In the appendices on measurement in ANSI/ASME B1.2, the National Standard for unified threads, we find this:

> This Section presents specifications and techniques for the measurement of screw thread plug gages and setting plugs by measuring over accurate cylinders or wires inserted in the tread grooves. The purpose is to make available a standard United States method for making such measurements. The practices described measure groove diameter, which is equal to pitch diameter only on a thread with perfect pitch spacing.[1]

Further, the Euramet cg-10 Version 2.1 (12/2012) "Determination of Pitch Diameter of Parallel Thread Gauges by Mechanical Probing" says:

> 4.2.1 **Measurement of diameter only (1a):** The simple pitch diameter is calculated from this measured diameter, corrected for the rake and the measuring force, and from assumed nominal values for the pitch[1] and thread angle.

The term "groove diameter" is seldom used, and it is used as a synonym of "Simple Pitch Diameter."

There are very few labs that measure the true pitch diameter because it requires the pitch be measured so that corrections can be made. This is done at NIST, but labs typically do not follow this practice except perhaps manufacturers of American Petroleum Institute gages (API).

Finally, note that in a proficiency test (PT) it is unlikely that the protocol requires pitch measurements, and thus all of the labs are actually reporting Simple Pitch Diameter. In this case, the pitch has no effect on the measurand. If a lab did measure the pitch and make a correction, the lab would probably be an outlier and fail the PT.

As long as the lab properly puts "Simple Pitch Diameter" in the scope, the uncertainty will be rather low. It should probably be between 60 and 80 microinches.

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[1] Highlight added by the author of this guidance document.

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