

# ISI-USB4 Loss Modeling Kit

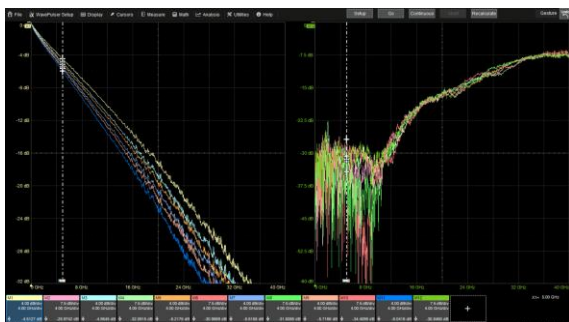
Improves SERDES Testing – Test Pre-Silicon – EDA Kit Friendly – Combine Loss with Crosstalk with XTALK-56

## FEATURES

- Designed for DisplayPort 2.0 Sink and USB4 Rx Channel Calibration
- ISI Test Fixture & Cable Kit Includes:
  - **24 Low Loss to High Loss Structures**
    - \*IL = Varied 2-10 dB @ 5GHz and @10GHz
    - Very low return-loss -30dB at 10GHz
    - IEEE P370 Tier 1 Signal Integrity rated
  - **Matched Cable Pairs for Tx & Rx Testing**
    - Set of two 1m & two 0.5m Matched Pairs
    - \*Phase matching less than  $\pm 5^\circ$  @ 40 GHz (347femto-seconds!)
    - \*Max IL to 10GHz < 1.5dB

## APPLICATIONS

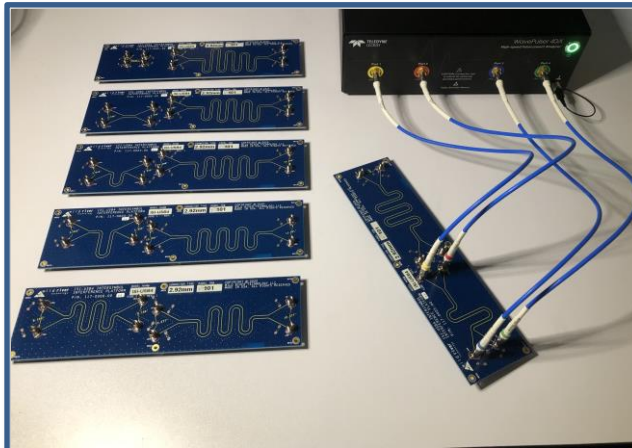
- SERDES Receiver Tolerance Testing
- Communication Channel Optimization using DFE, FFE, CTLE, and Gain Stage Elements
- Jitter Analysis and Benchmarking
- Related Products — XTALK-56 (coming Spring 2020)



## 10-56 Gbpsec Advanced SERDES Intersymbol Interference Loss Platform

The ISI-USB4 represents the next generation of Wild River Technology platforms with controlled amounts of ISI for creating jitter to 56 Gbpsec NRZ and 112 Gbpsec PAM-3 and PAM-4. True Intersymbol Interference (ISI) is created by loss generated with dielectric and skin effect only. Group delay variation, an important loss consideration for data rates exceeding 25 Gbpsec, has been minimized with special layout techniques, pristine connector launches, and the use of controlled weave dielectric material.

The ISI-USB4 Loss Modeling Kit is composed of 24 stripline differential pairs of various lengths. Ground vias surrounding each structure preserve jitter spectral purity by suppressing unwanted resonance.



*The ISI-USB4 Loss Modeling kit includes 6 assembled and tested ISI platforms with custom stands, and User Guide.*

**Open to closed eye in minutes**

**Combine with XTLK-32 Platform for Loss-Crosstalk testing**

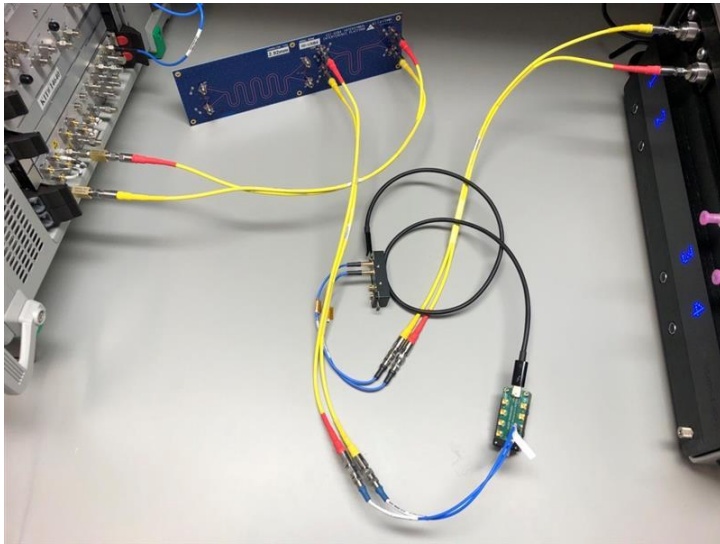
**Pre-Layout, Pre-Silicon EDA Capable**



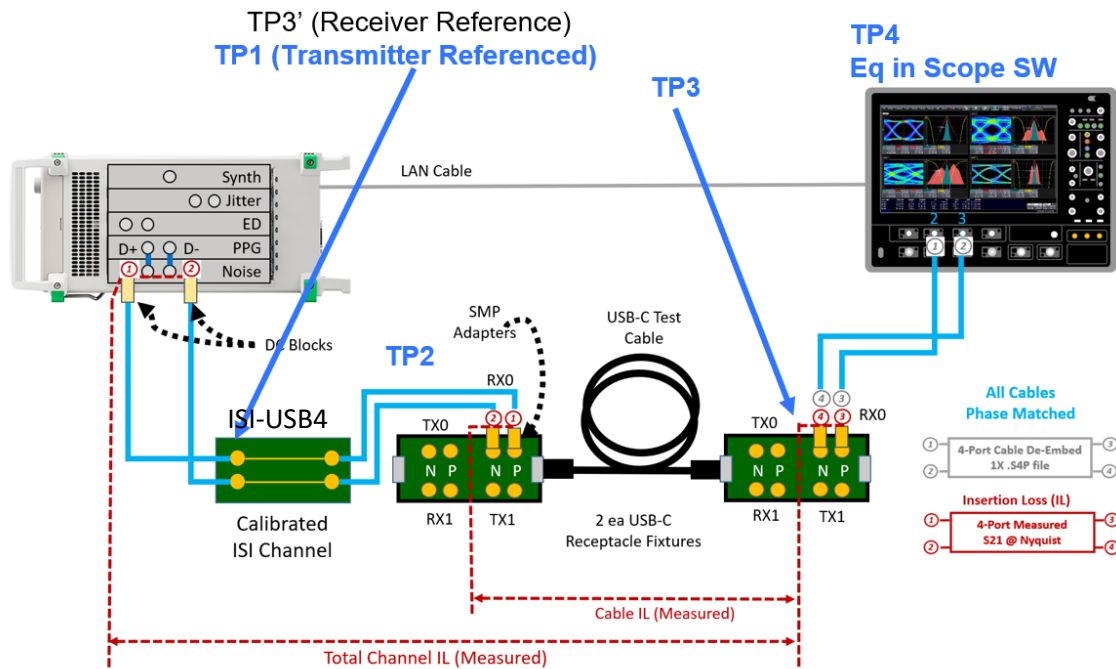
For details and to request a quote, please contact Wild River Technology Sales at the number below, or email us at [info@wildrivertech.com](mailto:info@wildrivertech.com).

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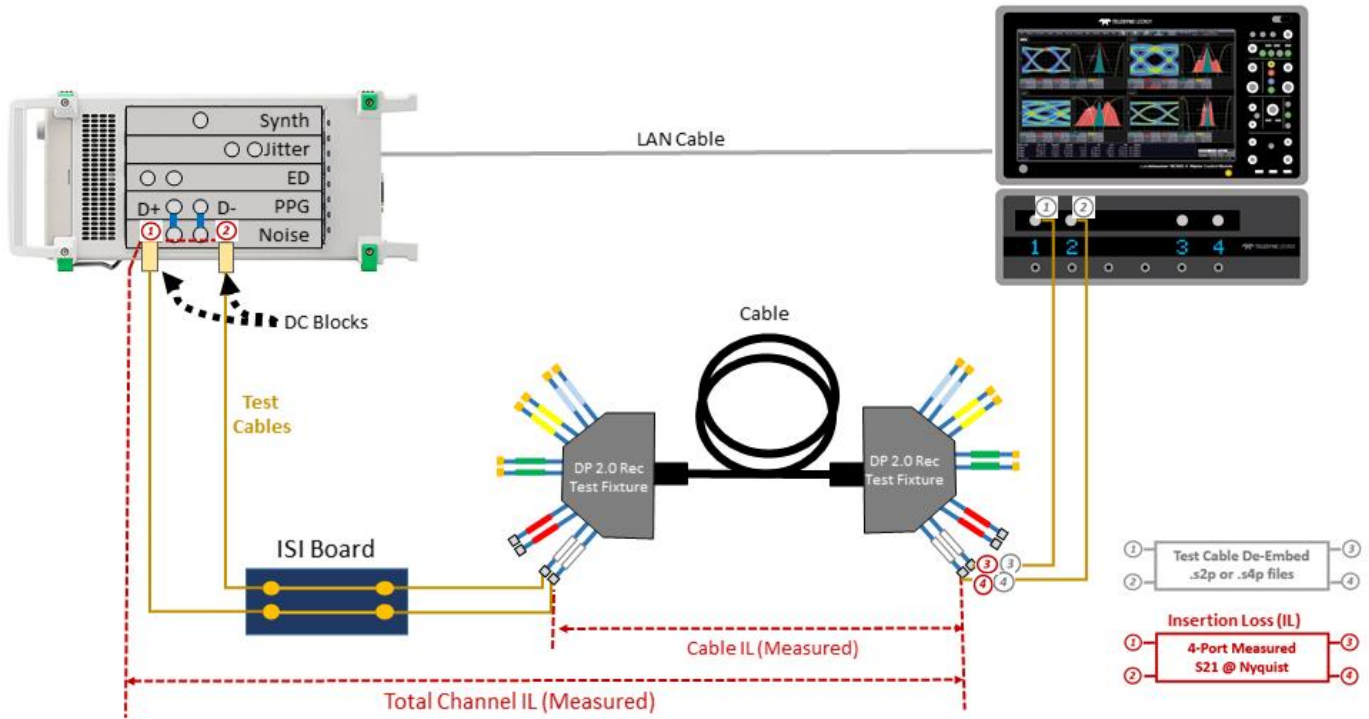
| Trace# | Board# | Trace Label | Data Rate:    |            | Data Rate:    |            |
|--------|--------|-------------|---------------|------------|---------------|------------|
|        |        |             | Nyquist Freq: |            | Nyquist Freq: |            |
|        |        |             | IL (SD2D1)    | RL (SD1D1) | IL (SD2D1)    | RL (SD1D1) |
| 1      | 1      | 1.131"      | -0.40         | -26.4      | -0.83         | -46.3      |
| 2      | 1      | 1.834"      | -0.68         | -30.8      | -1.32         | -39.9      |
| 3      | 2      | 2.538"      | -0.89         | -35.3      | -1.79         | -34.7      |
| 4      | 2      | 3.242"      | -1.14         | -42.7      | -2.16         | -35.1      |
| 5      | 3      | 3.945"      | -1.45         | -37.1      | -2.73         | -39.4      |
| 6      | 3      | 4.649"      | -2.16         | -32.7      | -3.66         | -36.4      |
| 7      | 4      | 5.352"      | -1.88         | -33.6      | -3.62         | -30.6      |
| 8      | 4      | 6.056"      | -2.12         | -31.5      | -4.02         | -43.1      |
| 9      | 5      | 6.759"      | -2.36         | -33.5      | -4.49         | -35.6      |
| 10     | 5      | 7.463"      | -2.56         | -37.5      | -4.84         | -34.7      |
| 11     | 6      | 8.166"      | -2.94         | -29.8      | -5.51         | -43.5      |
| 12     | 6      | 8.870"      | -3.16         | -34.0      | -5.89         | -33.0      |
| 13     | 6      | 9.573"      | -3.31         | -28.8      | -6.23         | -33.6      |
| 14     | 6      | 10.277"     | -3.63         | -27.3      | -6.78         | -33.9      |
| 15     | 5      | 10.908"     | -3.73         | -28.9      | -7.04         | -30.9      |
| 16     | 5      | 11.684"     | -4.07         | -27.4      | -7.66         | -31.9      |
| 17     | 4      | 12.387"     | -4.26         | -36.1      | -8.04         | -33.9      |
| 18     | 4      | 13.091"     | -4.53         | -35.8      | -8.51         | -37.8      |
| 19     | 3      | 13.374"     | -4.51         | -27.0      | -8.50         | -33.8      |
| 20     | 3      | 14.498"     | -4.95         | -32.1      | -9.33         | -33.0      |
| 21     | 2      | 15.202"     | -5.22         | -31.0      | -9.75         | -32.6      |
| 22     | 2      | 15.905"     | -5.52         | -31.6      | -10.36        | -43.6      |
| 23     | 1      | 16.609"     | -5.72         | -34.4      | -10.75        | -32.6      |
| 24     | 1      | 17.312"     | -6.04         | -30.9      | -11.40        | -30.6      |



## USB4/Thunderbolt™ Receiver Calibration Method

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DisplayPort 2.0 Example  
Ultra-high bit rate Sink Calibration Method