Facts Sheet Interlaboratory Comparison

ILC- HF S-Parameters 100 MHz to 33.0 GHz

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Information about the standards (devices) to be circulated:

Seven standards are included in the comparison, each of which is a commercially available artefact. These devices also provide a broad range of characteristics. Unsupported coaxial devices (such as unsupported reference air lines) have not been included in this comparison exercise since the mechanical stability of such devices has been found previously [1] to be suspect compared with supported coaxial devices.

ID	**Standard**	**Nominal value**	**Connector description**
ID01	Adapter	S_{ii} < 0.1 $\|S_{ij}\|$ ~ 1.0 (0 dB)	Male(2)-Female(1)
ID02	Attenuator	$\|S_{ii}\|$ < 0.1 $\|S_{ij}\|$ ~ 0.1 (20 dB)	Male(2)-Female(1)
ID03	Attenuator	$\|S_{ii}\|$ < 0.1 $\|S_{ij}\|$ ~ 0.1 (40 dB)	Male(2)-Female(1)
ID04	Matched termination	$\|S_{ii}\|$ < 0.1	Female
ID05	Matched termination	$\|S_{ii}\|$ < 0.1	Male
ID06	Offset short termination	$\|S_{ii}\|$ ~ 1.0	Female
ID07	Offset short termination	$\|S_{ii}\|$ ~ 1.0	Male

[1] J P Ide, —International Comparison GT-RF/83-4: Measurement of Scattering Coefficients Over the Band 2-18 GHz", NPL Report 15, July 1999.

Measurement parameters:

The measurand(s) for each device are as follows:

- For each of the three attenuators (ID01, ID02, ID03): all four complex-valued S-parameters ($S11$, $S12$, $S21$ and $S22$);
- For each of the four terminations, i.e. two matches and two mismatches (ID04, ID05, ID06, ID07): the complex-valued voltage reflection coefficient ($S11$).

All measured pin-depth values (*metric units*) of the travelling standards and the used test-ports have to be reported. Test-port inner conductor should be in recession and no protrusion is allowed on any connector.

Measurement frequencies:

Each device will be measured from 100 MHz to 33 GHz (inclusive) in 100 MHz steps.
However, the list of comparison frequency points is therefore as follows:

- 100 MHz, 6.0 GHz, 12.4 GHz, 18.0 GHz, 26.5 GHz and 33.0 GHz.

Reference laboratory:

VSL, the Dutch National Metrology institute (traceability of the reference values is guaranteed)

Estimate number of participants:
Minimum number of participants: 5
Maximum number of participants: 10

Measurements protocol:
Will be provided with the artifact, participants has two weeks to perform the calibration

Fee:
€ 1950.00 (ex. VAT & transport)

Evaluation:
Evaluation by E_n value.
All participants will receive a report and certificate of the interlaboratory comparison within two months after ending the comparison cycle.

Accreditation:
VSL holds CMC for s-parameter measurements in 3.5 mm coaxial interface. The accreditation is carried out by the Dutch Council for Accreditation RvA in the Netherlands, and is based on the criteria of ISO/IEC 17025 (calibration laboratory) and of ISO/IEC 17043 (proficiency testing) respectively.

Confidential statement:
"VSL keeps all data regarding the performance of individual participants, or groups of participants, strictly confidential. Data is accordingly protected and stored in areas on networks with restricted access. The relationship between results and the laboratories that submitted them will never be disclosed. Only the laboratory is granted access to its performance through the assigned code number."

New schedule:
Registration until 1 June 2016
Start of the comparison cycle 1 September 2016
Estimated end of the comparison is February 2017

Registration for Interlaboratory Comparison

HF S-Parameters 100 MHz to 33.0 GHz

Organisation/Laboratory:	

Contact person	
Title:	
Name:	
E-mail:	
Tel:	
Fax:	

Correspondence address	
Street / P.O. Box:	
Postal code:	
City:	
State / Province:	
Country:	

Delivery Address	
Street: ***(do NOT use a P.O. box here)***	
Postal code:	
City:	
State / Province:	
Country:	

Invoice Address	
Street / P.O. Box:	
Postal code:	
City:	
State / Province:	
Country:	

Participation in:

☐ **ILC: HF - S parameters round 2 € 1950.00**

Purchase Order number:	

Registration until 1 June 2016, minimum: 5 participants, maximum: 10 participants!

Note:

- VSL reserves the right to cancel the ILC in case the number of participants is smaller than anticipated
- No refunds will be given for failure to take part in the ILC
- Upon receipt of payment, the report will be published.
- General Terms and Conditions of VSL B.V. are applicable
- Prices (EUR) are exclusive VAT and shipping costs

Signature: _____ Date: _____

Please return form to:
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Fax +31 15 261 2971 or E-Mail to ComPass@vsl.nl