

PROPOSED BLUE BOOK AMENDMENTS

Gemmological Commission Steering Committee

Day, September 3, 2026

13:30 – 14:25

President/Chair: Hanco Zwaan
Vice President/Vice Chair: Claudio Milisenda
Vice President/Vice Chair: Thanong Leelawatanasuk

Agenda – 4. Consideration of Gemmological Book amendments and proposed edits

After last year's amendments, this is not the year that the Gemmological Book is going to be changed. Nevertheless, in the course of events, there are some proposed edits to be discussed, which when agreed, can be inserted at the appropriate time.

Proposal 1: addition of paragraph 5.7.2 – concerning the rapid expansion of the use of AI and Machine learning (ML) applications in gem laboratories, this paragraph should serve as an AI governance guideline for any gem laboratory intending to use AI/ML in their testing processes.

We currently have:

5.7. Assuring the quality of test and grading results

5.7.1. The gemmological laboratory shall have quality control procedures for monitoring the validity and results reproducibility of tests, grading and internal calibrations undertaken. The resulting data shall be recorded in such a way that trends are detectable and, where practicable, statistical techniques shall be applied to the reviewing of the results.

Proposed new paragraph:

5.7.2. When artificial intelligence (AI) or machine learning (ML) systems are used for testing, grading, interpretation, or decision support, the Gemmological laboratory shall ensure that such systems are subject to the same quality assurance, control, and verification requirements as conventional testing methods.

The laboratory shall:

a) Establish and maintain documented procedures to control the validation, verification, and ongoing performance monitoring of AI/ML systems used in testing and grading activities.

- b) Ensure that the performance characteristics of AI/ML systems, including accuracy, reliability, and limitations, are determined and documented prior to their implementation.
- c) Assign responsible personnel with the necessary technical competence to review, interpret, and authorize AI/ML outcomes before the issue of any test or grading report.
- d) Maintain traceability of AI/ML models, including version numbers, training datasets, algorithmic modifications, and system configurations applied during testing.
- e) Implement measures to ensure data integrity, security, and traceable accountability for all AI/ML-generated or assisted results.
- f) Conduct periodic performance evaluations and audits of AI/ML systems to confirm their continued validity, reproducibility, and compliance with declared quality objectives.
- g) Define and document liability and corrective action procedures addressing cases of system malfunction, erroneous output, performance drift, or customer complaint related to AI/ML system use.
- h) Retain all records demonstrating the laboratory's verification and authorization of AI/ML-assisted results as part of the quality management system documentation.

Proposal 2: addition of paragraph 4.7.3 – to stress the importance of transparency and the culture of inter-lab discussions.

We currently have:

4.7. Complaints

4.7.1. The gemmological laboratory shall have a policy and procedure for the resolution of complaints received from customers or other parties. Records shall be maintained of all complaints and of the investigations and corrective actions taken by the gemmological laboratory.

4.7.2. A secondary customer should make any complaints through the primary customer. Responses to complaints shall be given to the primary customer only.

Proposed new paragraph:

4.7.3. in the case of a reported result that is disputed by another laboratory, it is recommended that an open and constructive dialogue, explaining the reasoning that led to the results in question, shall take place between the laboratories and the client(s), aiming to resolve the issues.