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Alcohol Test Committee Position Paper

Documentation Required for Assessing the Accuracy and Reliability of Approved Instrument Breath Alcohol Test Results

Introduction

The Alcohol Test Committee (ATC) of the Canadian Society of Forensic Science has two major roles: (i) to ensure all breath testing equipment in Canada (e.g., approved instruments, approved screening devices) meets rigid specifications through the development of standards and evaluation procedures and (ii) to publish standards and procedures for the use of such equipment in the field. Accordingly, the "Recommended Standards and Procedures of the Canadian Society of Forensic Science Alcohol Test Committee" have been published, and are continuously re-examined and updated (1-8). The role of the ATC in the evaluation of Approved Instruments (AI) and the process involved in approving equipment and monitoring modifications has recently been explained in greater detail (9).

It should be recognized that the ATC equipment evaluation procedures and guidelines are distinct from the standards and procedures regarding the operation of breath testing equipment. Consequently, when assessing the accuracy and reliability of AI test results it is imperative that Operational Procedures (i.e., Procedures, Section IA) not be confused with Equipment Evaluation Procedures (i.e., Procedures, Section II) (7, 8). Furthermore, ATC Standards are provided as a means of fostering the development of a quality system within a breath test program and are not proposed by the Committee as required elements of proof additional to those already provided in the Criminal Code.

The science of breath alcohol testing is not novel, and has been accepted in Canada for over 40 years (10) as a reliable and accurate mechanism for determining an individual's blood alcohol[1] concentration (BAC) at the time of testing (11). Notwithstanding the long acceptance of breath alcohol testing by the judiciary, Canadian courts have recently faced increasingly technical submissions regarding the science and validity of breath alcohol testing[2]. Specifically, there has been much debate as to what information is scientifically required in order to properly assess the working order of an AI at the time of subject testing. As stated in the Recommended Standards and Procedures, the ATC endeavours "to anticipate changes, monitor developments and act accordingly" (8). Thus the objective of this publication is to clearly define what information is sufficient to adequately assess the performance of an AI at the time of subject breath testing. It is the position of the ATC that where these operational recommendations and procedures are met, the BAC is accurate and reliable.

[1] The unmodified word "alcohol" refers to ethyl alcohol.
[2] Such applications are the result of restrictions on "evidence to the contrary" in Bill C-2, the Tackling Violent Crime Act (2008), which essentially requires that there be evidence tending to show instrument malfunction or operator error in order to contradict the BAC produced by the AI.

Requirements for the evaluation of subject breath test results

The required quality control information which must be reviewed to assess the working order of an AI is typically produced during the subject breath testing procedure.

1. **Blank tests:** The results of all blank tests associated with the subject breath test procedure should be available.

2. **Calibration Check:** A properly conducted evidential breath test must be accompanied by an external calibration check using an alcohol standard. The calibration check is of key importance and the results from this test can be determinative of the accuracy of the instrument. Documentation concerning the calibration check should contain information regarding:
   a. the suitability of the alcohol standard (s. 254(1) C.C.C.) for use with an AI
   b. sufficient information to demonstrate that the use of the standard has met the criteria as specified in the ATC Operational Procedures (8).

3. **Instrument Messages:** Any messages produced by the instrument during the subject breath testing procedure that indicate an exception or error has occurred should be provided and assessed to determine their impact, if any, on the breath test results. Messages produced at other times are not scientifically relevant and need not be reviewed.

4. **Subject breath test results:** Acceptable agreement between subject breath test results is an important consideration in assessing the overall reliability of the breath test results. Documentation providing the results of two subject breath tests should be provided. Criteria defining acceptable agreement of these tests are outlined in the ATC Operational Procedures (8).

In most cases the AI will automatically produce a printed record that supplies much of the information enumerated above. In some instances the required information may reside in other documents or records. The ATC does not provide specific guidance as to how these supplementary documents be retained, only that the data are available to allow for the formation of a considered scientific opinion about the performance of the AI at the time of analysis of a subject's breath tests.

Review of these specified requirements is sufficient to assess the accuracy and reliability of a subject's breath test results. Deviations from the Operational Procedures recommended by the ATC would be recognizable by reviewing the materials outlined above; in such cases, further information may be required.

A suitable quality assurance system should be in place in a well run breath alcohol program and should include the quality control aspects addressed by the ATC in its Recommended Standards and Procedures (8). Commitment to quality assurance also encompasses standards regarding Maintenance and Modifications to breath testing equipment (i.e., Standards Section V) (8). The intention of these Standards is to allow an individual breath test program to identify and rectify any instrumental issues prior to them becoming a significant problem. Records relating to periodic maintenance or inspections cannot address the working status of an AI at the time of a breath test procedure and are intentionally absent from the requirements listed above. Thus, while a failure to adhere to such quality assurance measures could lead to instrument malfunction, this occurrence will be detectable by the quality control tests done during the breath test procedure. Similarly, data collected both prior to and after the subject test, or an examination of the approved instrument subsequent to the subject test, do not further assist in determining the reliability and accuracy of an AI during a specific breath testing procedure.

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In conclusion, it must be emphasized that Approved Instruments are scientific tools, previously demonstrated as meeting the rigid specifications of the ATC Equipment Evaluation Procedures, used for obtaining accurate and reliable measurements of a BAC. No analytical testing instrument, including AIs, is infallible; however, it is in due recognition of this that the ATC has developed Operational Procedures to be performed each time a subject test is conducted. Adherence to these recommendations, along with a review of the data related to the subject test in question will provide conclusive evidence of the BAC at the time the test is conducted.

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