



R&A Rules Limited
and
United States Golf Association

INITIAL VELOCITY TEST PROTOCOL

TPX3007

Rev. 2.1

9 April 2019

Revision	Date	Details of Revision
1.0	21-Nov-2003	Original published version.
2.0	16-Oct-2017	New major revision based on the adoption of new test equipment pursuant to Notice to Manufacturers “Initial Velocity (IV) Test Replacement”, 17 October 2017.
2.1	9-Apr-2019	Updated Rules references, reformatted step numbering and section titles to be consistent with other protocols, included metric units.

1. Scope

This protocol describes the method used to test golf balls for conformance to the Equipment Rules, Part 4, Section 5, as administered by R&A Rules Ltd. (The R&A) and the United States Golf Association (USGA).

2. Test Protocol

- a. Golf balls shall be maintained at 75° F +/- 1° F (23.9° C +/- 0.6° C) for a minimum of three hours prior to testing.
- b. Each of 24 balls hereafter referred to as the sample shall impact an effectively rigid, fixed barrier.
 - i. The barrier shall be set such that the surface normal is inclined at an angle of 5° from the inbound path of the ball.
 - ii. The ball should be propelled in such a way as not to induce significant spin.
- c. The rebound velocity of the ball shall be measured at a distance beginning no less than 7 inches (177.8 mm), and no more than 9 inches (228.6 mm) from the impact target. The gauge distance for velocity measurement should be no more than 18 inches (457.2 mm).
- d. The time of contact between the ball and the barrier shall be measured.
- e. The Initial Velocity (IV) of the golf ball (ft/s) shall be calculated according the following:

$$IV = 136.8 + 136.3 e + 0.019 t_c$$

Where e is the coefficient of restitution, and t_c is the contact time in microseconds at an impact speed of 143.8 ft/s (43.83 m/s).

- f. The pre-impact speeds for the test should enable accurate interpolation to the target speed of 143.8 ft/s.
 - i. To this end, each ball may be tested over a range of speeds, such that:
 - a) The impact speeds should not be different from 143.8 ft/s by more than 15 ft/s (4.57 m/s).
 - b) Sufficient measurements are made at speeds above and below the target speed as to allow for linear interpolation to 143.8 ft/s.
- g. The IV of each ball in the sample shall be reported.

3. Determination of Conformance Status

For each golf ball, the IV shall be compared to the 250.0 ft/s limit plus a maximum tolerance of 2%. In a sample of 24 golf balls, if four or more initial velocities exceed 255.0 ft/s, then the sample shall be ruled nonconforming to the Equipment Rules, Part 4, Section 5.

Appropriate screening methods may be employed.