



**The R&A**  
St Andrews, Fife  
Scotland KY16 9JD

Tel: +44 (0) 1334 460000  
Fax: +44 (0) 1334 460152

[www.randa.org](http://www.randa.org)  
[www.opengolf.com](http://www.opengolf.com)

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To: **ALL MANUFACTURERS**

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### **Changes to golf ball testing equipment**

As part of the Equipment Rule-Making Process, The R&A and the USGA are committed to informing manufacturers when initiating research which may lead to a change in test equipment (Vancouver, 2010) and to inviting manufacturers to contribute to the process by providing comments and sharing information on comparative work.

I am writing to inform you that The R&A and the USGA are undertaking research efforts to study two important ball test devices: the Indoor Test Range (ITR) and the test for Initial Velocity (IV). Both of these devices have been in service for a substantial period of time and it is believed that updating the equipment is warranted.

#### **Indoor Test Range**

The indoor test range, introduced in the mid 1990's has been a critical tool in permitting The R&A and the USGA to measure the Overall Distance of golf balls in an accurate, repeatable and timely fashion. In addition to conformance testing, the ITR is an important tool for conducting a wide range of golf ball related research.

The current ITR, situated at the USGA's test center in Far Hills, NJ, uses technology that is well-suited to evaluating the aerodynamic performance of golf balls for the purpose of determining conformance to Appendix III of the Rules of Golf, in respect to the Overall Distance and Symmetry limitations. However, because of physical constraints, it is less well-suited to other research projects associated with golf ball aerodynamics.

The R&A and the USGA are investigating a new measurement technology based on stereoscopic photographic measurements. The USGA intends to install this new measurement system in tandem with its current ballistic screen devices and to do so by the summer of 2015. The intention is for both systems to run concurrently to evaluate the accuracy and consistency of the new system compared with the current system. At the end of this extensive evaluation period, if the new technology proves suitable, consideration will be given to adopting the new measurement technology for the purpose of determining conformance of golf balls to the Rules.

The R&A is participating in this project and intends to install the same system within their new test facility, pending a successful evaluation.

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**Test for Initial Velocity (IV)**

The evaluation of a golf ball's IV is currently measured using a device built by the Illinois Tool Works (ITW) and which was first used in the 1960s. This device incorporates a large spinning flywheel to strike a ball at a set impact speed and to measure the resulting ball speed. The equipment has provided very repeatable ball speed measurements over its lifetime. However, it is a complicated machine that requires significant maintenance and monitoring. Furthermore, it is not a device that is readily available or easily replicated by golf ball manufacturers.

In 2012, The R&A and the USGA published a paper describing other means of measurement, through the use of a standard coefficient of restitution test against an essentially infinite mass and a contact time measurement, which could reproduce the results from the ITW machine with a high degree of certainty. Work has continued in this area to better understand this method and the intention now is to extend the research still further to determine the ramifications of employing an alternative impact test. This is intended to have the effect of simplifying both the testing and the test equipment. This will have the additional benefit of making it easier for manufacturers to reproduce the results. . It must be stressed that, The R&A and the USGA remain convinced of the need to retain a limit on golf ball liveliness (currently quantified by the initial velocity test). The elimination of the IV standard is not within the remit of this project, but it would lead to a modification of the way in which the test is performed.

There is no timeline for the research on the IV test. The R&A and the USGA are committed however to providing updates when significant findings are made.

Any comments you would like to make should be addressed to Dr Steve Otto ([steveotto@randa.org](mailto:steveotto@randa.org)).