Operational Acceptance Test (OAT)

ACCS 0:2020 Technical Requirements for Age Estimation Technologies

Innovative Technology Age Estimation System

Device ID 6bee7fa940 v.1049 March 2021

DATE OF REPORT

27/04/2021

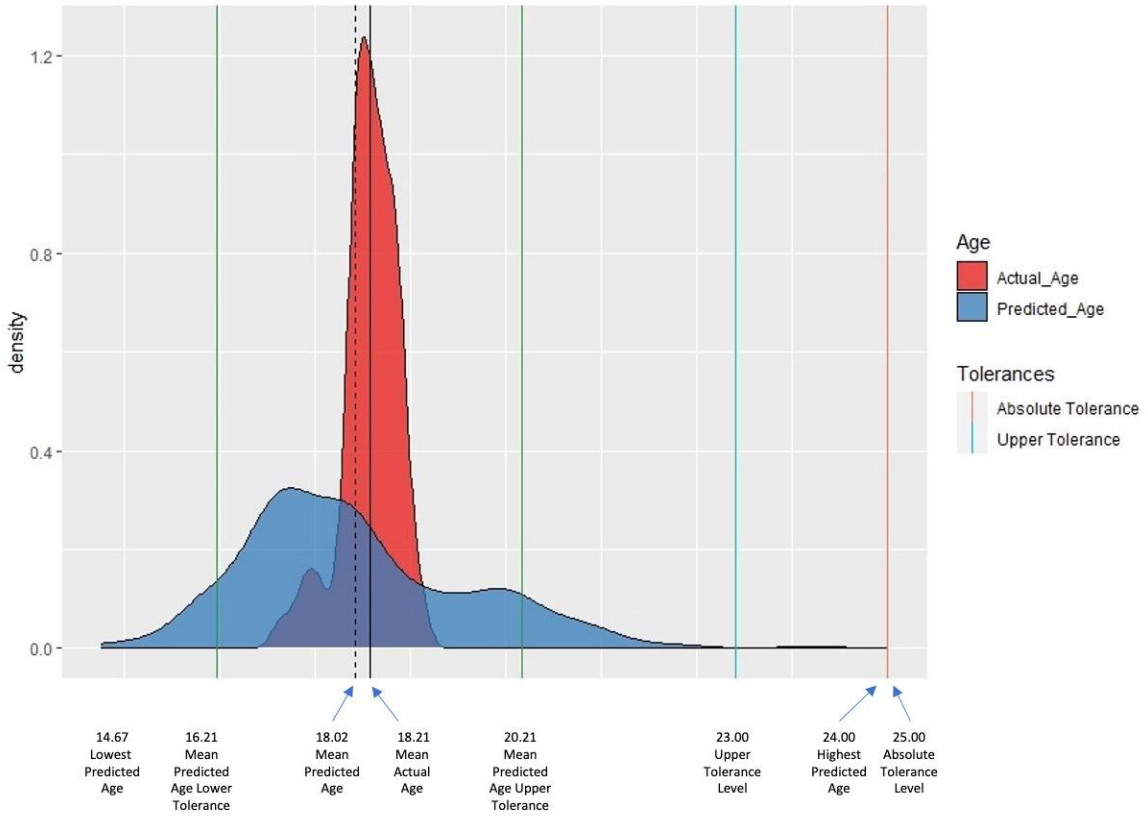
EVALUATION TEAM

Evaluator	**Isavella Chrysanthou, MSc**
	Dr Taybia Mohammed BSc, MSc, FHEA, PhD
Certification Officer	**Tony Allen MSc, DTS, DMS, CTSP**
Conformity Assessment Body	**Age Check Certification Services Ltd**

Executive Summary

This is an Operational Acceptance Test of the Innovative Technology Age Estimation System in accordance with the Technical Requirements for Age Estimation Technologies (ACCS 1:2020) as set out by the Age Check Certification Scheme.

The intention of the test is to assess whether or not the Innovative Technology Age Estimation System is fit for deployment by determining if an 18-year-old (the nominal age) would be incorrectly estimated as being over 25 (the Challenge Age policy).



Headlines:

1. The test for the device version, ICU v1049 March release was conducted on the 29th of March 2021.
2. The System is fit for deployment in a Challenge 25 policy area and is at least 98.85% reliable. The system is sufficiently accurate to be deployed in a Challenge 25 policy area.
3. This would indicate that the system may not work as intended for between zero and 12 out of every 1000 presentations.

4. The Mean Predicted Age for the whole test crew is 18.02 against a Mean Actual Age of 18.21. It is, therefore, on average, underestimating age by 0.19 years.
5. The Mean Absolute Error is 1.22 years which is within acceptable parameters for Challenge 25.
6. The number of results above the upper tolerance level (Age 23) are within acceptable parameters, however the standard deviation value of 1.46 indicates a broad spread of results.
7. None of the results were above the absolute tolerance level (Age 25).
8. The system is broadly compliant with a Challenge 25 policy.

The sample size for this test was insufficient to provide statistically valid analysis of gender and skin tone bias in the system, but with lower levels of reliability the following observations can be made:

1. The estimated ages have shown that males had an older appearance than females due to the lack of outcome error parity but the results for male values were calibrated better (closer to the actual age).
2. Result distributions indicated that there was a lack of outcome error parity for skin tones, with all skin tones being assessed closer to the actual age.
3. Dark tones are expected to be assessed as being slightly younger compared to other skin tones however, that could be a matter of having a smaller sample for that skin tone category.

The Certification Officer's decision is that a Certificate of Conformity can be issued for a Challenge 25 policy area and subject to the exclusions related to the limitations of this test not covering inherent bias, data protection and privacy, age-appropriate design, data interchange formats, vectors of trust, presentation attack detection, penetration testing or security protocols.