IEEE P370 Touchstone Data

Header/Comment Information

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Background

- IEEE P370 is a standard for measuring passive interconnect
  - Guidance/requirements on test fixture design
  - Guidance/requirements on de-embedding the test fixture
  - Guidance/requirements on assessing S-parameter quality

Question?

Once data is acquired, processed and assessed, how do we convey this to someone using the measured data?

Answer

We convey the quality (and other information) in the Touchstone header. Reason being – it is embedded in the S-parameter file.

Touchstone Header

- TG1 had a brainstorming session on the TS header info. Below is what we came up with:
  - !This data was taken in accordance with the requirements defined in IEEE P370
  - !Date xx/yy/zzz
  - !Fixture removal was performed using the XXX de-embedding method with software provided by YYYY.
  - !The diagram/description below shows the port mapping of the S-parameter file to the DUT (example on slide 4)
  - !The de-embedded S-parameters yielded the following quality metrics
  - !PQM=X, RQM=Y, CQM=Z Please refer to IEEE P370 for interpretation of these quality metrics.
  - !Legal disclaimer – data was taken using organically grown instruments using sustainable harvest methods with fair trade compensation to lab engineers (real example on slide 5)

Port mapping (Example

```
!*****************************************************************************
!*  MANUFACTURER = SAMTEC                                                    *
!*  INTERCONNECT = BEC5-XXX-02-X-X-V-A + Load Card                           *
!*              [Vertical Mount, 1.57mm load card thickness]                 *
!*  BOUNDARY     = Boundary 2                                                *
!*              [Mated Connector + PCB Footprint]                            *
!*                                                                           *
!*  SEQUENCE     = **Important Note** - FOR ACCURATE RESULTS:                *
!*              end A represents the [Base Board] side                       *
!*              end B represents the [Load Card] side                        *
!*                                                                           *
!* BASE BOARD (end a) ->>- (end b) LOAD CARD                                 *
!* ------------------      -----------------                                 *
!*   Port 01 (Pin 04) ->>- (Pin 04) Port 09                                  *
!*   Port 02 (Pin 05) ->>- (Pin 05) Port 10                                  *
!*   Port 03 (Pin 16) ->>- (Pin 16) Port 11                                  *
!*   Port 04 (Pin 20) ->>- (Pin 20) Port 12                                  *
!*   Port 05 (Pin 28) ->>- (Pin 28) Port 13                                  *
!*   Port 06 (Pin 32) ->>- (Pin 32) Port 14                                  *
!*   Port 07 (Pin 07) ->>- (Pin 07) Port 15                                  *
!*   Port 08 (Pin 11) ->>- (Pin 11) Port 16                                  *
!*                                                                           *
```

Legal disclaimer (example)

```
!*************************************************************************
!*                    COPYRIGHT, SAMTEC                                  *
!*                ALL INTERNATIONAL RIGHTS RESERVED                      *
!*************************************************************************
!*************************************************************************
!*  Samtec makes no warranty or guarantee as to the suitability of its    *
!*  products or models for any specific application. Data was acquired    *
!*  using practices prescribed in IEEE P370.                              *
!*                                                                        *
!*  Actual in-circuit performance can vary significantly from measurement *
!*  results.  All parameters should be validated by the customer's own    *
!*  technical experts.  By downloading a model, the user agrees to absolve*
!*  Samtec from all liability related to the use or application of the    *
!*  model or product.                                                     *
!*                                                                        *
!*  Samtec reserves the right to change a model at any time without       *
!*  further notice.                                                       *
!*************************************************************************
```