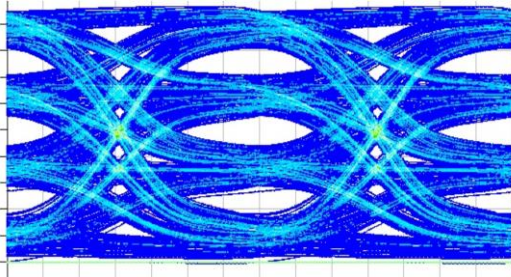


Improves SERDES Testing – Test Pre-Silicon – EDA Kit Friendly

## FEATURES

- Suited for **112G PAM4 characterization and compliance testing**
- Very **loss return-loss** out to 70GHz
- Selectable losses from **-1dB to -35dB** at 26.56GHz Nyquist
- Causal/Passive high quality S-parameters included
- **Very clean loss** out to 70GHz – suited for Design-of-Experiments (DOE)
- Spread weave material used – no group delay noise
- Optional matched low-skew cables available (500 femtosecond or 1 picosecond skew max options)
- COM metrics included
- Measured S-parameters included and tested for quality



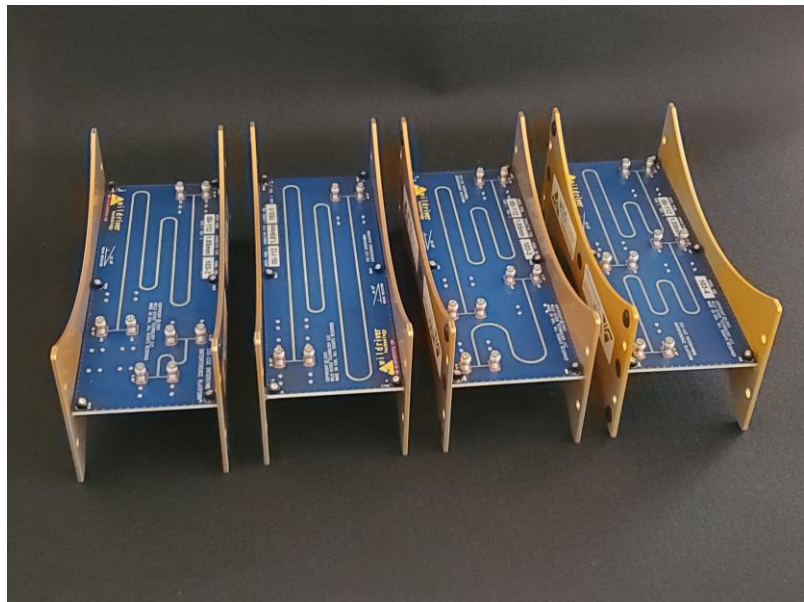
## INCLUDES

- **Insertion Loss Platforms** – Provides IL ranging from 1db to 35db at 26.56 GHz, 1dB resolution
- **Loss fine-tune calibration platforms** of 1, 2, 3, 4, and 5dB at 26.56 GHz for very accurate ISI calibration and DOE based characterization
- **NIST traceable TDR impedance compliance report** for every connection/trace
- **Option for 2 sets of matched cable pairs** with ultra-low 500 femtosecond skew and stellar phase stability to 70GHz

## 112 Gbaud Advanced SERDES Inter-symbol Interference Loss Platform

The ISI-112 is an inter-symbol interference (ISI) platform specifically designed for the demanding signal integrity requirements for 112 Gbaud PAM-4. True ISI is created by loss generated with dielectric, skin effect and metal conductor losses only. The laminate system is ultra-low weave, with similar copper roughness profile expected in practical backplanes. Group delay variation and Block resonance, an important loss consideration for data rates exceeding 25 Gbpsec, has been eliminated with special layout techniques, homogenous laminate system, pristine connector launch design, and the use of controlled weave dielectric material.

The ISI-112 Loss Modeling Platforms are composed of 16 stripline differential pairs of various lengths plus differential extender boards with IL of 0.5, 1, 2, 3, and 4dB at 26.56 GHz, resulting in 1dB resolution for 26.65dB Nyquist frequency.



*The ISI-112 Loss Modeling kit includes 4 assembled and tested ISI platforms shown above, plus 5 Jitter Calibration boards (see below), s-parameters, and User Guide.*

**For more information call Al Neves at 503 679 2429 or email us at [info@wildrivertech.com](mailto:info@wildrivertech.com).**

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## Calibrating Loss to 1db Length at 26 GHz

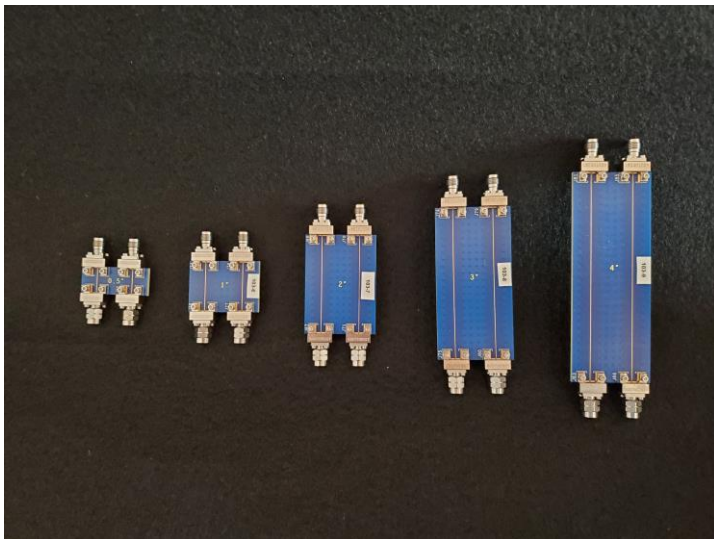
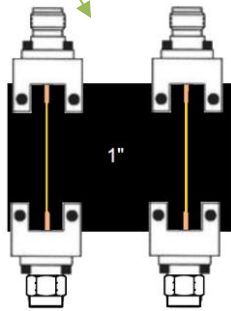
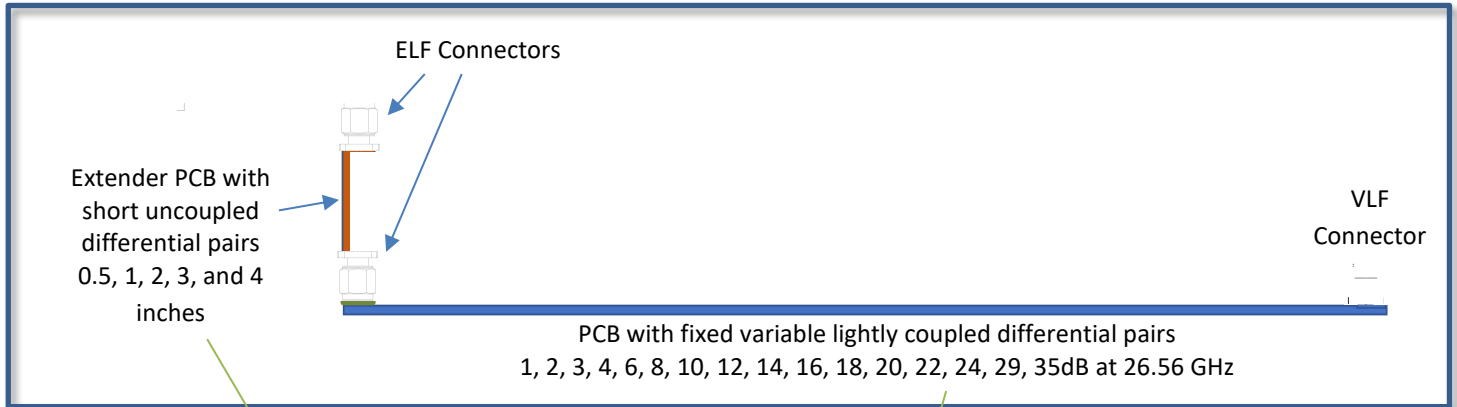


Figure 1 - Jitter calibration board assemblies

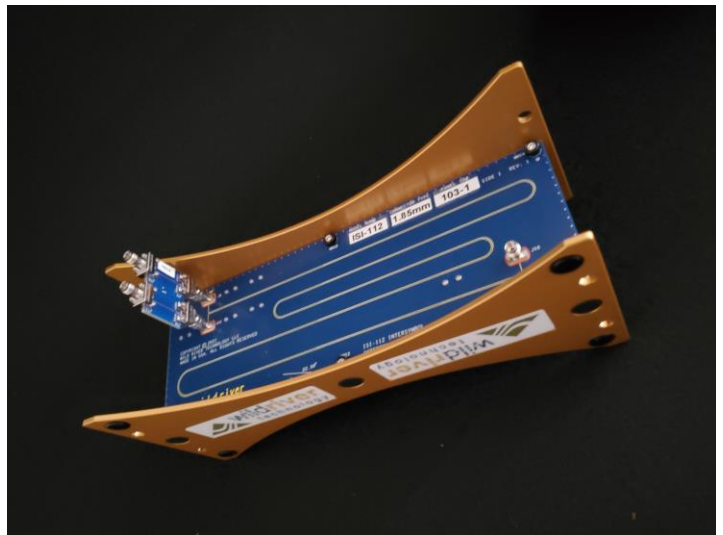


Figure 2 - ISI-112 platform with jitter calibration assembly attached

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Table 1 – ISI-112 board set specifications

PC board material	Low
Insertion loss	Typical values see Tables 3 (excludes cable losses)
Return loss	22 dB typical at 56 GHz
Connectors	ISI-112 Platforms: 1.85mm vertical launch female, compression mount, replaceable All connector launches are NIST traceable tested.  Jitter Calibration Platforms: 1.85mm edge launch female and male, replaceable. All connector launches are NIST traceable tested.

Table 2 – Optional ultra-low skew matched cable pair specifications

Maximum Insertion loss	1.6dB (0.5M), 2.8dB (1.0M)
Minimum Return loss	14.5dB
Intra-pair skew	5 degrees (0.35ps)
Input impedance	50 Ohms
Max input voltage levels	
Connectors	1.85mm
Torque	7–10 in·lbf (0.8 to 1.1 N·m)
Compliance	RoHS Directive 2011/65/EU in its entirety

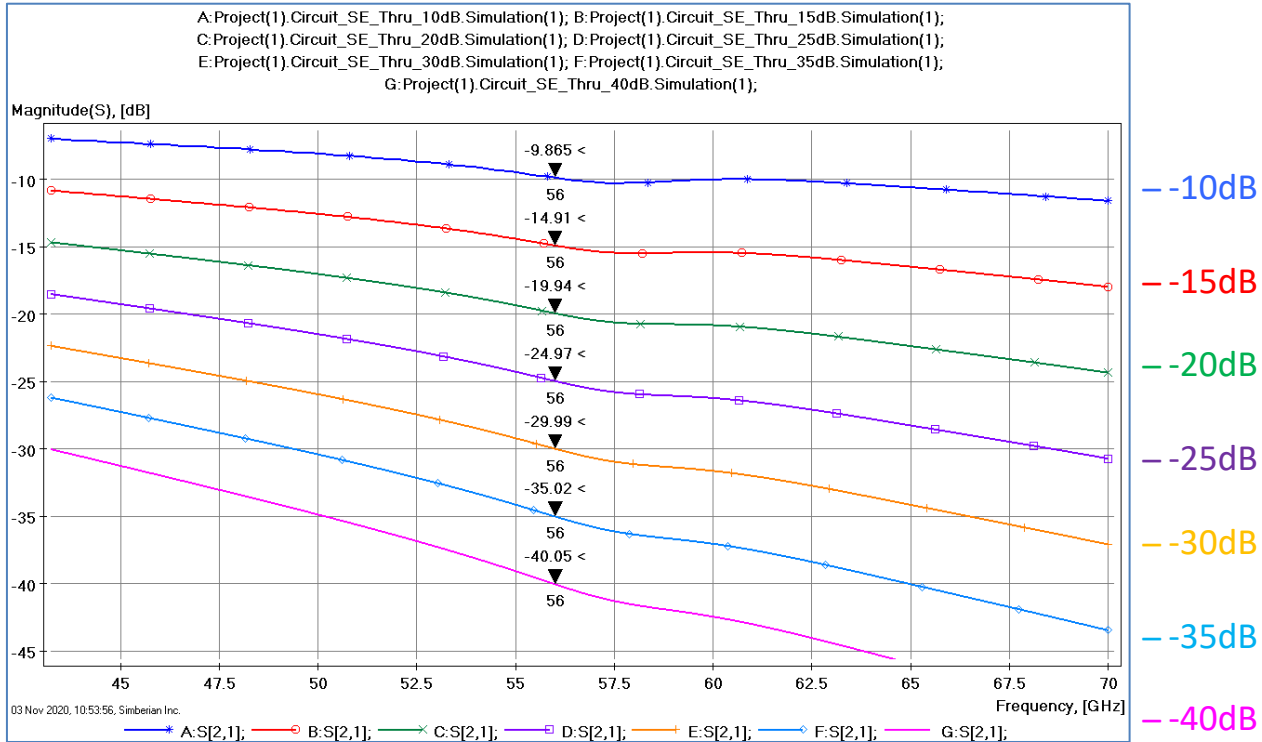
Table 3 – Insertion Loss for each fixed variable trace length

IL @ 26.5626 Gb/s	Length		IL @ 26.5626 Gb/s	Length	
	in.	mm		in.	mm
-1 dB	1.1	28.4	-14 dB	15.6	396.7
-2 dB	2.2	56.6	-16 dB	17.9	453.6
-3 dB	3.3	85.1	-18 dB	20.1	510.9
-4 dB	4.5	113.3	-20 dB	22.3	566.9
-6 dB	6.7	170.2	-22 dB	24.5	623.6
-8 dB	8.9	226.8	-24 dB	26.8	680.5
-10 dB	11.2	283.5	-29 dB	32.4	822.2
-12 dB	13.3	340.1	-35 dB	39.1	922.1

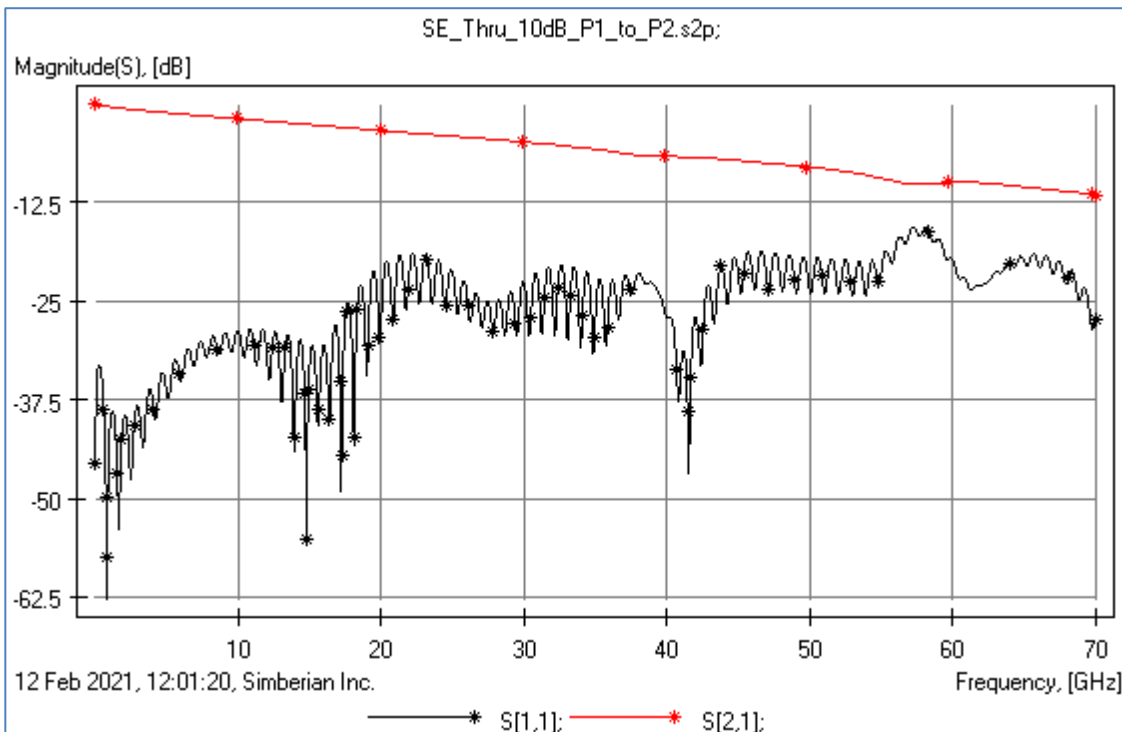


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## Insertion Loss (Simulated)



## Prototype measurement example, 6 inch trace



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## Option: Skew Matched Cables



### *Ultra-low Skew Cable Assembly Pair*

*1.85mm male connector on both ends, 1 meter long blue DXM086, no-modes thru 56GHz, 16dB return loss or better through 50 GHz, 5 degrees (0.35ps) skew, red/green heat shrink for cable determination, additional heat shrink at 220mm (8.66") from end of cable pair for mechanical separation, label in center of cable for replacement part number.*

*Compliant with RoHS Directive 2011/65/EU in its entirety, inclusive of any further amendments or modifications of said Directive. 3-year replacement guarantee.*

*Each matched cable pair comes with graphs of insertion loss and return loss for each cable, plus a thumb drive containing the measured s-parameter files.*

## Deliverables

- 4 fully assembled ISI Platforms assembled with 1.85mm connectors, 100% NIST traceable TDR tested, report included
- 0.5, 1, 2, 3, and 4 inch jitter calibration elements assembled with 1.85mm edge launch connectors
- S-parameter library, measured, tested for quality, includes DC point
- Ruggedized Case
- COM metrics
- Web-based product training with WRT Applications Engineer, scheduled at customers convenience
- Option – Low skew matched cable pair bundle, 500 femto-second skew out to 70GHz

## Ordering Instructions

P/N 917-0001-00

Model ISI-112

10-56 Gbpsec Advanced SERDES Intersymbol Interference Loss Platform Set