Speedstack 2017 Online libraries and…

Richard Attrill / John Lee – May 2017 (Rev 2)

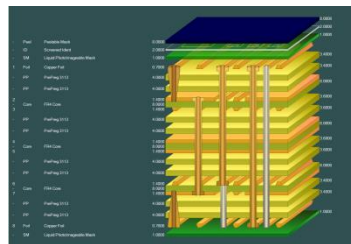**polar**instruments.com
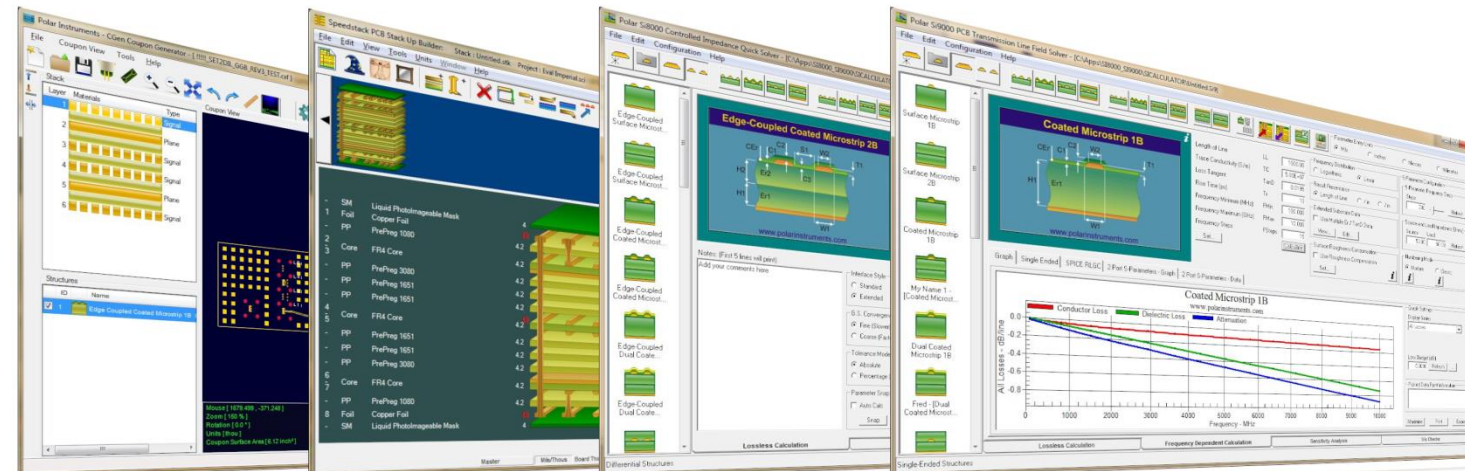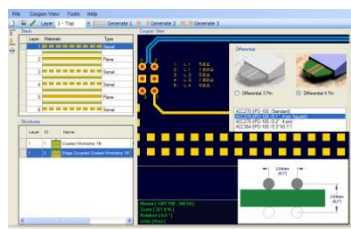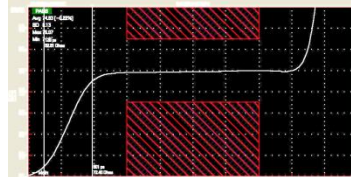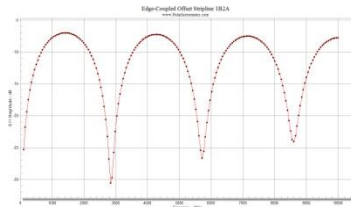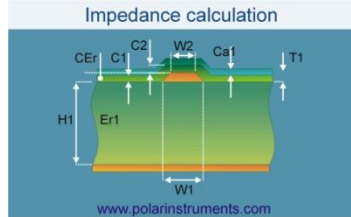
Introducing Speedstack 2017

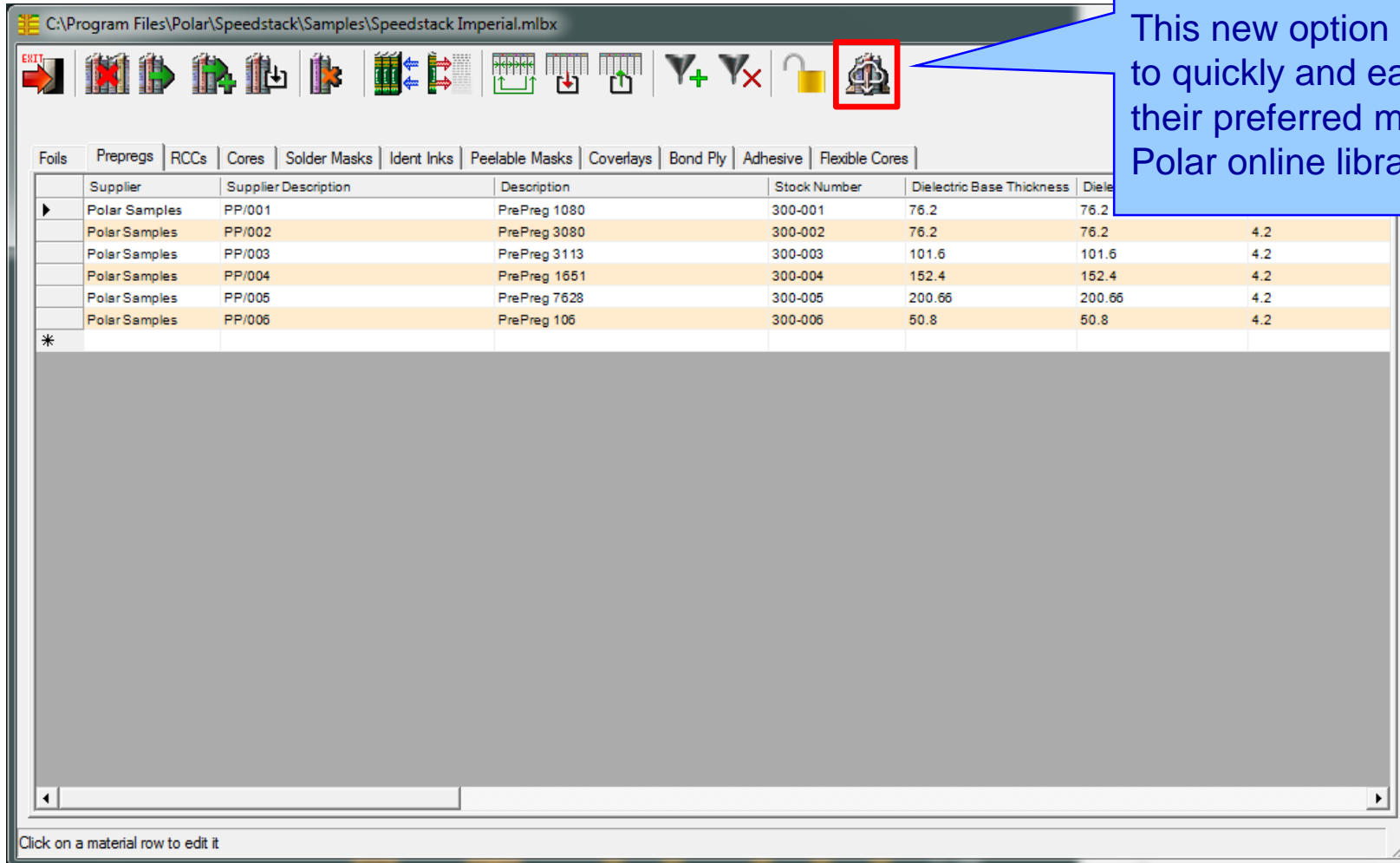Welcome to a preview of Speedstack 2017.

We have introduced a number of new features that have been requested through our Polarcare software maintenance service. During 2017 there have been four releases of Speedstack, the following slides provide an overview with the most recently introduced features presented first.

If you would like to have a web-based demonstration please contact your local Polar office, details are shown on the last slide of this presentation.

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Speedstack v17.05

May 2017

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New Online Library facility to download the latest material libraries

This new option allows the user to quickly and easily download their preferred materials from the Polar online library

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New Online Library facility to download the latest material libraries

An extensive range of material suppliers / material families are supported. Simply select the appropriate library file and append the materials to your existing library

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New Online Library facility to download the latest material libraries

Online Library

Filter by Supplier

HitachiChemical
Working On Wonders

isola

LG Chem

File Type
- Foils
- RCCs
- PrePregs
- Cores
- SolderMasks
- Idents
- Peelables
- Coverlays
- BondPly
- Adhesives
- FlexCores

Library Files Available : Isola
- Isola_185HR.mlbx
- Isola_370HR.mlbx
- Isola_Chronon.mlbx
- Isola_FR408HR.mlbx
- Isola_GigaSync.mlbx
- Isola_GreenSpeed.mlbx
- Isola_IS415.mlbx
- Isola_I_Speed.mlbx
- Isola_I_SpeedIS.mlbx
- Isola_I_Tera.mlbx
- Isola_Tachyon_100G.mlbx

Existing Data Table
- ○ Clear
- ◉ Append

Download

Cancel

Filter the available downloadable libraries by Supplier simply by selecting the appropriate company logo.
17 different material suppliers are currently supported with more joining the Speedstack Supplier Partner program in the future

Select the material family

Select whether to Clear or Append to the existing library data

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New Online Library facility to download the latest material libraries

Downloaded material data is added to the existing Speedstack material library.

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New Online Library facility to download the latest material libraries

- Quickly and easily build libraries using materials from your preferred supplier that are available to download from the Polar Online Library

- Manage multiple material libraries based on the stack up technology requirements

- Over 160 supported material families currently available for download

- 17 different material suppliers

- As new libraries are added to the Polar Online Library they will automatically be made available to Speedstack users who currently subscribe to Polarcare

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Material Library Enhancements : Open and Append Library
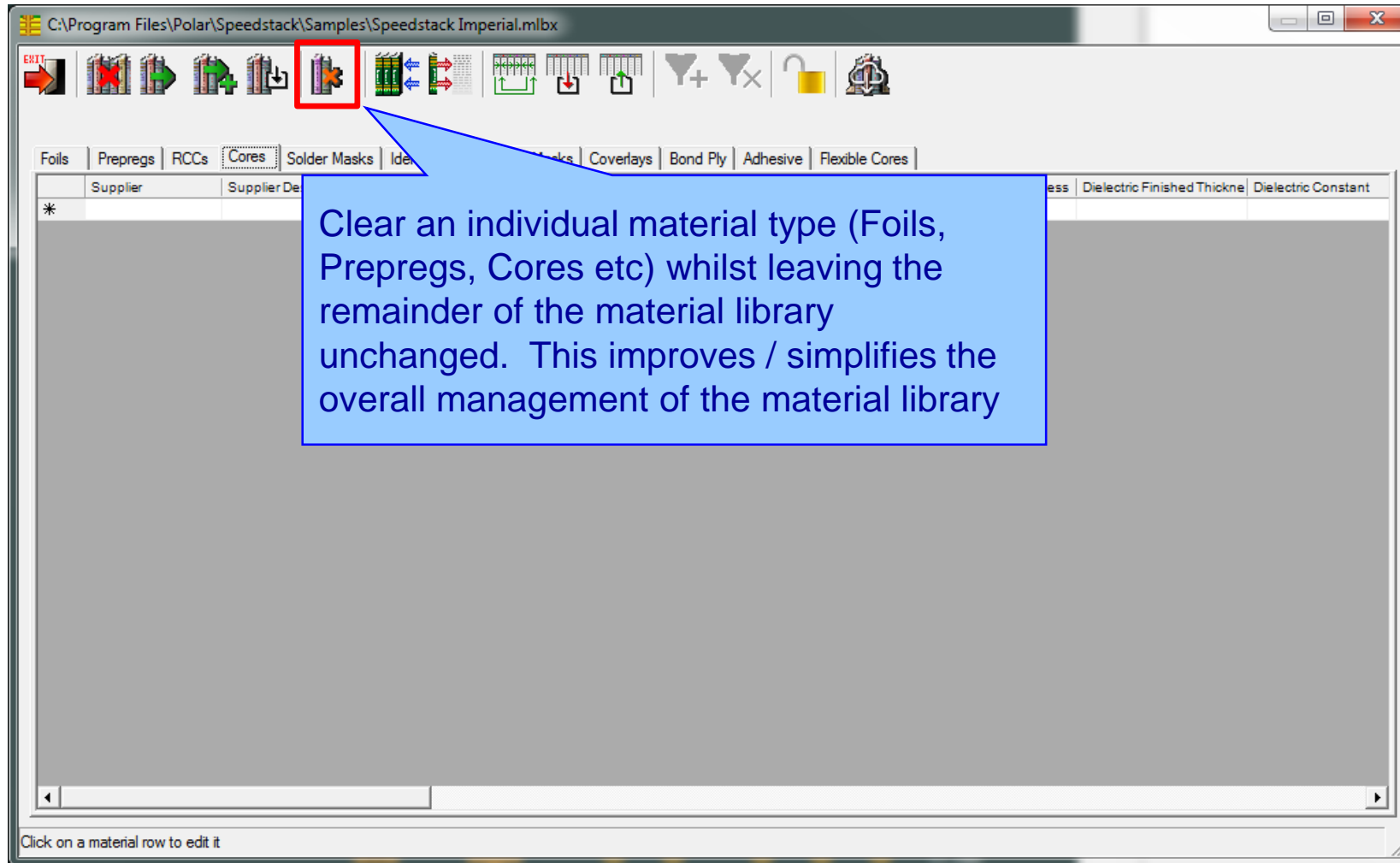

This new option will append library data to the existing material library file. It allows the user to quickly 'mix and match' data from different material suppliers
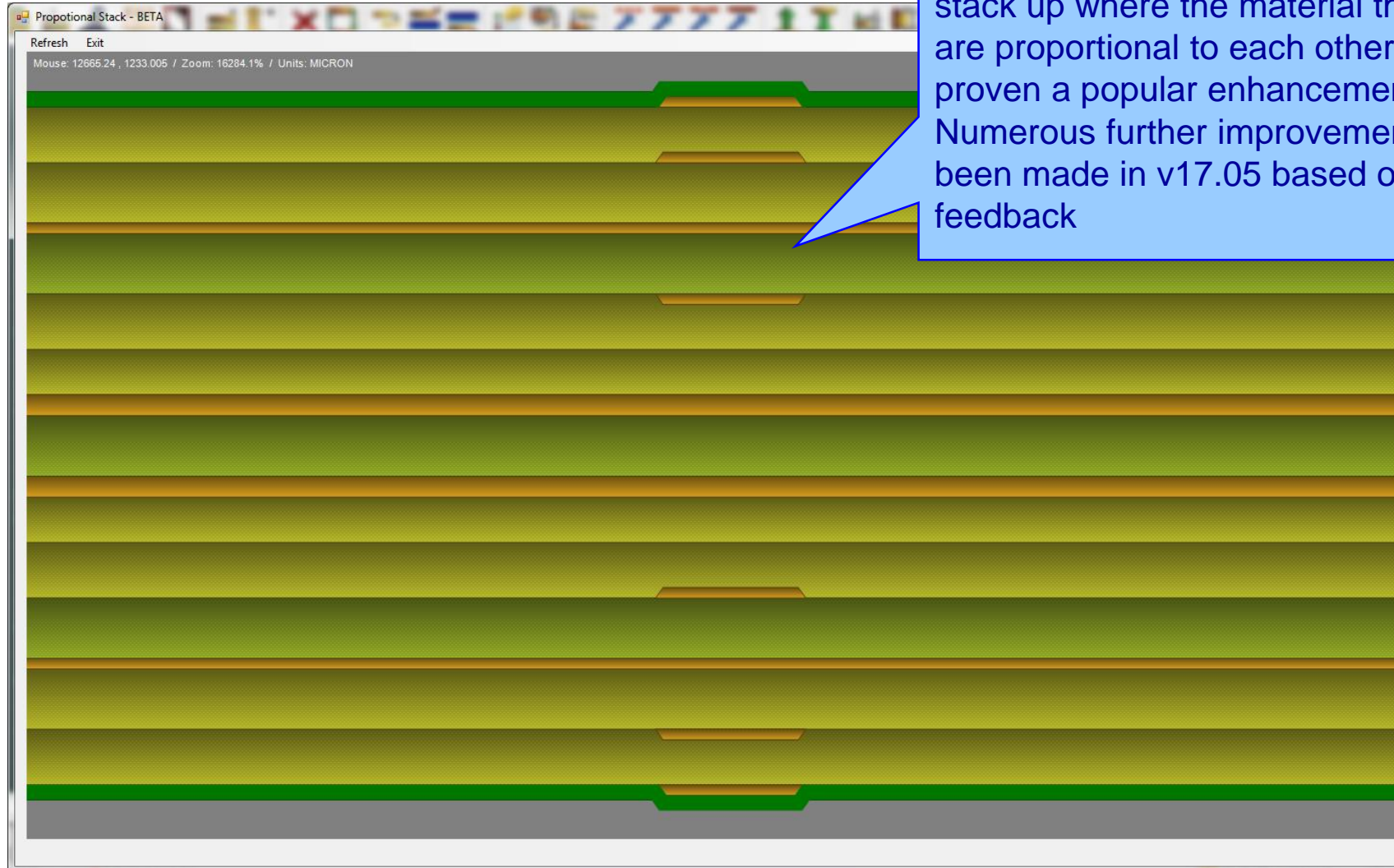
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Material Library Enhancements : Clear Current Data Table

Clear an individual material type (Foils, Prepregs, Cores etc) whilst leaving the remainder of the material library unchanged. This improves / simplifies the overall management of the material library

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Proportional View Enhancements

Proportional view, the display of the stack up where the material thicknesses are proportional to each other, has proven a popular enhancement. Numerous further improvements have been made in v17.05 based on customer feedback

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Speedstack v17.04

April 2017

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Printing : Sum isolation distances
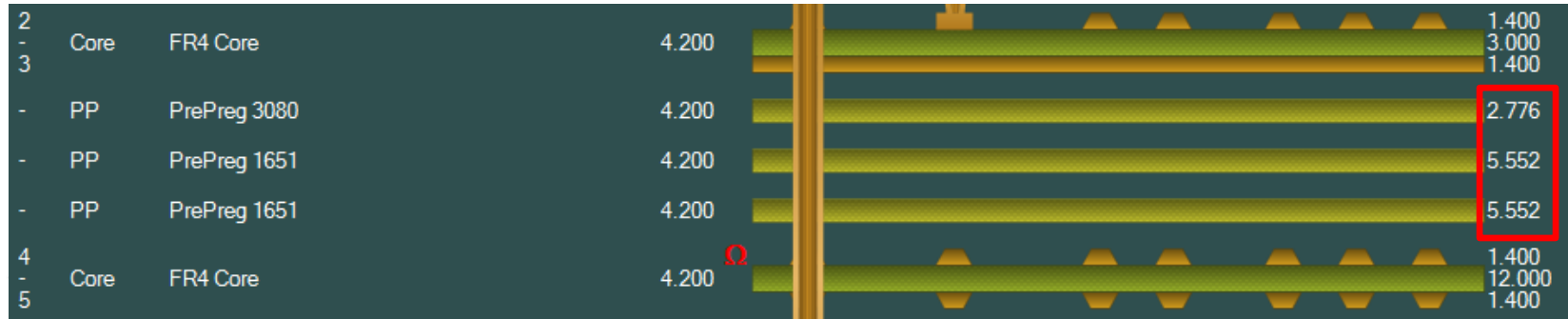
Layer	Stack up	Supplier	Supplier Description	Description	Type	εr	Isolation Distance	Isolation Distance (Summed)
		Polar Samples	SM/001	Liquid PhotoImageable Mask	SolderMask	4.000		
1		Polar Samples	FO/001	Copper Foil	Copper			
		Polar Samples	PP/001	PrePreg 1080	Dielectric	4.200	1.950	1.950
2								
3		Polar Samples	CO/005	FR4 Core	FR4	4.200	3.000	3.000
		Polar Samples	PP/002	PrePreg 3080	Dielectric	4.200	2.776	13.880
		Polar Samples	PP/004	PrePreg 1651	Dielectric	4.200	5.552	-
		Polar Samples	PP/004	PrePreg 1651	Dielectric	4.200	5.552	-
4		Polar Sam			FR4	4.200	12.000	12.000
5		Polar Sam				4.200	5.552	13.880
		Polar San				4.200	5.552	-
		Polar San			ctric	4.200	2.776	-
6		Polar San			FR4	4.200	3.000	3.000
7		Polar San			ctric	4.200	1.950	1.950
8		Polar San			pper			
		Polar Sam			Mask	4.000		

Sum isolation distances

The three prepreg isolation distances between L3 and L4 can be presented as a single value of 13.88, now incorporated in the printed report

$13.88 = 2.776 + 5.552 + 5.552$

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Enhanced library management using Excel™
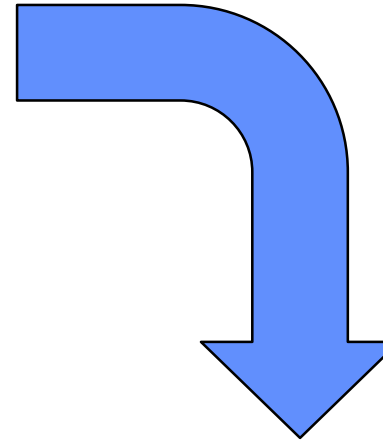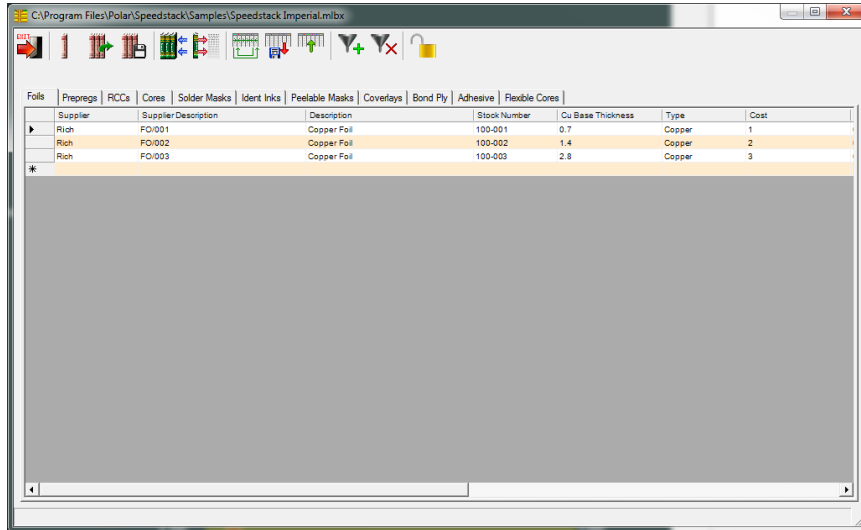
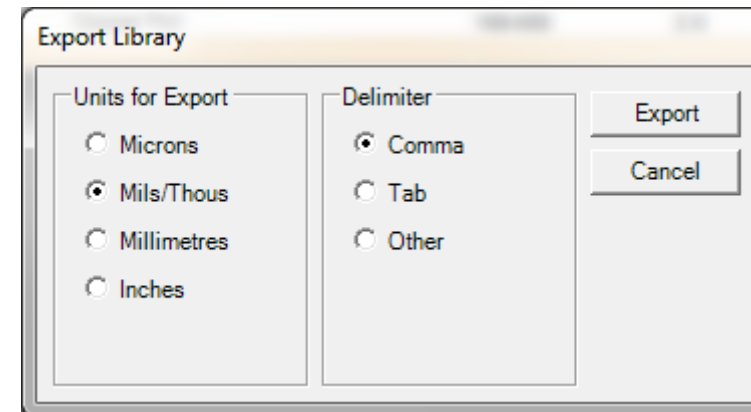We asked our Speedstack customers how to improve the experience of setting up and maintaining libraries:

These subtle but user friendly changes transform the task of initialising and maintaining Speedstack libraries

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Example takes 3 foils from standard library and rename as "Rich"
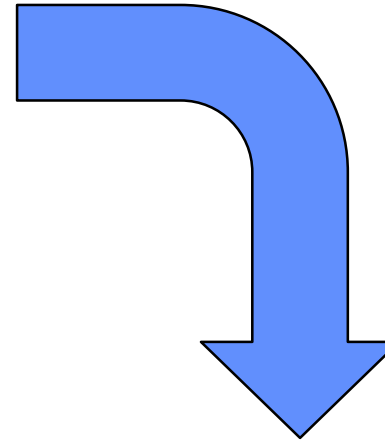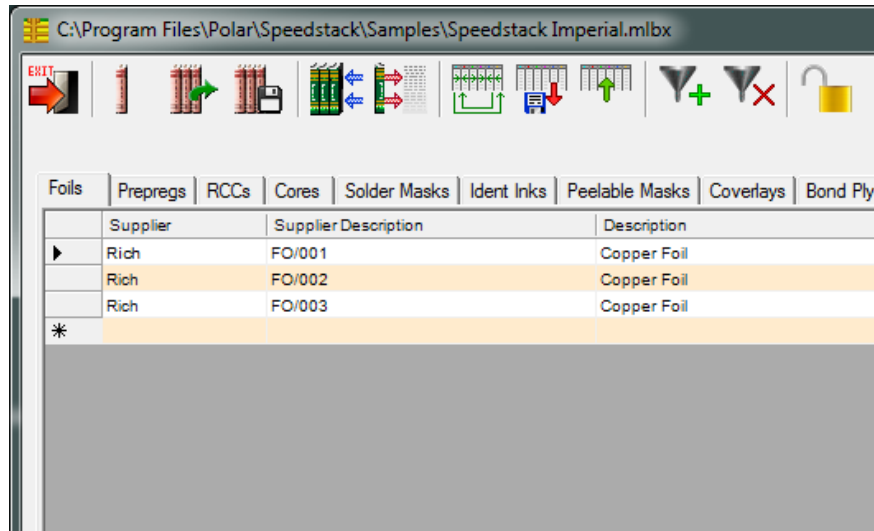
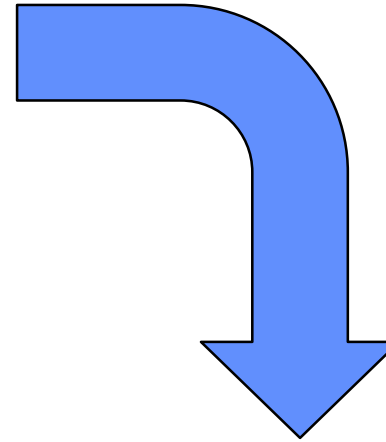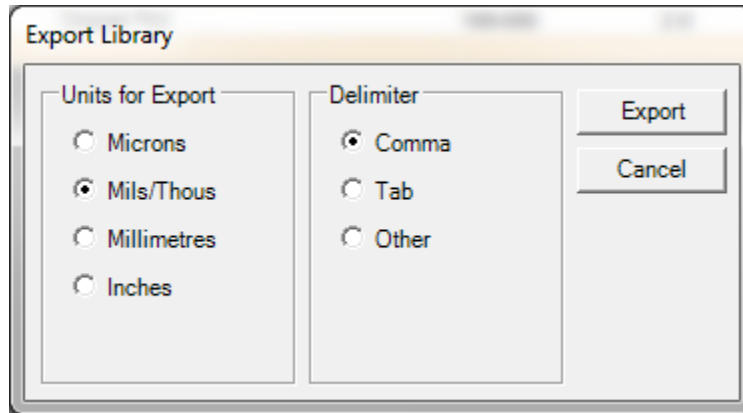

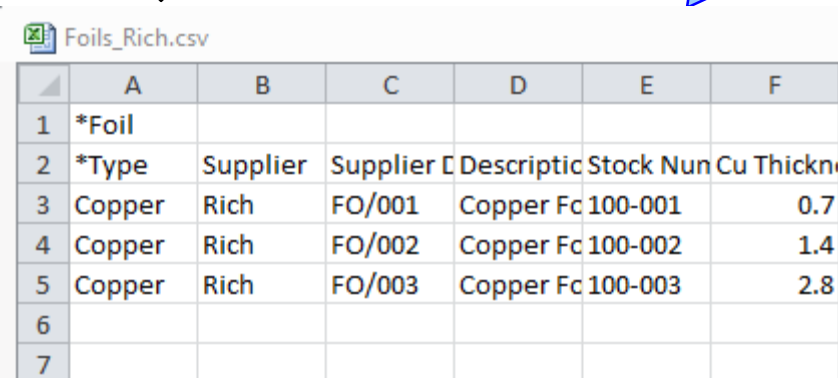New Export library function lets you export to a file, for example "Foils_Rich.csv

Assume this is a library from a supplier like Isola, Ventec, NanYa or Panasonic

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Then export to a .csv, for use with Excel

Export Library

Units for Export
- ○ Microns
- ● Mils/Thous
- ○ Millimetres
- ○ Inches

Delimiter
- ● Comma
- ○ Tab
- ○ Other

Export
Cancel

The resulting csv looks like this in Excel:

Foils_Rich.csv
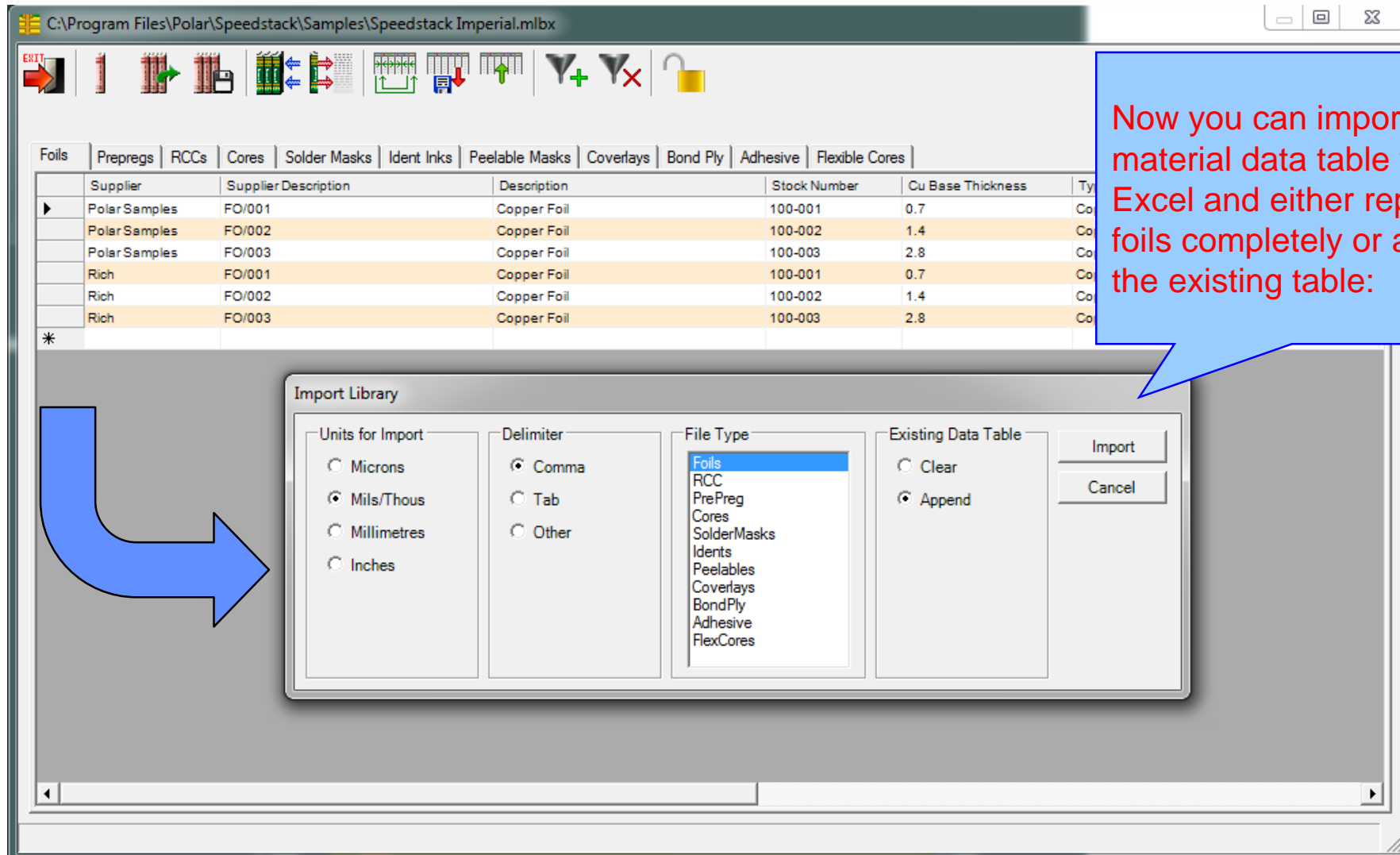
	A	B	C	D	E	F
1	*Foil					
2	*Type	Supplier	Supplier [	Descriptic	Stock Nun	Cu Thickn
3	Copper	Rich	FO/001	Copper Fc	100-001	0.7
4	Copper	Rich	FO/002	Copper Fc	100-002	1.4
5	Copper	Rich	FO/003	Copper Fc	100-003	2.8
6						
7						

Assume this is a library from a supplier like Isola, Ventec, NanYa or Panasonic

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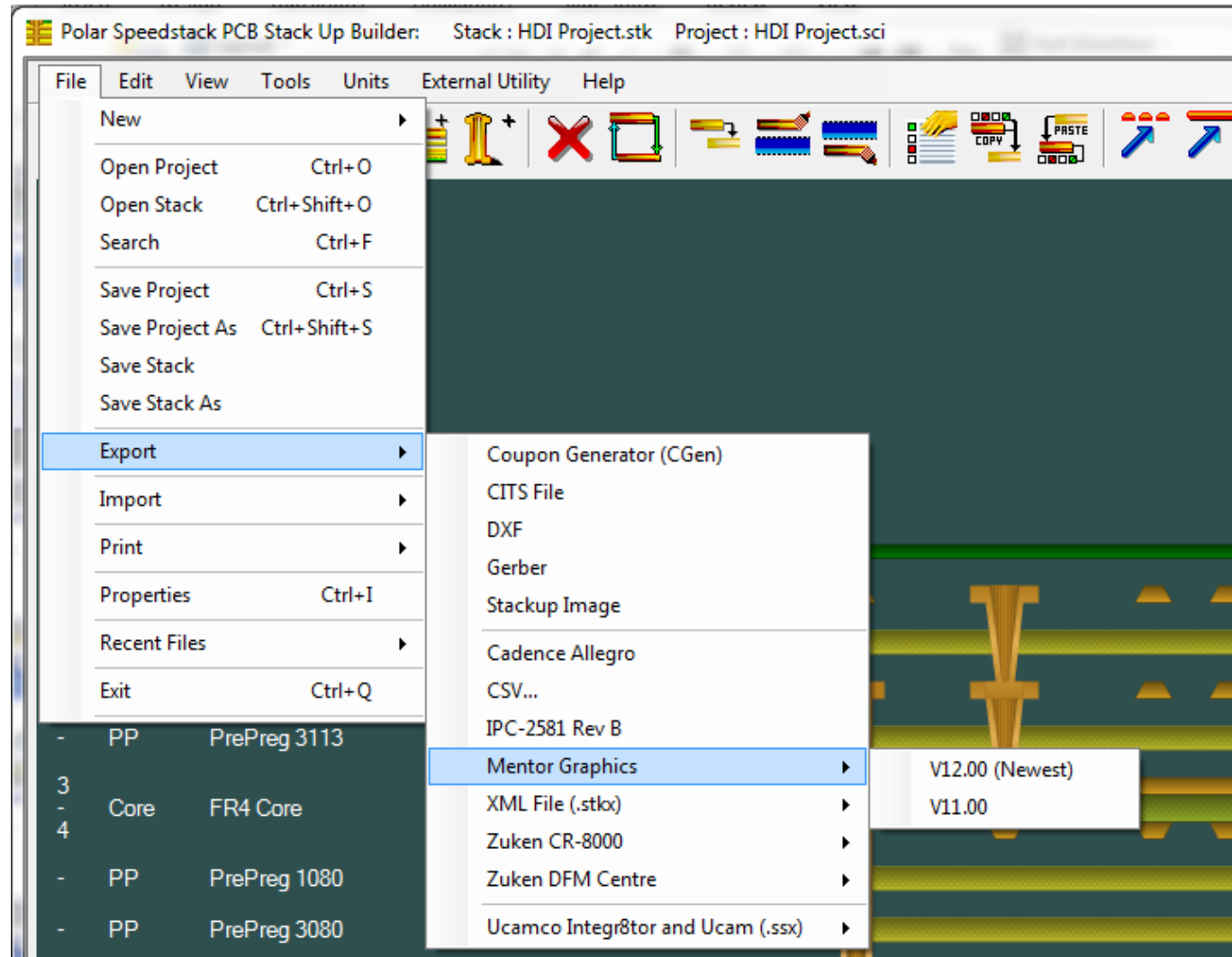
After editing the materials in Excel reload into Speedstack

Now you can import the new material data table from Excel and either replace the foils completely or append to the existing table:

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Speedstack v17.02

February 2017

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Improvements to the Export to Mentor Graphics option

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Speedstack v17.01

January 2017

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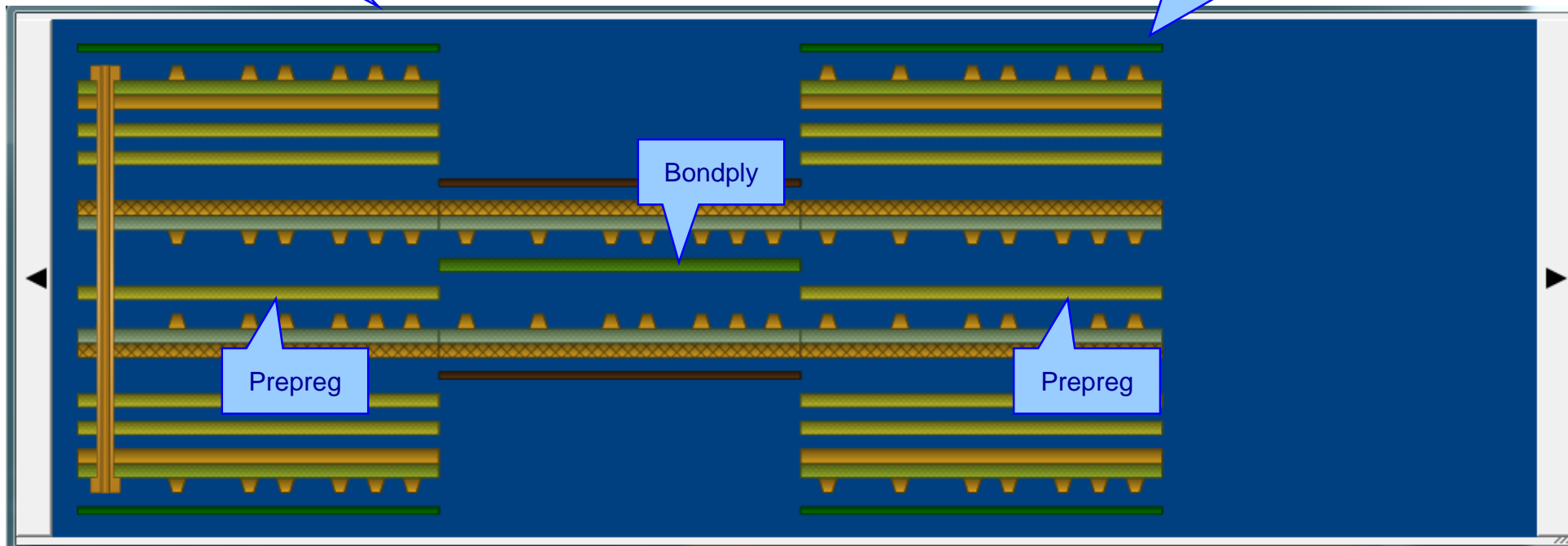
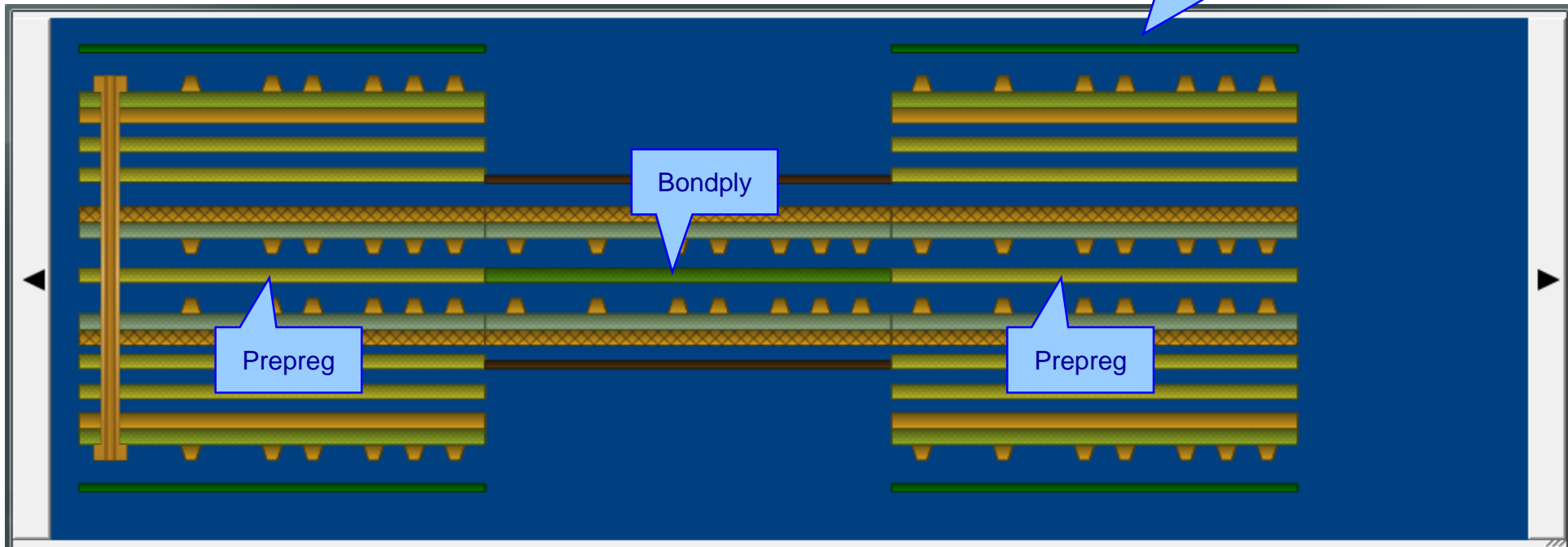## Speedstack Flex – Improved support for 'bikini builds'

Example: 8 layer rigid - 4 layer flex – 8 layer rigid

Once constructed the Prepreg – Bondply – Prepreg materials are actually on the same horizontal dielectric layer – known as a 'bikini build'

Bondply

Prepreg

Prepreg

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Speedstack Flex – Improved support for 'bikini builds'

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Speedstack Flex – Improved support for 'bikini builds'

The technical report also supports different materials on the same dielectric layer, improving the clarity of documentation between the stack up designer and fabricator

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Speedstack Flex – Improved support for 'bikini builds'

Speedstack Flex now supports improved accuracy for substrate height calculations when designing bikini builds. These height calculations are used when calculating impedance
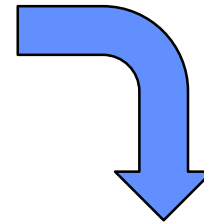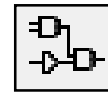
The H1 value is 4.0 mils, the height of the flex core

The H2 value is 9.8 mils, a sum of the copper(s), bondply and flex core heights
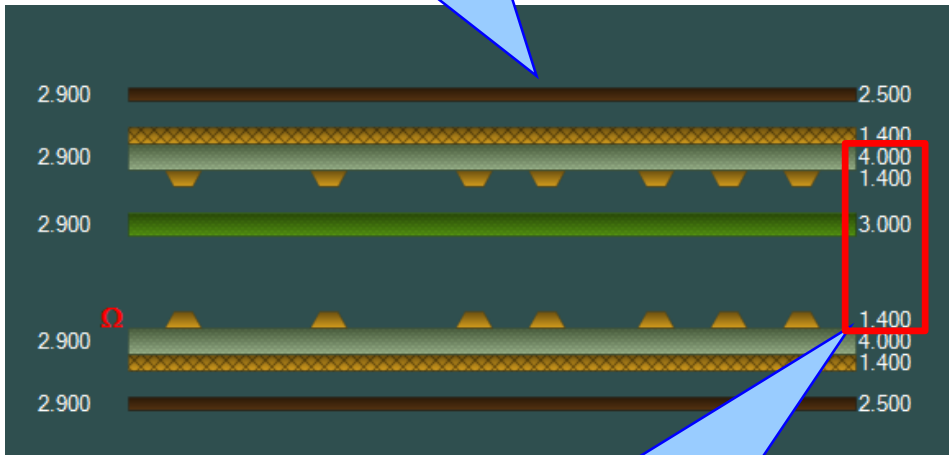
The substrate height (H2) is a sum of these materials (1.4+3.0+1.4+4.0) = 9.8 mils.

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Structure Net Classes

It is now possible to store up to five Net Class names with each structure. These net class names provide a link to the matching impedance nets inside the ECAD PCB layout system.

Structure Net Classes

Net Class 1	TX0
Net Class 2	TX1
Net Class 3	RX0
Net Class 4	RX1
Net Class 5	

Apply   Cancel

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Structure Net Classes

Selectable Net Class columns are available on the technical report

Impedance ID	Structure Image	Impedance Signal Layer	Ref. Plane 1 in Layer	Ref. Plane 2 in Layer	Lower Trace Width (W1)	Upper Trace Width (W2)	Trace Separation (S1)	Target Impedance	Tol (+/- %)	Calculate Impedance	NetClass1	NetClass2	NetClass3	NetClass4	NetClass5
1		1	3	0	8.224	7.224	8.391	100.000	10.000	99.93	TX0	TX1	RX0	RX1	

```
<NetClasses>

    <NetClass1>TX0</NetClass1>
    <NetClass2>TX1</NetClass2>
    <NetClass3>RX0</NetClass3>
    <NetClass4>RX1</NetClass4>
    <NetClass5 />

</NetClasses>
```
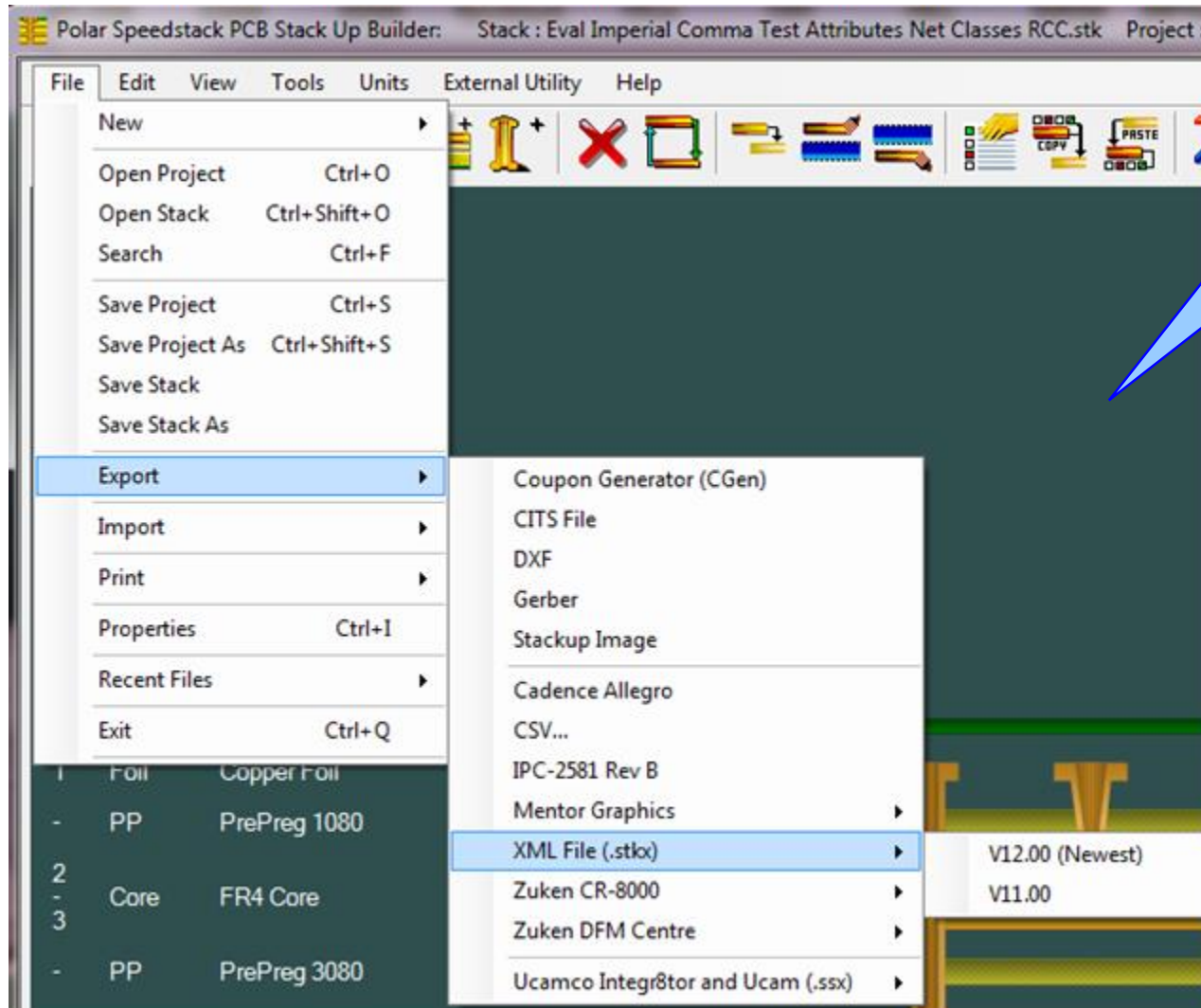
Speedstack now provides updated import / export XML file formats (STKX and SSX) to support Net Classes.
These file formats are commonly used to pass detailed stack up information to and from CAD / CAM systems

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Extensive range of XML-based import / export options (STKX / SSX)

Speedstack is able to export and import stack up data from an ever increasing range of CAD / CAM systems.

The 2017 edition will now support STKX v11.00 and v12.00, SSX v1.00 and v2.00

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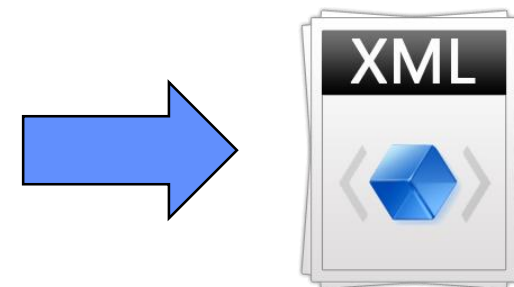
Extensive range of XML-based import / export options (STKX / SSX)

A number of major enhancements have been made introduced to the latest file format:

- Support for the new material attributes and structure net classes
- Support for material colours
- Improved support for structure coating profile (C1, C2, C3, CEr)
- More comprehensive structure parameter information including these extra parameters - <StructureNumber>, <H1>, <Er1>, <H2>, <Er2>, <H3>, <Er3>, <H4>, <Er4>, <C1>, <C2>, <C3>, <CEr>, <NetClass1>, <NetClass2>, <NetClass3>, <NetClass4>, <NetClass5>
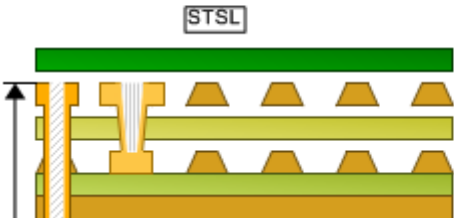- Simplified versioning information

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Technical report enhancements

| Impedance ID	Structure Image	Impedance Signal Layer	Ref. Plane 1 in Layer	Ref. Plane 2 in Layer	Lower Trace Width (W1)	Upper Trace Width (W2)	Trace Separation (S1)	Target Impedance	Tol (+/- %)	Calculated Impedance	Trace Pitch (S1+ W1)	Coating Above Substrate (C1)	Coating Above Trace (C2)	Coating Between Traces (C3)	Coating Delectric (CEr)
1		1	3	0	8.224	7.224	8.391	100.000	10.000	99.930	16.615	1.100	1.500	1.750	4.300
2		1	3	0	4.500	3.500	0.000	75.000	10.000	75.270	0.000	1.100	1.000	0.000	4.300

New selectable columns have been introduced to the impedance structure table:
- Trace Pitch
- More detailed coating profile information, separate columns for each coating parameter

The Processed Thickness column now includes the Solder Mask thickness

Layer	Stack up	Supplier	Supplier Description	Description	Type	Processed Thickness
	STSL					
		Polar Samples	SM/001	Liquid PhotoImageable Mask	SolderMask	1.100
1		Polar Samples	FO/001	Copper Foil	Copper	0.700
		Polar Samples	PP/001	PrePreg 1080	Dielectric	1.950
2						1.400
		Polar Samples	CO/005	FR4 Core	FR4	3.000
3						1.400

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## BETA Experimental Feature : Proportional View
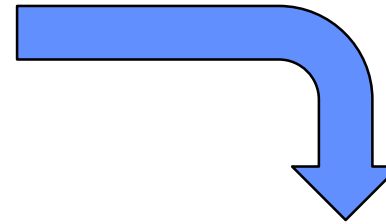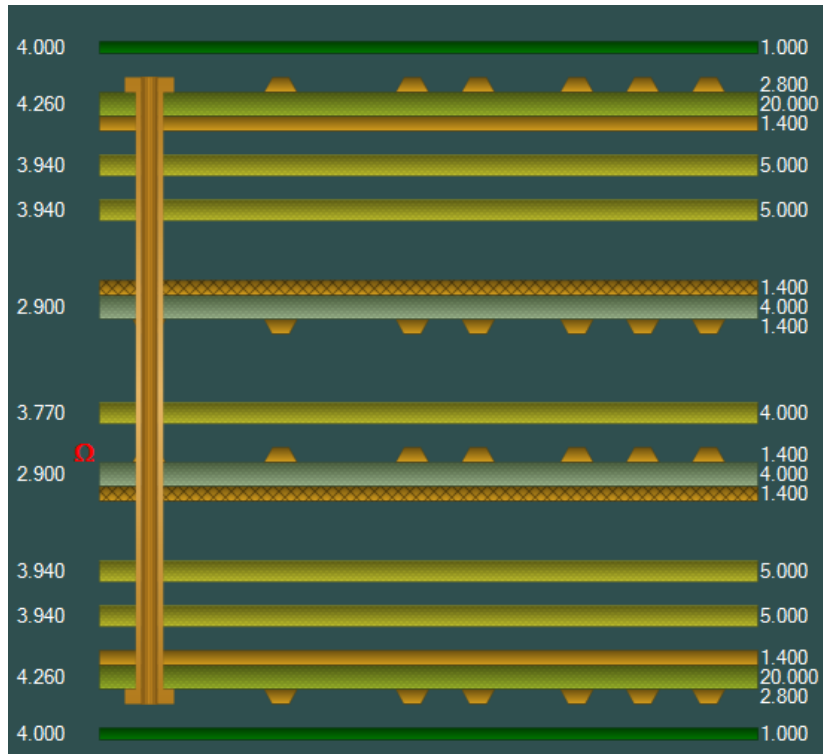
We asked our Speedstack customers
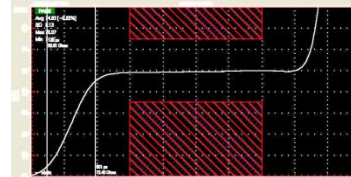Do you feel there is value to having a proportional view of the stack up?
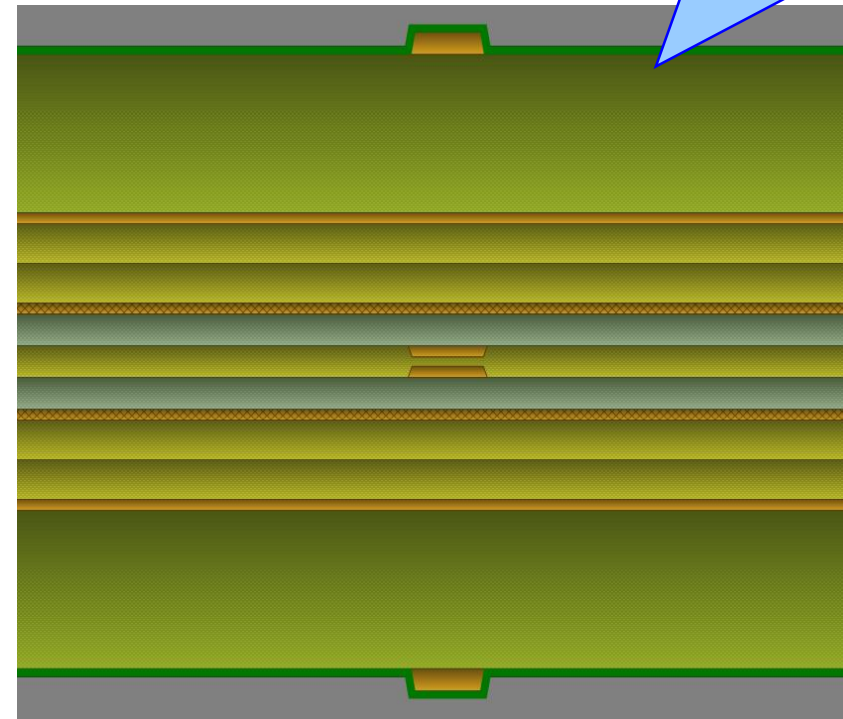
Some users have expressed interest in displaying the stack up where the material thicknesses are proportional to each other. This can be informative as a visual aid, especially when considering the dielectric thicknesses between electrical layers

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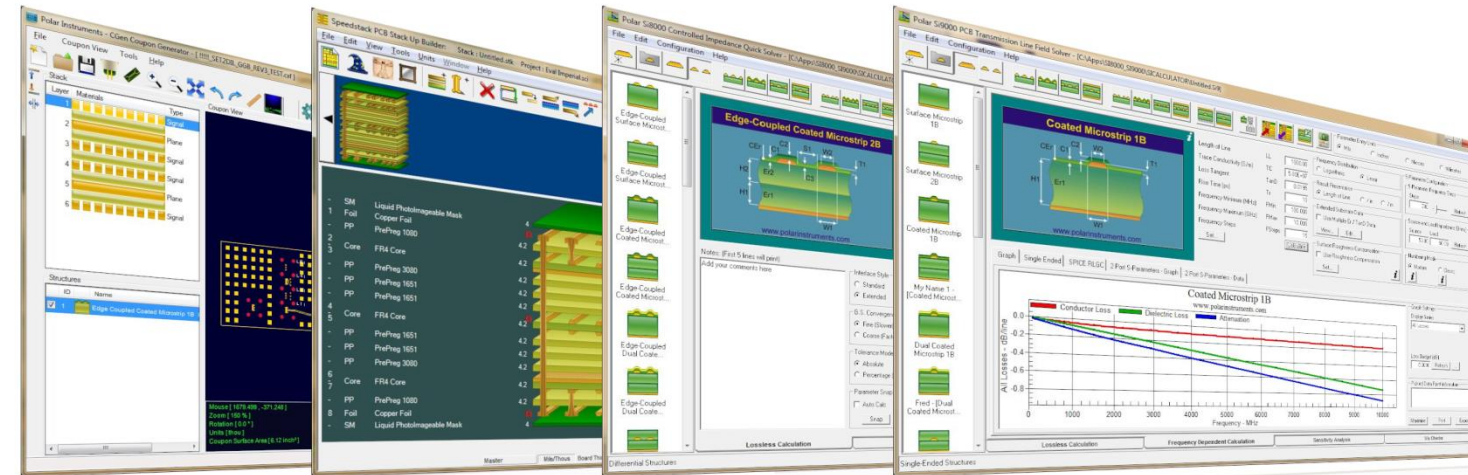
BETA Experimental Feature : Proportional View

Update: We have received positive feedback from existing Speedstack customers in Europe and the US:
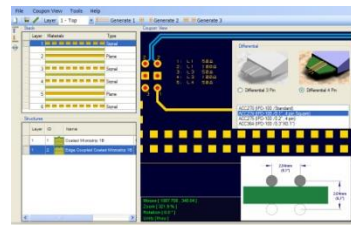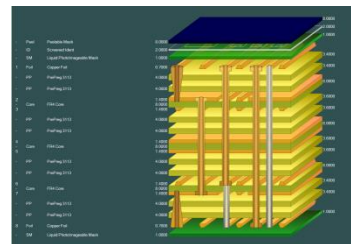
Your input is valuable to us!!

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Thank you

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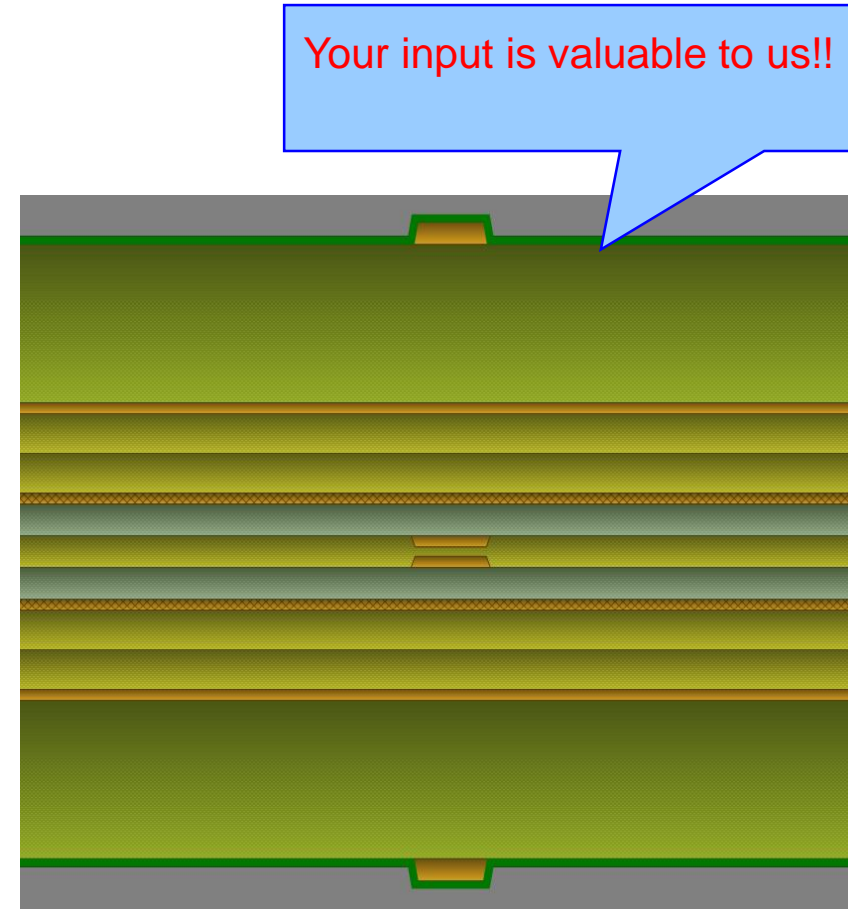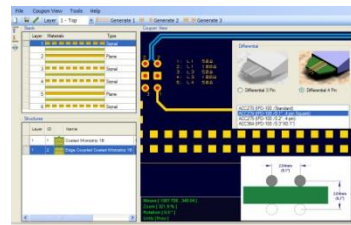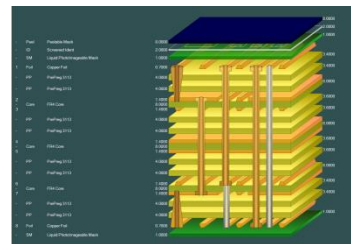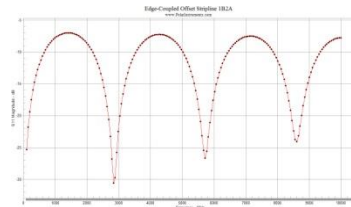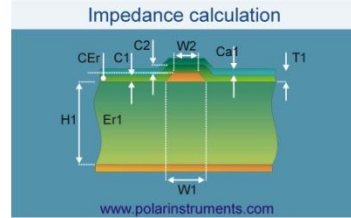
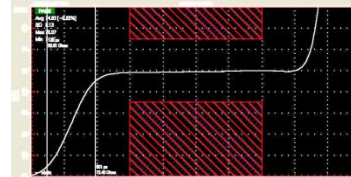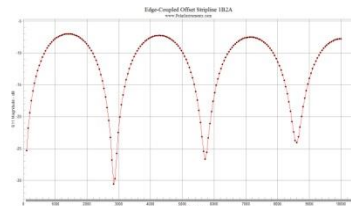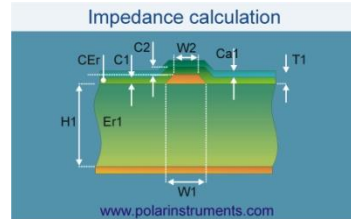For more information:

Contact Polar now: **Phone**

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