

"SHOULD TESTING LABS BE CERTIFIED?" "IF SO, SHOULD A PRODUCT BE SELF-CERTIFIED?"

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SHOULD TESTING LABS BE CERTIFIED?

The act of certifying indicates that there are some prescribed criteria that must be met, some means of validating that the criteria are met and that there is an official body to regulate, control and/or sanction the process. While we can see this process is in effect in other industries, there is not a certification process with these elements in place for testing and evaluating highway safety appurtenances.

The general answer to the question from an industry perspective should be yes, testing labs should be certified. The explanation of this answer and the specific type of certification programs developed will require much discussion.

The reasons that labs should be certified include:

1. Ensuring consistency in testing procedures and accuracy of test data/results between testing labs.
2. Providing the ability to compare results of system performance between "certified labs".
3. Providing the ability to monitor the quality of results of each certified lab.
4. Reducing the "suspicion coefficient" where the testing service has an interest in the test article or testing program.

The certification process should include at least the following items:

1. Critical review by an independent "agency" of the detailed testing procedures used, acceptability of testing equipment, calibration of data collection devices, traceability of measurements to national standards, traceability of test article design/documentation, ability to store/retrieve *unalterable* raw data, quality assurance procedures (checks and balances) and the ability of the laboratory to conduct, measure and document tests in an acceptable manner.
2. Issuance of a detailed report on the ability of the testing service to meet an acceptable standard and if no deficiencies are noted, the issuance of a certificate of compliance.
3. An audit/review process by the independent agency to ensure continued compliance.

If the certification process is effectively implemented and enforced by an administrative body, developers and evaluators alike can have a high degree of assurance that the reasons for having the certification process mentioned earlier will be met. Thus, there will be testing labs capable of conducting certification tests that can be evaluated by approval agencies to determine whether or not to accept the performance of a particular appurtenance. This sequence leads to the possibility of having certified testing labs, conducting certification tests in the development of certified products (certified by an approval agency, not the testing laboratory). However, the testing lab only conducts tests and reports performance. The approval agency evaluates and then either accepts, accepts with limitations or rejects the system based on the performance demonstrated.

Three types of testing should be conducted in developing a new appurtenance: proof of concept testing, developmental testing and finally certification testing. Proof of concept testing is typically performed using crude elements of systems that are configured in a way to demonstrate whether the system has the potential of performing in an acceptable manner if it were developed. These tests do not need to be done by a certified testing lab nor do they need to follow any particular testing criteria. Thus, these tests may be very low cost.

The developmental tests are done to verify that system components are designed properly to be able to pass the certification tests. These tests allow the developer to try several different designs and refine the system to a point where it is ready for certification testing. These tests are typically conducted to basic criteria close to that used in certification testing but the instrumentation, procedures, etc., are at a much lower level. These tests are more costly than proof of concept tests but substantially less than certification tests.

The certification tests are the ones that should be used by the approval agency to evaluate and approve an appurtenance. Therefore, the system being tested cannot be altered in any way once the certification testing begins. Subsequent testing of this system by other certified test labs should yield the same performance. Due to the high level of instrumentation, documentation, quality assurance and procedures being followed, certification testing is very expensive.

This process will represent a major change to most (but not all) testing labs. Most testing being done for state and federal agencies are being conducted and priced as certification tests. However, the system components may undergo numerous design changes throughout the testing program. It would be unusual for early tests in the matrix to be rerun after a design change is made.

**"IF SO (TESTING LABS BEING CERTIFIED),
SHOULD A PRODUCT BE SELF-CERTIFIED?"**

The simple answer to this question is yes, provided that the certification process is applied equally to all certified test labs.

There are several issues that need to be explored to fully appreciate the answer. These issues include who might be defined as an independent test lab, what financial or business interest does the testing lab have in the article being tested, whether the tests are conducted in a manner where the results cannot be altered and what is the level of competence of the testing lab to do certification testing.

When these issues are evaluated, the conclusions reached include:

1. None of the current testing labs are truly independent. The testing labs or their mother organizations have financial and/or professional interests in the test article or in the research program associated with the tests.

2. The procedures, quality assurance programs, methods used to positively ensure that results cannot be altered, traceability of component materials and designs, assurances that design and material changes do not occur after certification testing has started, etc., that are used by the only "self-certification" test lab are equal to or better than those used by other current test labs in attendance.

3. The certification process, auditing and recertification features, etc., should be sufficient to ensure credibility of test results regardless of who conducts the test provided the test is done by a certified test lab.

The industry should encourage and support the process of developing a certification program for highway safety appurtenance test labs. The results will be more accurate and consistent test results between test labs and a more consistently level playing field being created as safety devices are developed and tested.