Notice to Manufacturers - Research Areas with Potential to Lead to Test Equipment Change

April 15, 2024

Please see the following three research topics which we believe have a reasonable chance of resulting in a change in test equipment or test method.

Launch Condition Measurement

The Overall Distance Standard and Symmetry Test Protocol (TPX3006 Rev. 3.0, 9 April 2019) requires the Determination of Launch Conditions (2.1). To date, the USGA has used test equipment known as the Science-Eye that is not commercially available to perform associated measurements.

Please be advised that the USGA is performing research to identify a suitable replacement for the Science-Eye. The requirements for such a replacement are to:

1. Accurately measure ball speed, angle, and spin.
2. Provide measurements that comparable to those of the Science-Eye within acceptable tolerances.
3. Be commercially available to golf equipment manufacturers.
4. Work in an indoor environment, with the ability to measure within 3 feet.
5. Make measurements with golf balls as submitted to the USGA.

Any technology, for example, optical tracking or radar measurements, may be considered. The USGA expects to have identified a replacement in 2024.

Measurements Used in Calculating the Coefficient of Restitution of a Ball-Club Impact

The Protocol for Measuring the Coefficient of Restitution of a Clubhead Relative to a Baseline Plate (TPX3009 Rev. 2.0, 9 April 2019) requires that a calibration ball be propelled against a baseline plate and a club at speeds of 133 ± 0.5 ft/s (or slower if necessary to reduce risk of damage), and the inbound and outbound speeds be recorded. To date, the USGA has used a combination of commercially available (e.g., cannon) test equipment and equipment that is not available to manufacturers (e.g., ball speed and angle measurement device) for this purpose.

Please be advised that the USGA is performing research to identify a suitable replacement for this equipment. The requirements for such a replacement are to:

1. Position the target in such a way that it moves freely after impact.
2. Propel a ball at a specified speed, within the range 100 ft/s to 180 ft/s at a target, especially at 133 ± 0.5 ft/s.
3. Provide accurate measurements of the inbound speed, rebound speed, and rebound angle.
4. Allow determination of whether the impact was centered within the target area.
5. Be commercially available to golf equipment manufacturers.
6. Work in an enclosed indoor environment, preferably with power and compressed air supply as currently available to the USGA:
    a. 110 VAC and
    b. Up to 125 psi compressed air.

Preliminary Research – Optical Profilometer

The USGA has acquired an Optical Profilometer (Keyence VR-6200) as a device to supplement our evaluation of whether insets in club face are flush with the rest of the face so that the face can still be considered smooth with no concavity (see The Equipment Rules, Part 2, 5.a, General).

This technology might also be of use in evaluating surface features such as roughness (see The Equipment Rules, Part 2, 5.b(ii), Impact Area Roughness) or groove geometry (see Protocol for Measuring Impact Area Markings of Golf Clubs, TPX3001 Rev. 2.0, 1 December 202).

Please be advised that the USGA is performing research to identify whether this device is suitable for any of these purposes. Such research will determine whether the device can:

1. Accurately measure proudness and depth of insets.
2. Accurately measure Roughness Average (R_A).
3. Accurately measure crest-to-trough height.
4. Measure groove geometry in a way that is consistent with established measurement methods.
5. Be commercially available to golf equipment manufacturers.

This research is considered as preliminary and will inform the USGA as to whether this device may be used in the future as a screening method, as supplement to existing methods, or as a replacement to existing test systems.

Conclusion

We invite equipment manufacturers or other interested parties to contribute research or comment for any of the above areas of interest.

Should you have comments or questions regarding this research, please contact Steven Quintavalla, USGA Senior Director of R&D at squintavalla@usga.org or 901-781-1109.