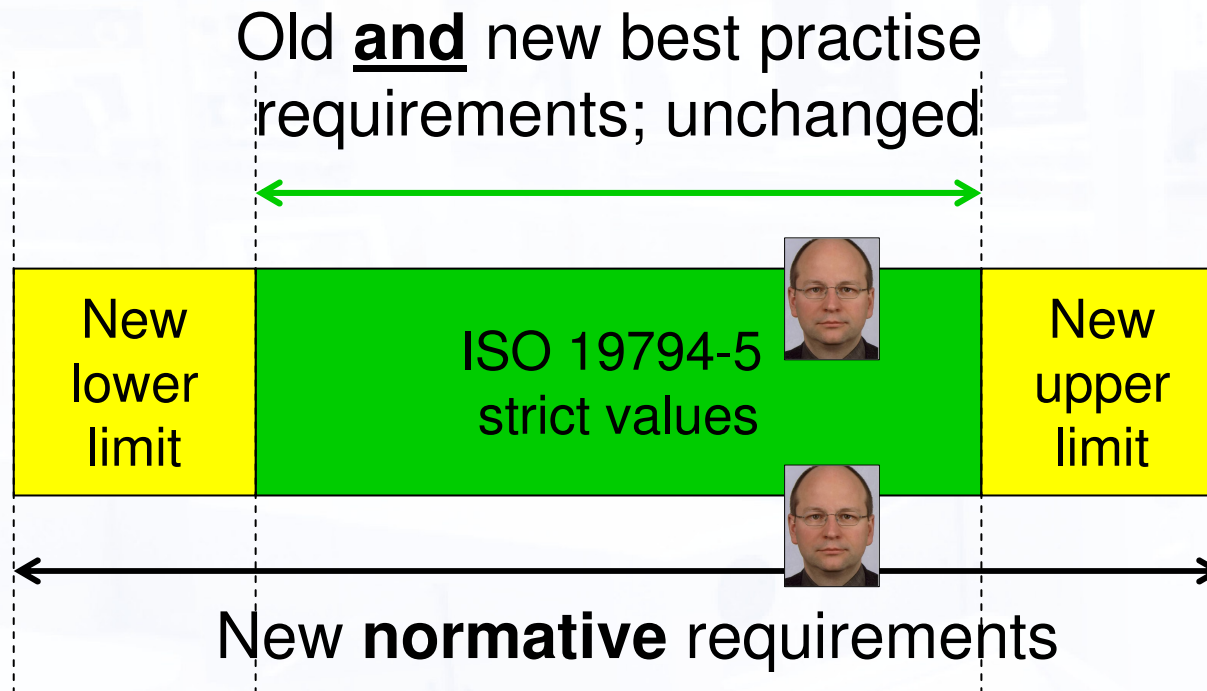


Images with head roll angle of $\pm 8^\circ$

Backward compatibility

- The modifications set out in the Technical Corrigendum to ISO/IEC 19794-5 will be **backward compatible** with the earlier provisions of ISO/IEC 19794-5 since **only the normative requirements will be relaxed; best practice requirements remain unchanged** and are strongly recommended for the application in the e-passport framework.
- This ensures that issuing authorities and/or photographers do not have to change their already-published photo requirements which are based on the best practice requirements of the earlier version of ISO/IEC 19794-5.
- Also, issuing authorities will now be able to accept more of the submitted photographs without degrading facial recognition performance.

Backward compatibility contd.



No photo guidelines or policies have to be changed!
It leads to less rejections in the application process!

Do we (still) have a problem?



E-passport Image Analysis

- Analysed 31 DG2-images from e-passport reference samples (from 31 countries)
- 58% JPEG, 42% JPEG2000 image format used
- 58% Full Frontal Image, 35% Token Frontal Image Type
- Average file size is 16.852 Bytes.

Image Analysis – File Size

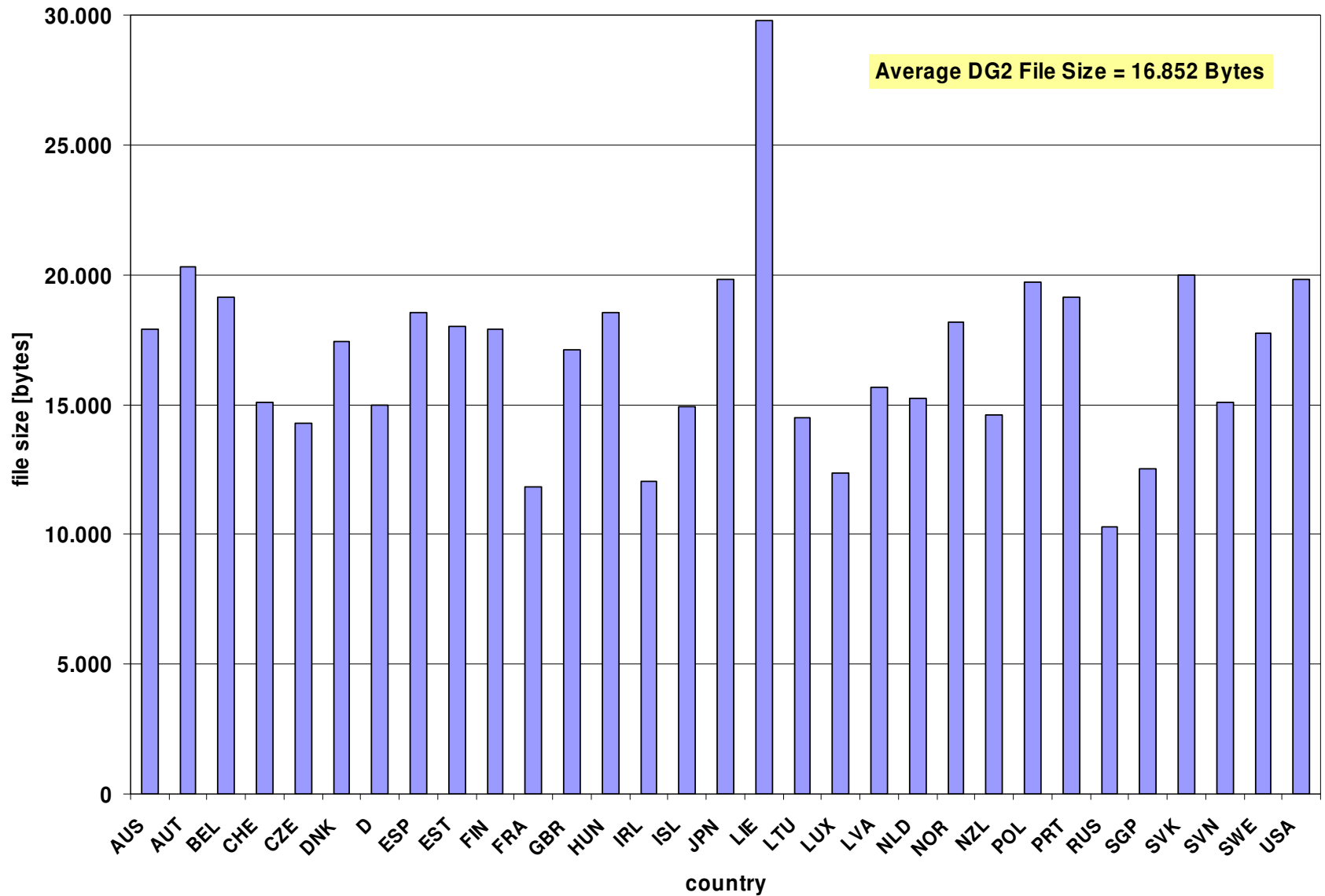


Image Analysis – Dimensions

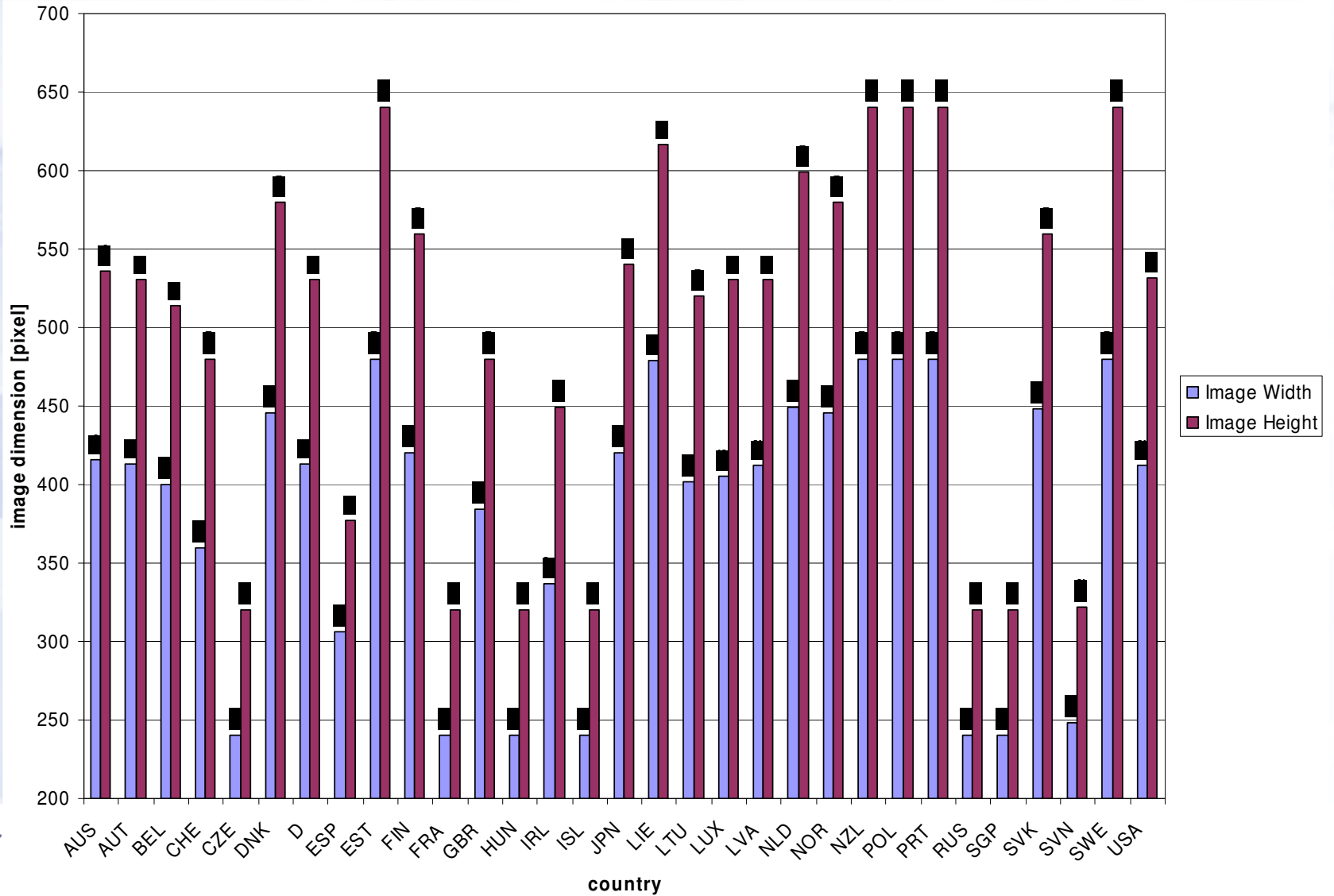


Image Analysis – Eye Distance

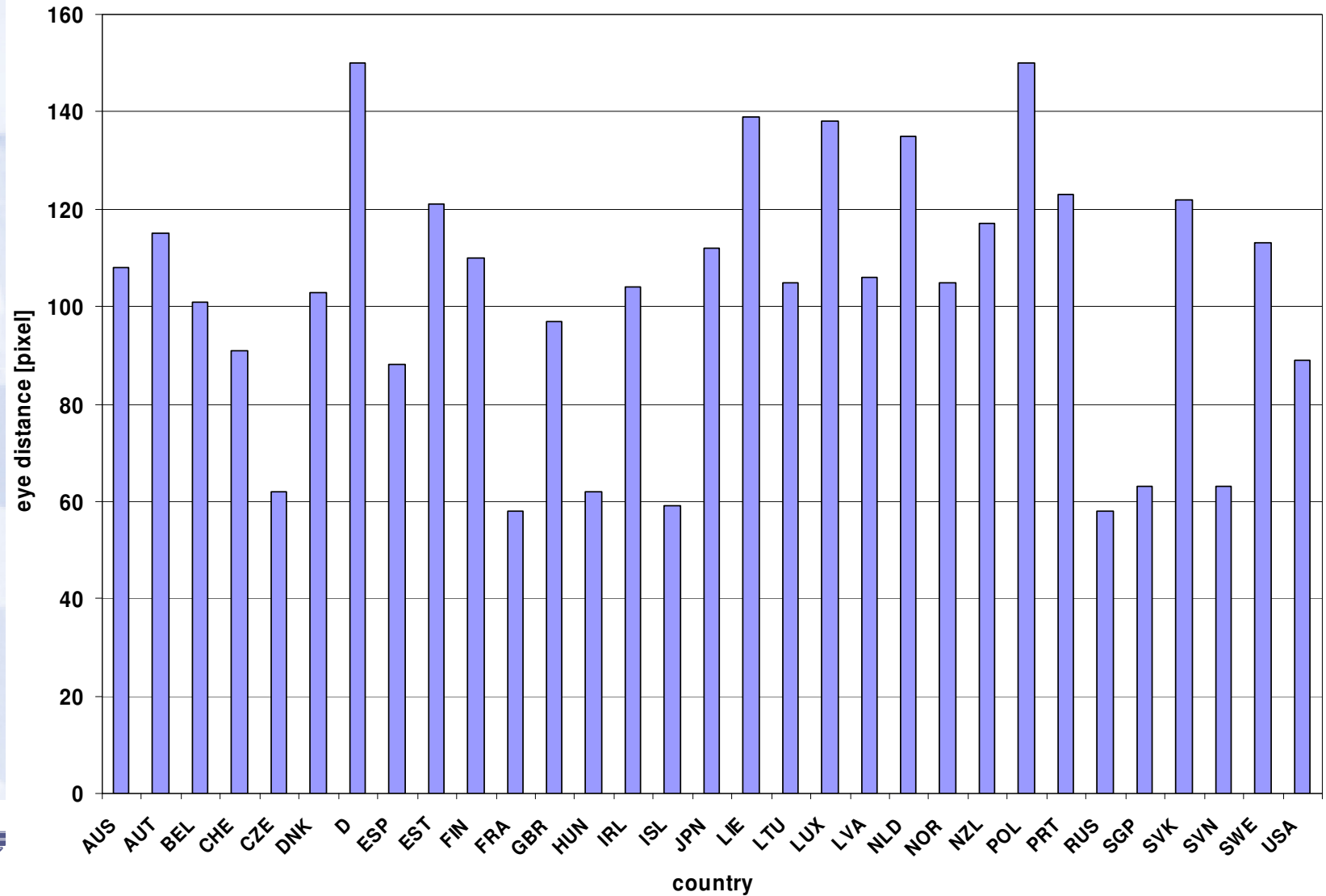


Image Analysis – Head Height

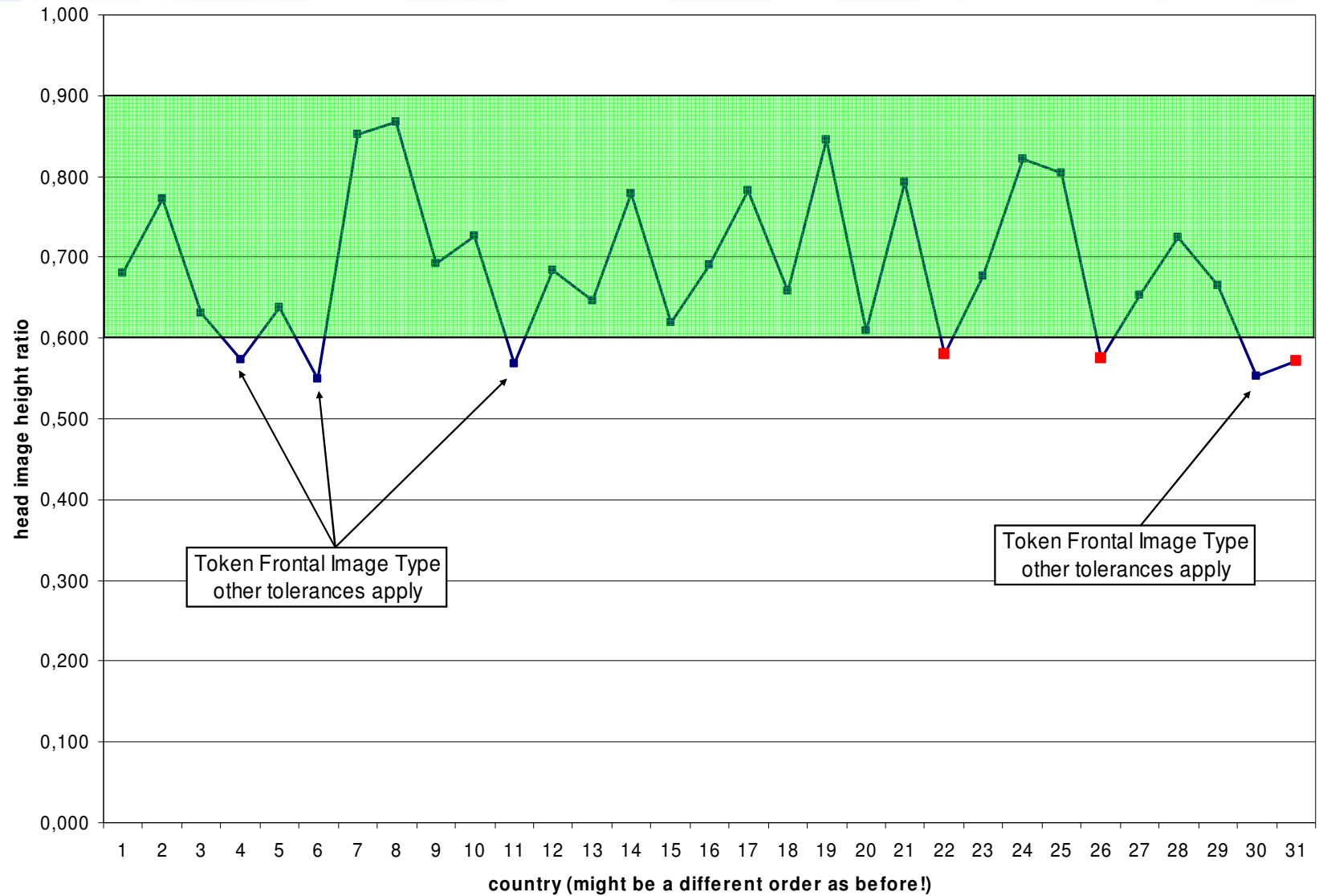
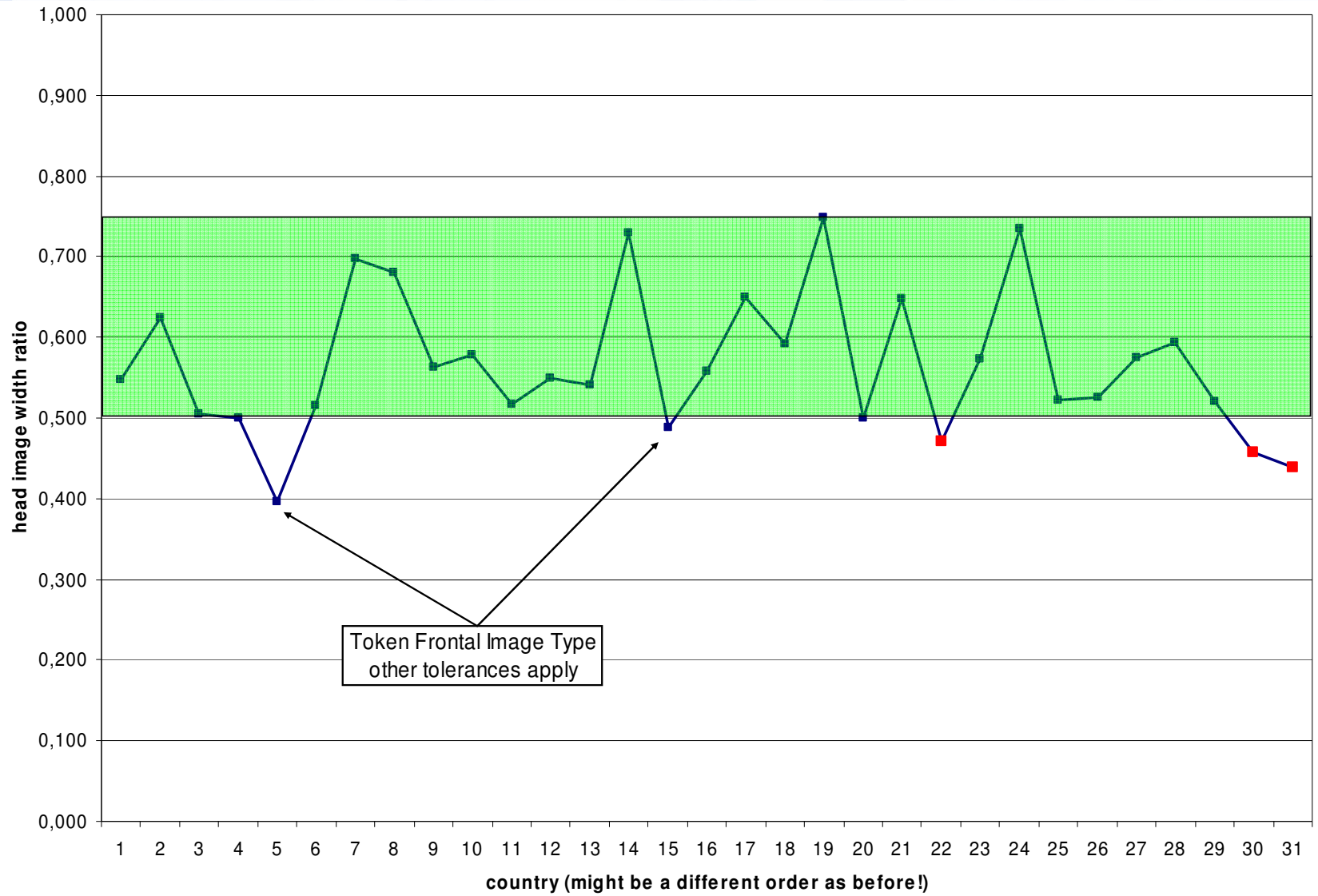


Image Analysis – Head Width



Conclusions

- Analysis shows, that the relaxed tolerances are needed for a smooth e-passport issuing process.
- The NTWG welcomes the adjustments made to the standard ISO/IEC 19794-5, closely following its own analysis and recommendations.
- The way these adjustments are made guarantees solid ground, backward compatibility for already issued MRTDs.
- The NTWG will monitor the application of the modified photo standards to the issuance of passports with biometrically suitable passport images and report any new developments to TAG/MRTD.

Actions by the TAG

The NTWG invites the TAG/MRTD

- To acknowledge the adjustments made by a Technical Corrigendum to the standard ISO/IEC 19794-5, *Biometric Data Interchange Format - Face Image Data*, affecting the according reference of Part 1 of ICAO Doc 9303 (6th Edition) for passport photographs.
- To approve the continuation of on-going research in this area.



➤ **Thank you for your attention.**

➤ **Questions?**



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