

# **CETOL 60** <sup>TM</sup>

## **2011 U2U CONFERENCE**

### **TEXAS MOTOR SPEEDWAY, OCT 25-26**

## TAE Product Update

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# Latest Production Release

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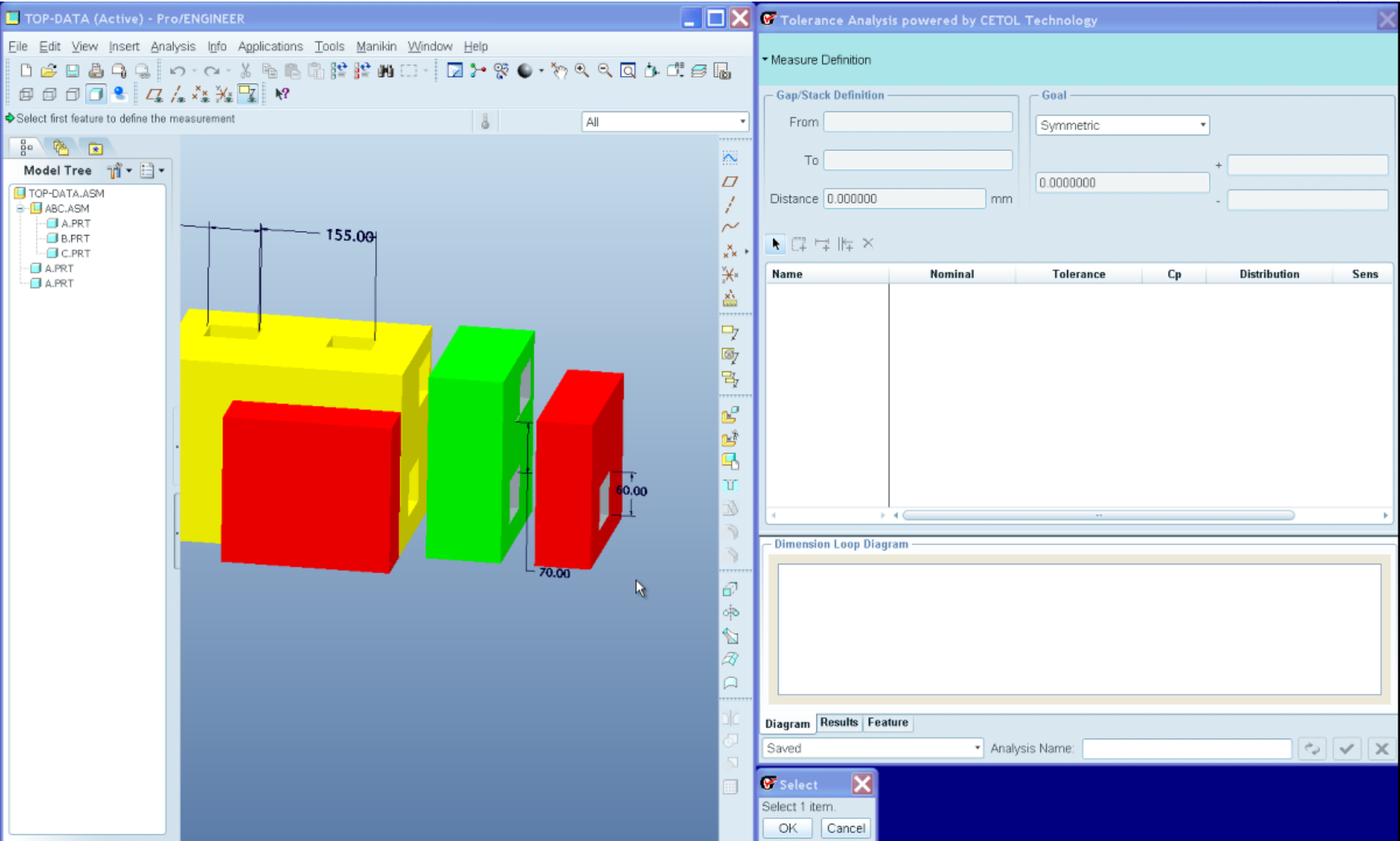
- WildFire 5.0, M100 – 07/29/2011
  
- Creo 1.0, F000 – 06/21/2011

## Features/Fixes – Assembly Dimensions **CETOL6**

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- The measurements can now start and / or end with an assembly cut feature
- Assembly dimensions/annotations of sub-assemblies can be included in the analysis; they will be put in a virtual component named after the sub-assembly that contains them.

# Features/Fixes – Assembly Dimensions **CETOL6**



The screenshot displays the Pro/ENGINEER interface with a 3D assembly of four colored blocks (yellow, red, green, red) and a CETOL6 Tolerance Analysis window. The assembly has dimensions of 155.00, 60.00, and 70.00. The CETOL6 window shows the 'Measure Definition' section with 'Gap/Stack Definition' and 'Goal' fields. The 'Goal' is set to 'Symmetric' with a distance of 0.000000 mm. Below this is a table for 'Dimension Loop Diagram' with columns for Name, Nominal, Tolerance, Cp, Distribution, and Sens. A 'Select' dialog box is also visible at the bottom.

Name	Nominal	Tolerance	Cp	Distribution	Sens
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- TAE is now able to select and include the driving diameter dimension for a group identical feature sizes.

# Features/Fixes – Identical Dia. Dims.



The screenshot displays the Pro/ENGINEER software interface with a 3D model of a PCB and the Tolerance Analysis window open.

**PCB (Active) - Pro/ENGINEER**

File Edit View Insert Analysis Info Applications Tools Window Help

- Select dimension to define 1D stack
- Select dimension to define 1D stack
- Dimension Loop for measurement complete
- Select first feature to define the measurement

All

10

**Tolerance Analysis powered by CETOL Technology**

Measure Definition

Gap/Stack Definition

From:

To:

Distance: 0.000000 mm

Goal

Symmetric

+

-

0.000000

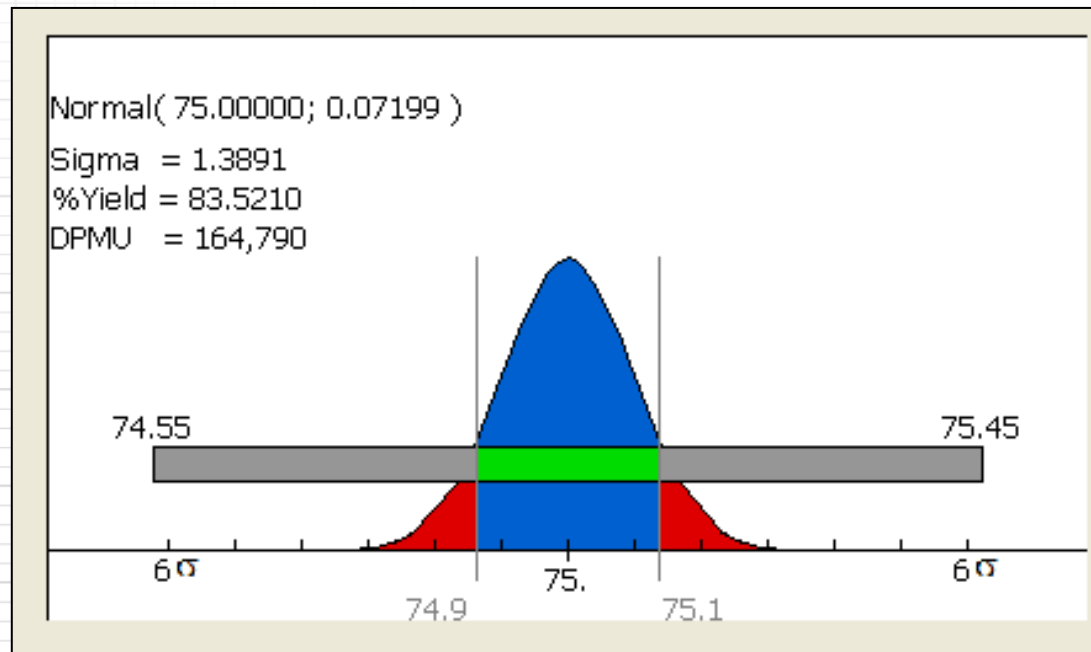
Name	Nominal	Tolerance	Cp	Distribution	Sens
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Dimension Loop Diagram

Diagram Results Feature

Saved Analysis Name:

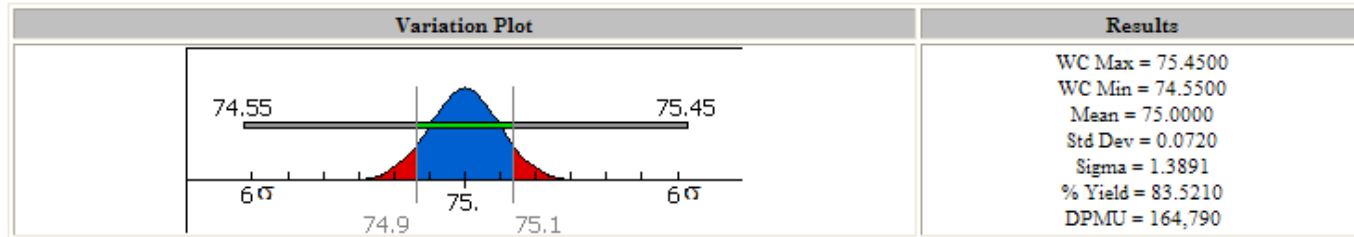
- Variation plot now displays Mean, standard deviation, sigma, percent yield, and DPMU. The report also includes those same items.






# Features/Fixes – Variation Plot Report **CETOL6**

Pro/E Model	PCB.prt
Analysis Name	CETOL_3
Measurement Goal	75.00000000 ±0.10000000
Measured Nominal	75
Solved Nominal	75

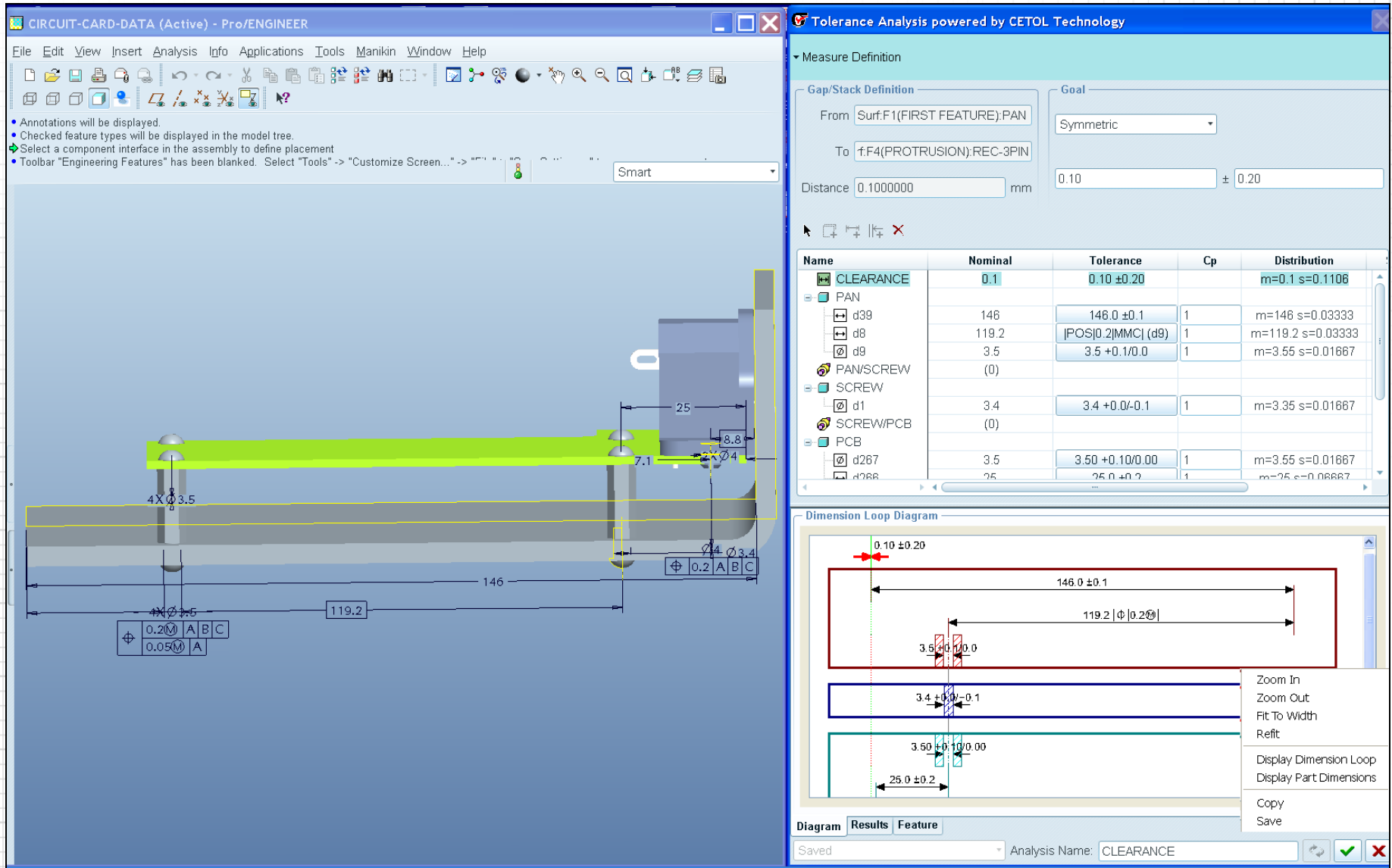
## Analysis Results



## Dimension Details

Name	Tolerance	Sensitivity	WC Range %Contribution
PCB:d265	5.00 ±0.20	1	 44.44%
PCB:ad285	10.20/9.80	1	 44.44%
PCB:d268	60.00 ±0.05	1	 11.11%
PCB:d267	3.50 ±0.10/0.00	0	0.00%

# Features/Fixes – Show Dimension Loop **CETOL6**



**Measure Definition**

Gap/Stack Definition: From Surf:F1(FIRST FEATURE):PAN To f:F4(PROTRUSION):REC-3PIN

Goal: Symmetric

Distance: 0.1000000 mm

0.10 ± 0.20

Name	Nominal	Tolerance	Cp	Distribution
<b>CLEARANCE</b>	<b>0.1</b>	<b>0.10 ±0.20</b>		<b>m=0.1 s=0.1106</b>
PAN				
d39	146	146.0 ±0.1	1	m=146 s=0.03333
d8	119.2	POS 0.2 MMC  (d8)	1	m=119.2 s=0.03333
d9	3.5	3.5 ±0.1/0.0	1	m=3.55 s=0.01667
PAN/SCREW	(0)			
SCREW				
d1	3.4	3.4 ±0.0/-0.1	1	m=3.35 s=0.01667
SCREW/PCB	(0)			
PCB				
d267	3.5	3.50 ±0.10/0.00	1	m=3.55 s=0.01667
d366	25	25.0 ±0.2	1	m=25 s=0.06667

**Dimension Loop Diagram**

0.10 ±0.20

146.0 ±0.1

119.2 |Φ|0.2|

3.5 ±0.1/0.0

3.4 ±0.0/-0.1

3.50 ±0.10/0.00

25.0 ±0.2

Zoom In  
Zoom Out  
Fit To Width  
Refit

Display Dimension Loop  
Display Part Dimensions

Copy  
Save

Diagram Results Feature

Saved Analysis Name: CLEARANCE

- TAE can now add sheet-metal thickness dimensions to the stack-up
- Better response to offline CAD model changes
  - Auto-update of tolerance study (on next reload)
  - Missing CAD dims, parts are tagged invalid and can be repaired by the user
- Fixed problems related to dimensions initialized from tolerance tables
- TAE & CETOL can be loaded simultaneously

- Support mixed-units assemblies
- Allow measurement from/to cylindrical surfaces
- Improve look of the Dimension Loop Diagram.
- Support dimension selection from the sensitivity/contribution plots
- Show calculated measurement limits

# TAE Product Update



- Thank you.