The invention relates to a test tool for testing an overspeed protection system of a wind turbine where the overspeed protection system includes a sensor for sensing a first physical signal having a physical nature and representing a speed of rotation of a rotor of the wind turbine and for providing a corresponding output signal; means for receiving the output signal from the sensor and for determining based on the output signal if the speed of rotation exceeds a threshold of speed of rotation; and means for initiating if the speed of rotation exceeds the threshold of speed of rotation an action reducing the speed of rotation. The test tool includes a device capable of providing a second physical signal of the same physical nature as the first physical signal and that the test tool is suitable for suppling the second physical signal to the sensor so as to simulate the rotation of the wind turbine. The invention also relates to a method for testing the overspeed protection system of a wind turbine.