

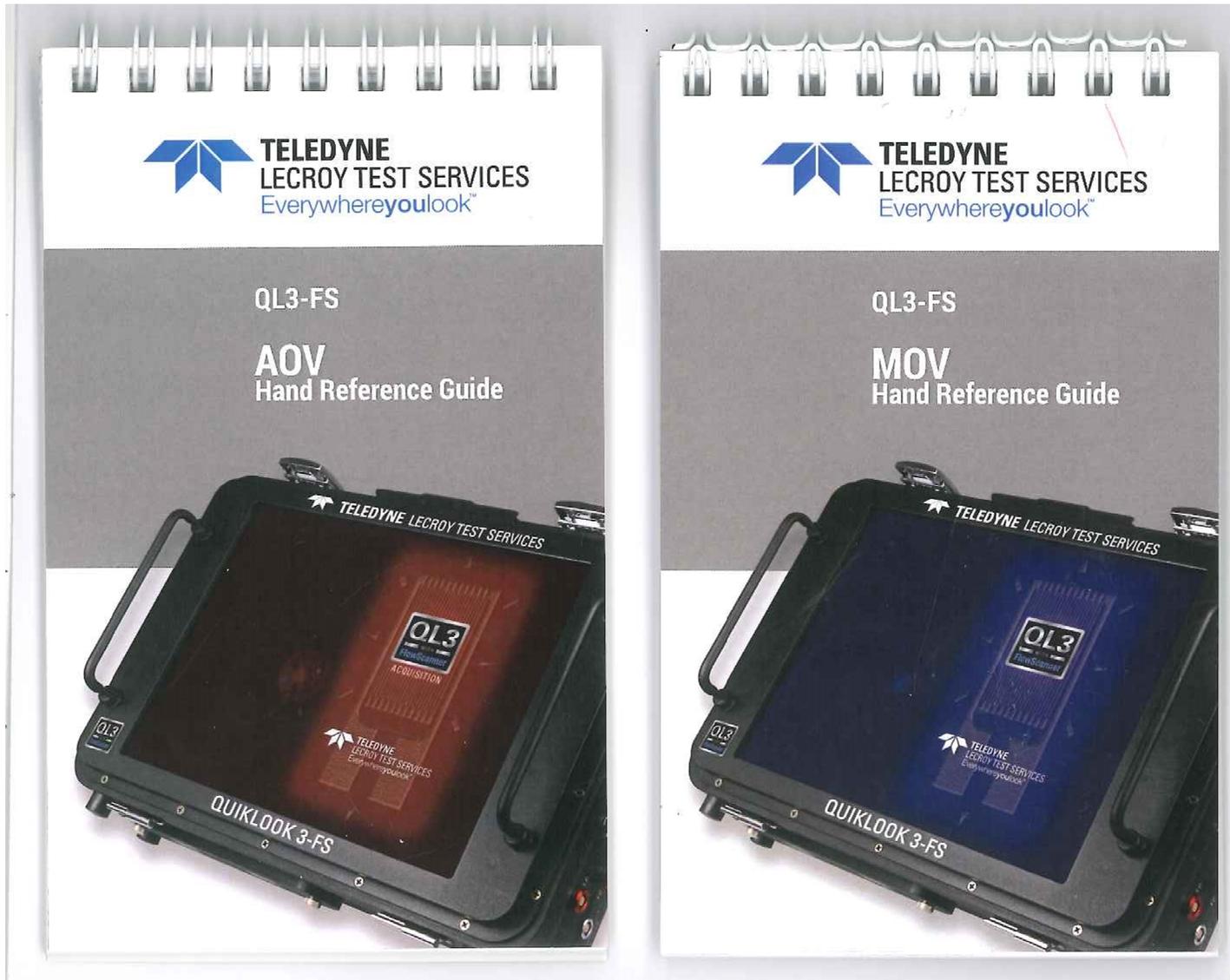
# Quality Assurance Corner

Presented by:  
Rick Shannon  
Michael Sullivan



**TELEDYNE LECROY TEST SERVICES**  
Everywhereyoulook™

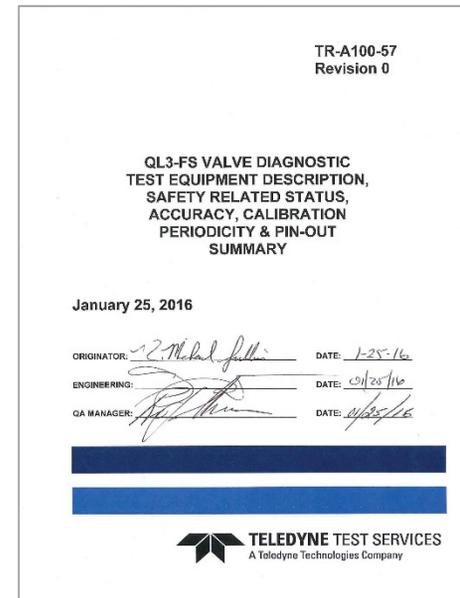
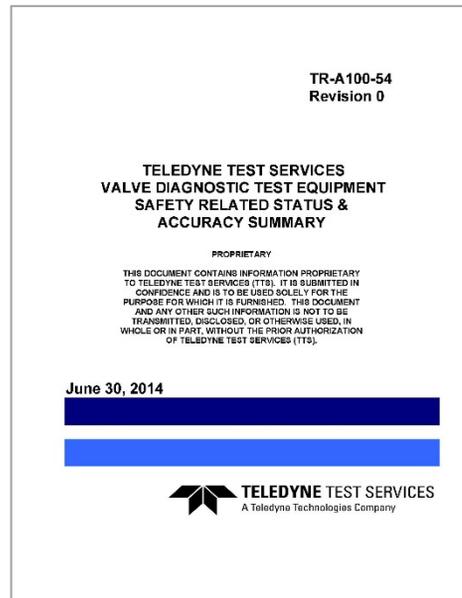
# Updated AOV & MOV Handbook Guides Available



# TR-A100-54 & 57 – Customer Service Bulletin



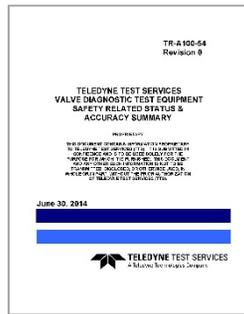
- ✓ Valve Diagnostic Test Equipment Description
- ✓ Safety Related Status
- ✓ Accuracy
- ✓ Calibration Periodicity
- ✓ & Pin-Out Summary



# TR-A100-54 & 57 CSB Updates



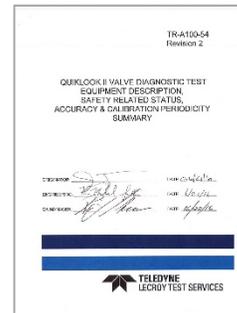
54 Rev 0  
6/2014



QLII/+  
QL3



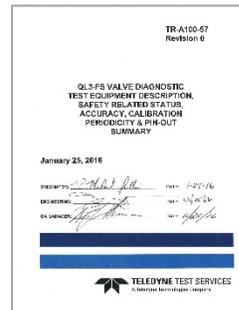
54 Rev 2  
6/2016



QLII/+



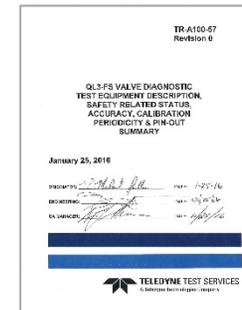
57 Rev 0  
1/2016



QL3-FS



57 Rev 1  
1/2017



QL3-FS

# Customer Service Bulletin 2016-3, QL3-FS Installer



- Related to Encoder Channels not being recognized
- Can occur after test when returning to the acquisition screen
- Key software files in the wrong location
- New Installer fixes the problem
- Contains instructions on how to determine status of your QL3-FS units



**TELEDYNE**  
LECROY TEST SERVICES  
Everywhereyoulook™

513 Mill Street  
Marion, MA 02738-1549  
(508) 748-0103 Fax: (508) 748-2029

### CUSTOMER SERVICE BULLETIN

**CSB No.:** 2016-03 August 15, 2016  
**Title:** QL3/FS I  
**Affected Products:** QUIKLOOK FS Version 2015.208 & 2015.210

**Issue Description:**  
When entering the QUIKLOOK FS acquisition screen, or while plugging a digital encoder into channel 15 or 16, you receive a message stating:  
*"You have plugged an Encoder into a system that does not support Encoders"*  
This may happen after a test when returning to the acquisition screen even though it was recognized the first time.

**Reconciliation:**  
In order for QUIKLOOK FS to recognize digital encoders connected to channels 15 and 16, certain software drivers need to be loaded into memory. These drivers are contained in files which are installed by the QUIKLOOK FS software when the software is originally installed. Because of the location where the driver files were installed, QUIKLOOK FS does not always find them.  
A new QUIKLOOK FS software installer has been created which places these driver files in the correct location. The new QUIKLOOK FS software installer is now available upon request.  
To verify that the correct installer has been used, check for the driver file "QDMSvr.dll" in the C:\QUIKLOOK directory. This file should not exist in that location but should be present in the C:\Windows\System32 directory.

**Customer Action Required:**  
If the location of the driver file has been verified, and QUIKLOOK FS is working correctly, then no action is needed. If the encoder channels are not recognized then you need to uninstall QUIKLOOK FS and reinstall using the new QUIKLOOK FS software installer.

1 of 1



# Customer Service Bulletin 2016-2, QL3-FS Calibration Interface



# CSB 2016-2 – QL3-FS Calibration Interface



Specification	QL3-FS	
Sample Rates	10-50,000 S/s*	
Analog Input Ranges	+/-10mV, 30 mV, 100Mv, 300mV, 1V, 3V & 10V	
Analog Input Channel Uncertainty	1% of reading (10 to 100% range), 0.25% full scale (0-10% Range)	
Digital Input Range (Ch 15, 16 "E" option)	24 bit	
Digital Input Uncertainty	+/-2 counts	
Output Channels	4-20, 10-50 mA	0-10, 0+/-10V
Output Channel Uncertainty	1% of reading	2% of reading

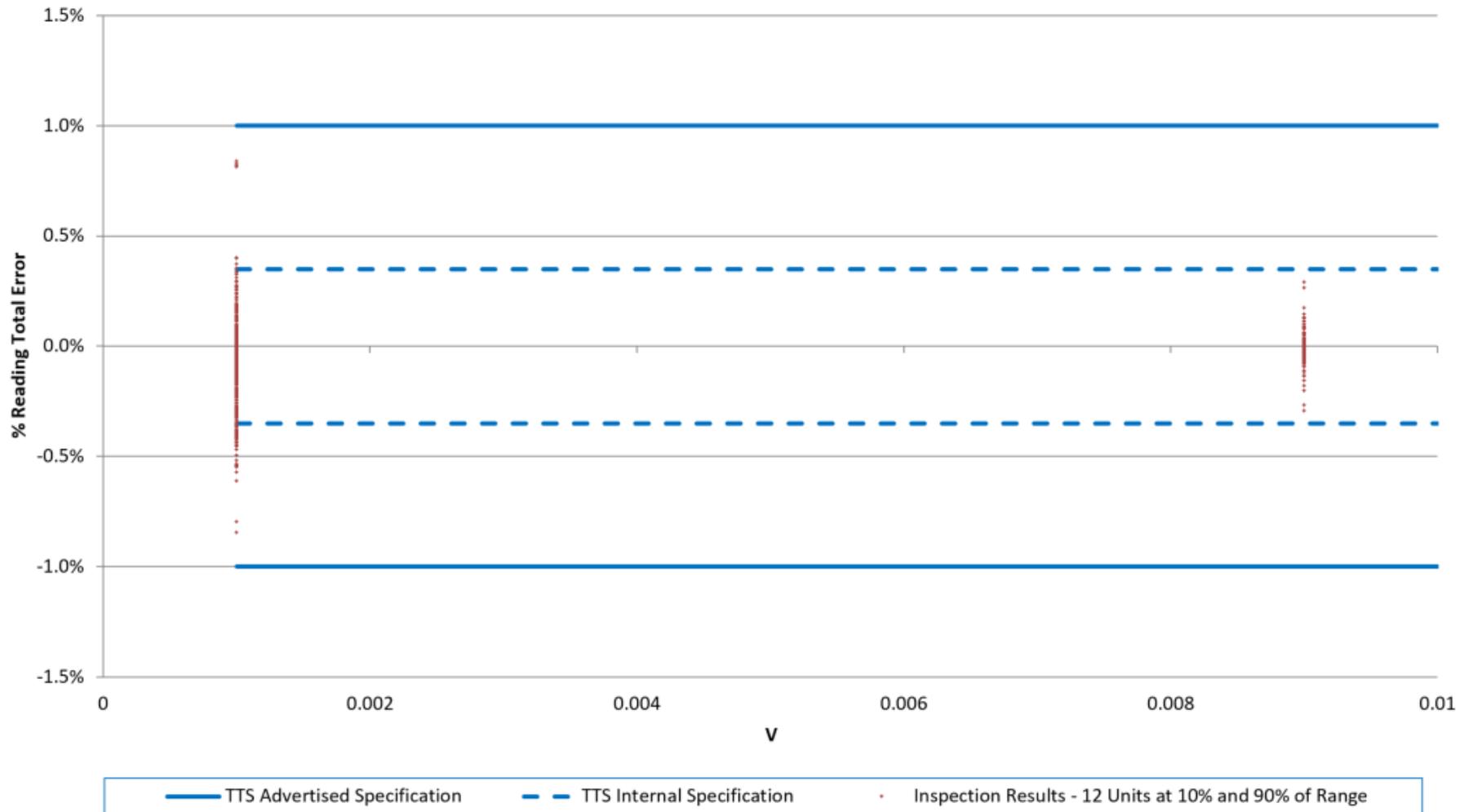
+/-10% & +/- 90% Range



# CSB 2016-2 – QL3-FS Calibration Interface



**QL3-FS Channels 10mV or 1mV/V Range**  
**Channels 1-16 Actual % Reading Error Results vs. Performance Specification Before Fix**



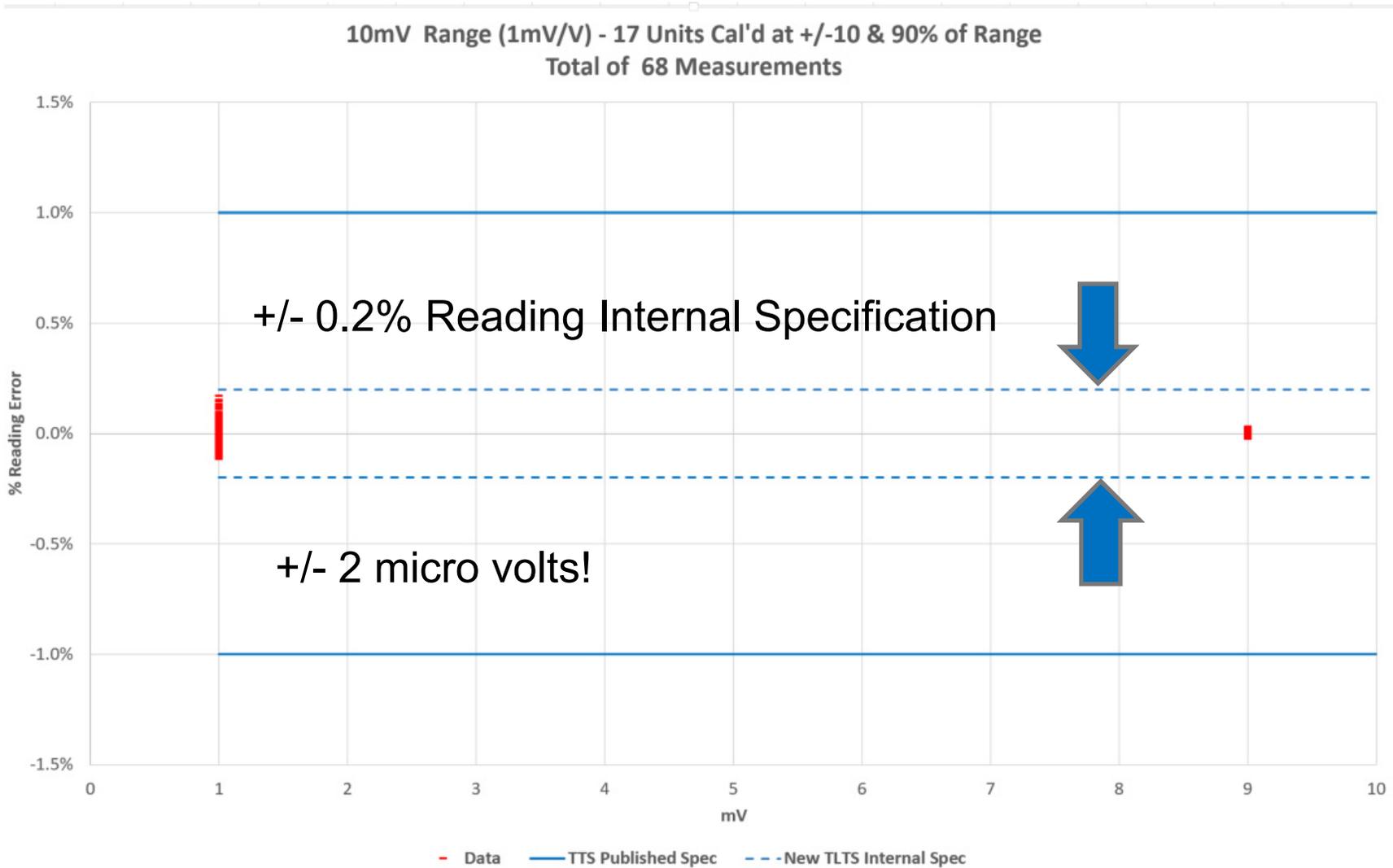
# CSB 2016-2 – QL3-FS Calibration Interface



Ground Loops!



# CSB 2016-2 – QL3-FS Calibration Interface



# CSB 2016-2 – QL3-FS Calibration Interface

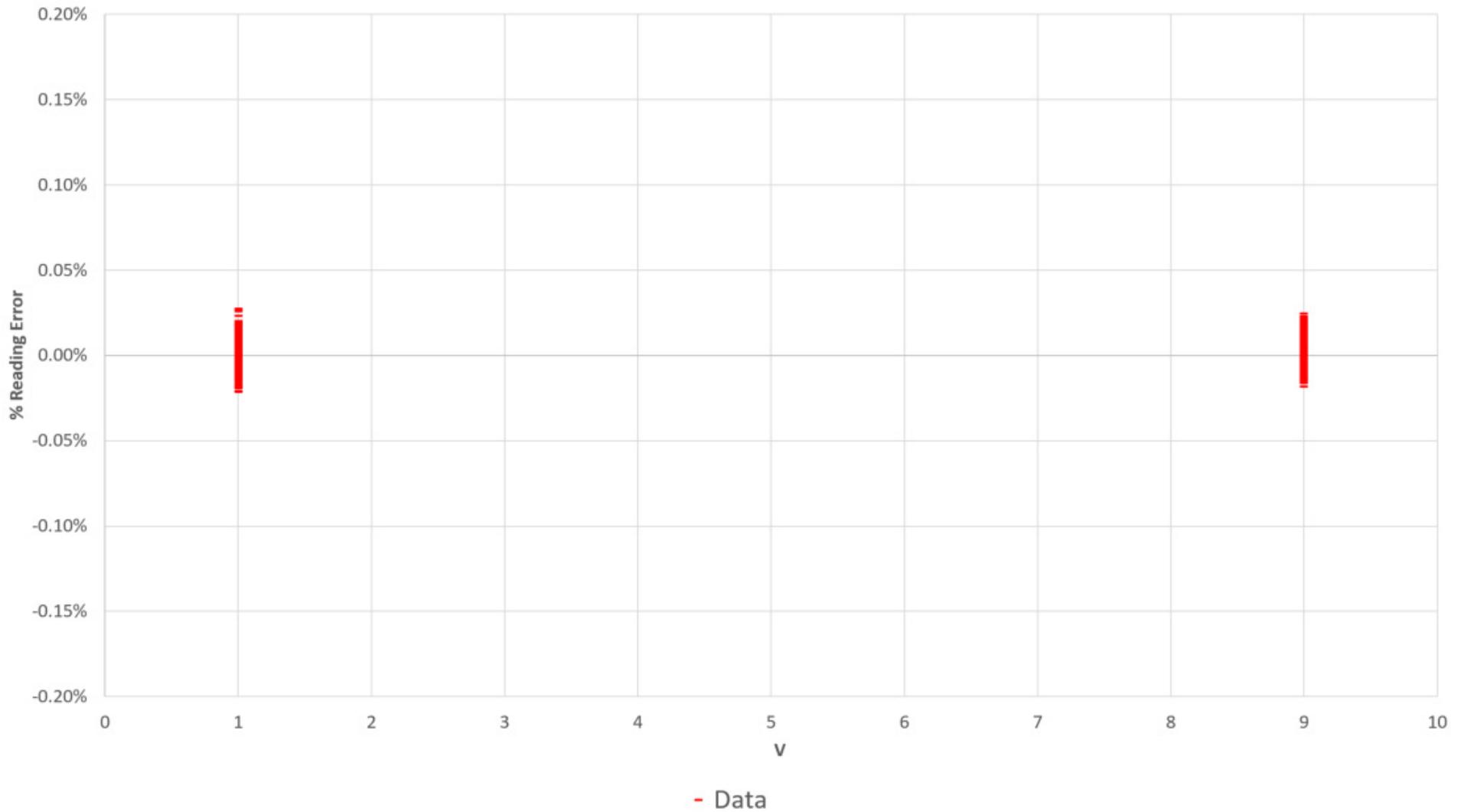


- ✓ TTS to perform modifications to all Calibration Interface boxes at no charge
- ✓ Also upgrade boxes to include new digital calibration function (15 & 16)
- ✓ TTS to assist with first QL3-FS “As Found” calibrations by providing zero offset procedure
- ✓ A small minority of units have AF’s with 1mV measurement >1%
  - No impact with normally zeroed traces



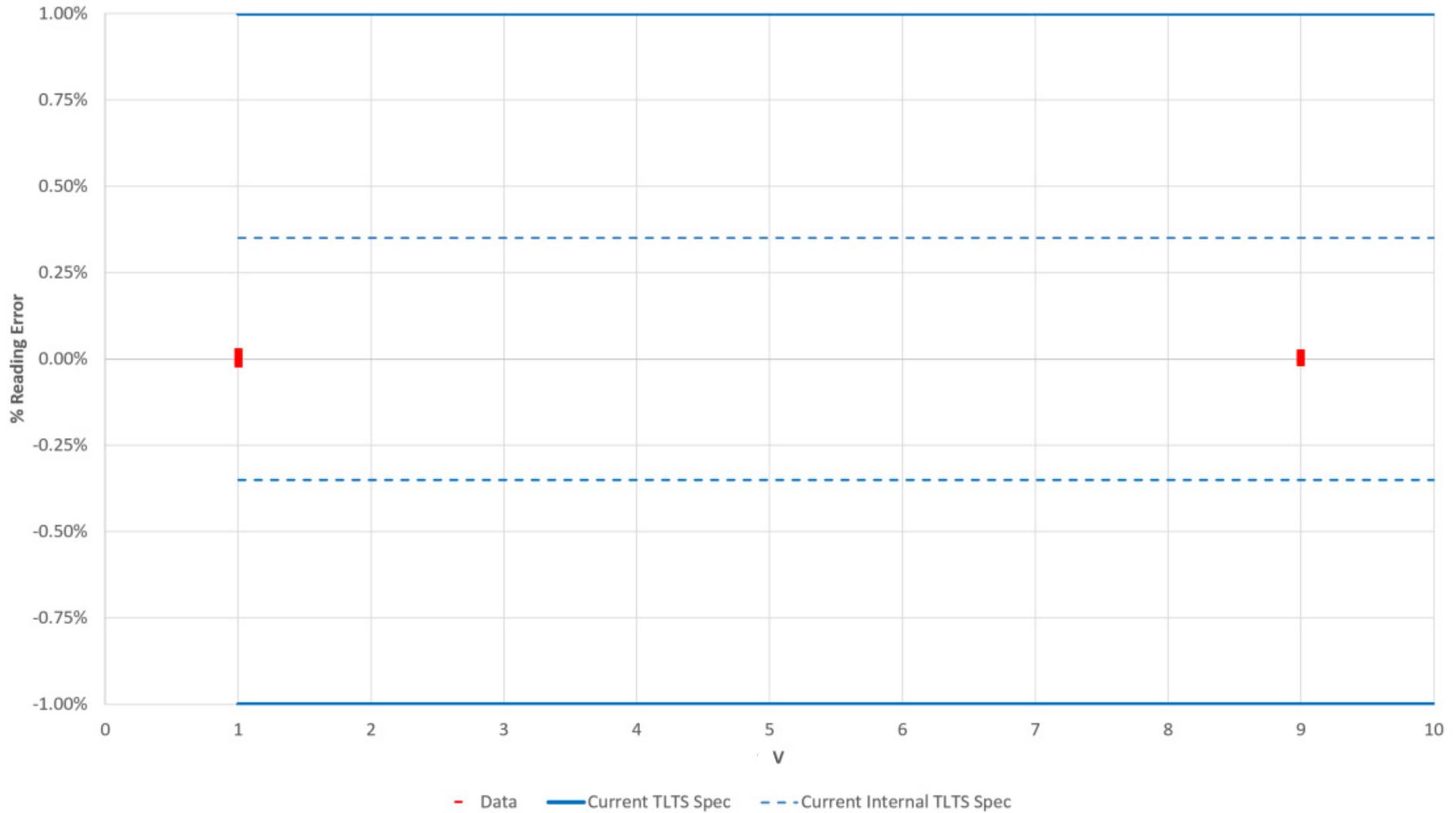
# Impact on +/-10V Range

10V Range - 17 Units Cal'd at +/-10 & 90% of Range  
Total of 68 Measurements



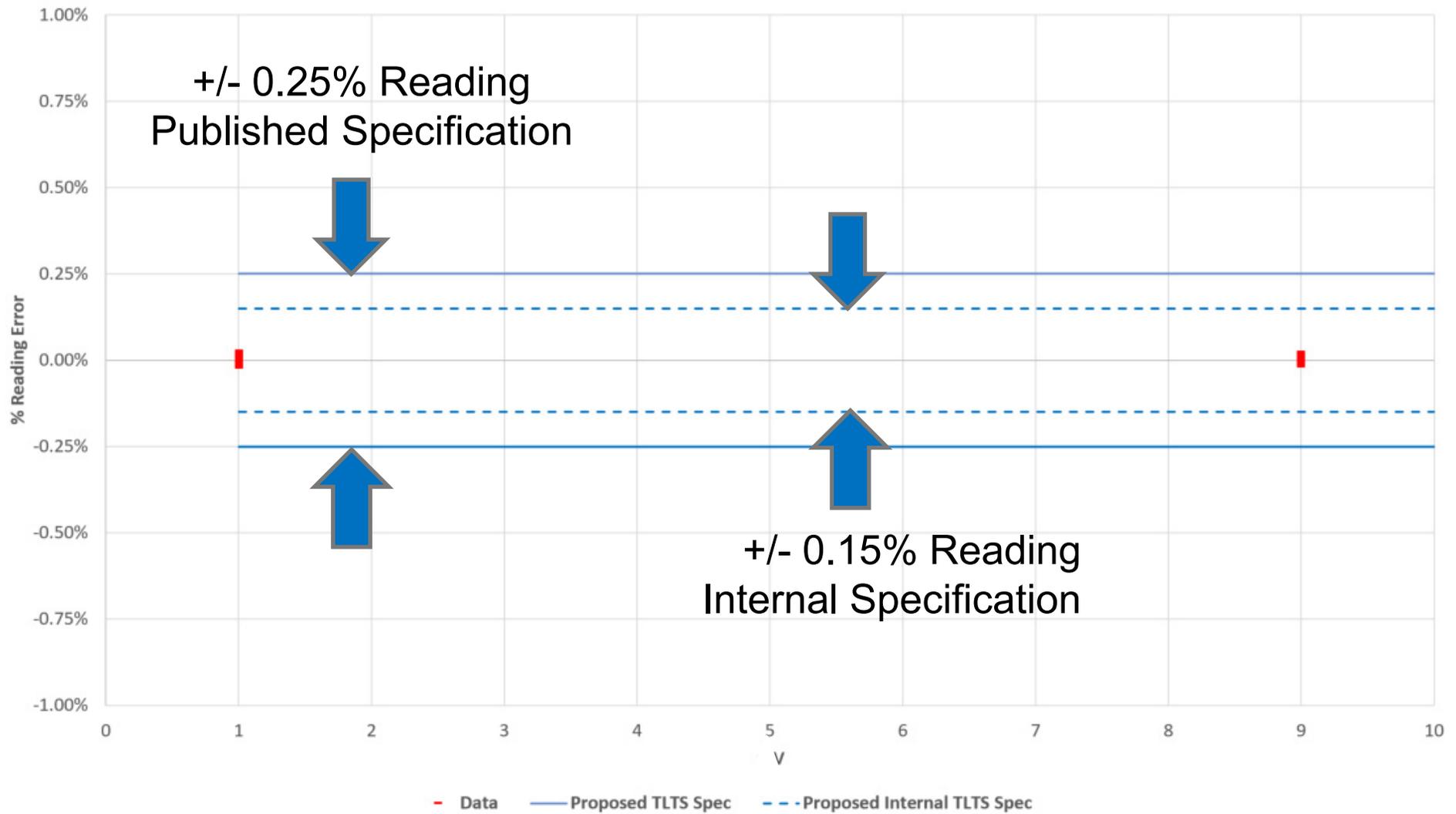
# Impact on +/-10V Range

10V Range - 17 Units Cal'd at +/-10 & 90% of Range  
 Total of 68 Measurements - Current Uncertainties



# Impact on +/-10V Range

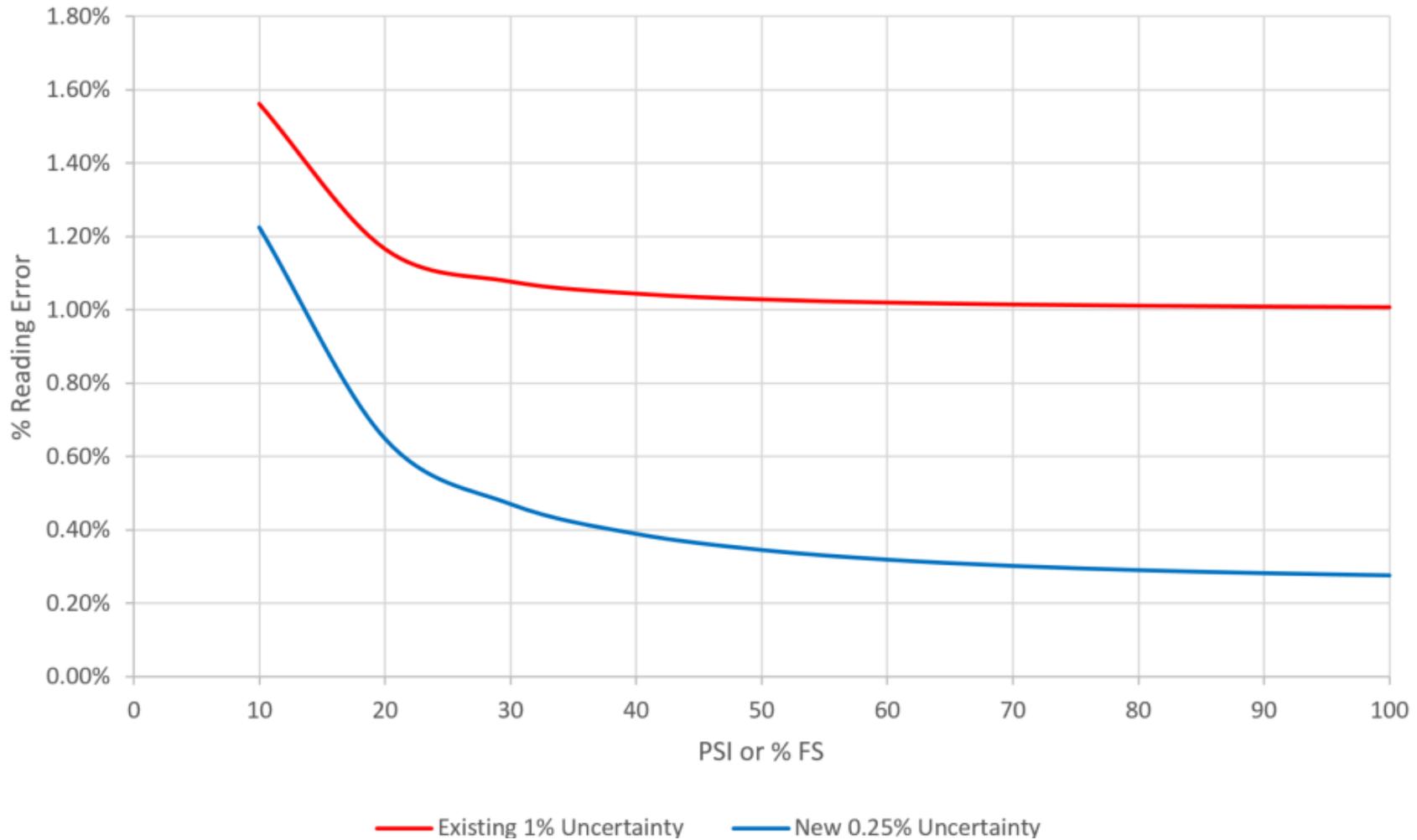
10V Range - 17 Units Cal'd at +/-10 & 90% of Range  
 Total of 68 Measurements - Proposed Uncertainties



# Impact on +/-10V Range



Impact of +/-10V Range Uncertainty Improving from 1% to 0.25% Reading  
Example - 100 PSI Pressure Sensor



# Stem Positioner Encoder – Uncertainty Improvement



## Digital Stem Position Encoder (SPE)



- Original Analog Version 0.25% FS  
0.075 in for 30 in version
- Initial Digital Version 0.12% FS  
0.037 in for 30 in version
- Now **0.04% FS**  
**0.012 in** for 30 in Version

### Features

- Ruggedized design
- Magnetic base for easy setup and attachment
- Adjustable orientation angle to allow proper alignment with stem travel
- 30 & 50 inch travel lengths standard
- Accuracy:  $\pm 0.04\%$  Full Scale
- TEDS Sensor Recognition (QUIKLOOK 3-FS ONLY)



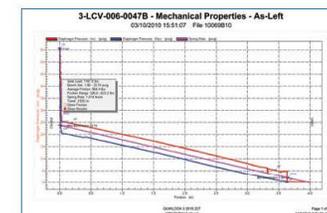
Optional Rotary Shaft Adapter shown

The Stem Position Encoder (SPE) provides the valve tester with a convenient means to accurately measure valve stem position. This custom "string pot" has a magnetic base and a variable orientation to allow the user to properly adapt to a variety of valve bodies and actuators including MSIVs, AOVs and MOVs. The SPE provides a calibrated signal for input to the QUIKLOOK Data Acquisition Systems.

The optional Rotary Shaft Adapter is a clamp-on split sheave used to provide a calibrated cable wrap diameter for conversion of rotary shaft motion to linear SPE cable motion. It includes the conversion factor for SPE output in degrees / volt.

P/N	System	Travel Distance
160564	QL3-FS	30 inch
160643	QL3-FS	50 inch

It is available for shaft diameters from 0.375 to 1.875 inches in three ranges.



The Stem Position Encoder is available with 30 and 50 inch travel length and connects directly to the QL3-FS System.

# Stem Positioner Encoder – Uncertainty Improvement



## In summary....

- Accurate and reliable test files are paramount.
- TLTS takes a conservative approach to published uncertainties.
- Will continue to look for your input on where to focus attention on possible improvements.



# Any Questions?

THANK YOU



**TELEDYNE LECROY TEST SERVICES**  
Everywhereyoulook™