

PCS: What does this term on my report mean?

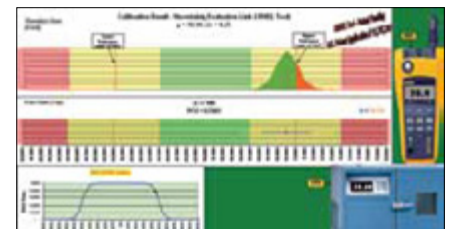
What is PCS?

This is a new term that refers to the Probability of Compliance to the Specification. Very simply, it is an indicator that tells you when you may have more measurement risk than you can accept when relying on your instrument to provide you with a confident reading/value.

How confident are you that your test and measuring instruments are not negatively impacting your products/services? The answer should be: As long as the instrument has been operating within the Original Equipment Manufacturer's (OEM) accuracy specifications, you have high confidence that there is no negative impact, but if it exceeds those tolerances then there is a potential impact to product/ service that must be investigated.

There is a region that lies around the lower and upper tolerance limit where a calibration lab's measurement uncertainty obscures their ability to clearly state whether the instrument is In Tolerance or OOT. Even when the Test Uncertainty Ratio (TUR) is high, this condition exists. So, for the moment, let's forget about that 4:1 or better TUR requirement in your quality system and focus on the fact that a "TUR" is a means of protecting your confidence in using an instrument to either make measurements or to source values which meet your expectations. PCS is a better and more precise way to ensure this confidence.

The PCS % normalizes all of the calibration information at each test point to make it easier for you to understand the measurement risk. With one simple percentage, you can tell whether or not measurement risk exists, even for low TUR's—and that indicates whether or not you should further investigate the processes where the instrument was used in order to help minimize risk in those processes.



A Graphical Representation Of PCS

The PCS is based on your instrument's tolerance limits, the calibration laboratory's measurement uncertainty, and the reading/value of your instrument at the time of calibration. And it's simple to use. When the PCS value is 100% (In Tolerance), you can rest assured that the instrument is performing within its expected tolerance limits. As the PCS decreases below 100% (False Accept), the lab's measurement uncertainty begins to interfere with a clear call on whether the test point is In Tolerance or OOT; the PCS % becomes an indicator of how much confidence the lab has in stating the test point is In Tolerance. When it reaches 50%, the instrument has hit one of its tolerance limits. Below 50% (False Reject) your instrument is traditionally called OOT; the PCS percentage adds value by indicating the probability that the test point could actually be In Tolerance due to inherent variances that are part of the lab's measurement uncertainty. Finally, 0% PCS (OOT) means there's no chance your instrument could have been In Tolerance - it's definitely OOT at this

point. No need to concern yourself over the lab's measurement uncertainty or the TUR (but we'll still provide them to you). You've hired us as the Metrology experts to calibrate your equipment, so let us worry about keeping those in check. Use PCS for peace of mind in determining your true confidence in measurement! To learn more about the PCS concept, please go to www.Transcat.com, then click on [CALIBRATION](#), or navigate to [RESOURCES](#), then click [WHITE PAPERS](#).

CALIBRATED SUPPLEMENTAL REPORT										
CALIBRATION LAB DATA AS FOUND / AS LEFT										
Customer: Test Account PO Number: 1189221										
Certificate/SO Number: 01-TEST1-10-1 Revision 0										
Manufacturer: Control Company Model Number: 4085 Description: Hygrometer/Thermometer/Dew Point, Meter Serial Number: Test 1 ID:					Service Type: R9 Issue Date: Dec 15, 2019 Calibration Date: Dec 14, 2019 Date Due: Dec 14, 2020 Calibration Procedure: 1-AC41248-2					
Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	Cal Process Uncertainty (k=2, σ)	PCS %	Units	TUR	
Relative Humidity Measure										
Relative Humidity Measure	20.00%RH	±(1.5 %RH)	18.50	21.50	21.14 %RH	5.0e-001	92.5	%RH	3.0 : 1	
	50.00%RH	±(1.5 %RH)	48.50	51.50	50.78 %RH	5.0e-001	99.8	%RH	3.0 : 1	
	80.00%RH	±(1.5 %RH)	78.50	81.50	81.28 %RH	5.0e-001	88.2	%RH	3.0 : 1	
Temperature Measure °C										
Temperature Measure °C	20.03°C	±(0.4 °C)	19.63	20.43	20.11 °C	4.4e-002	100.0	°C	9.1 : 1	
Temperature Measure °F										
Temperature Measure °F	68.06°F	±(0.7 °F)	67.36	68.76	68.18 °F	7.9e-002	100.0	°F	8.9 : 1	
<small>The column labeled Cal Process Uncertainty (CPU) does not include the short term component of the UUT. The column labeled Measurement Uncertainty includes both CPU and the short term component of the UUT. TUR is calculated using CPU. Note: Reported resolution of the UUT does not represent calibration uncertainty or accuracy of the UUT.</small>										
<small>Revision 0 Field not applicable. (P = Pass, F = Fail)</small>										
<small>Calibration Lab Data Report - Page 1 of 2</small>										
<small>Certificate/SO Number: 01-TEST1-10-1 Revision 0 OPS-F20-01042-03/26/2019</small>										

An Example Of a PCS Calibration Certificate

For further reading on PCS, please review the following white paper: [Benefits of PCS](#)