# PHY Performance Test Suite Report

Color Key: Nominal | Marginal | Failure

Suite Version: 4.1.07 11-18-15

Sifos Technologies

192.168.221.105 | Test Port 1,1 | Date December 14 2015 | Time 5:12 PM | DUT Type Sample 10/100/1000 Port Rx LinkMon Port 1

## Basic Capablities

### Auto-Negotiation

| AUTO-NEG | ACKS | 1000BaseT | 100BaseTX | 10BaseT | 100BaseT4 | Pause | Link_OK | MDI/MDI-X | NLP_Link |
|---|---|---|---|---|---|---|---|---|---|
| EXTENDED | EXTENDED | FULL | HALF+FULL | HALF+FULL | NO | RESPOND+X | YES | AUTO | LINKED |

| | Rx_OK | Gig Mode | M-S Fault | Mstr Fault | Slv Fault | Mstr T(sec) | Slv T(sec) | Stability |
|---|---|---|---|---|---|---|---|---|
| 1000Base-T Links | YES | AUTO | NONE | NONE | NONE | 2 | 3 | OK |
| | | | | | | Training Time (sec) | | 1.7 |

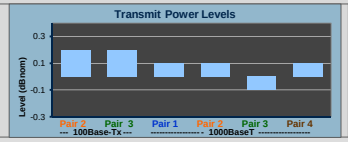
### Link Verification and Integrity

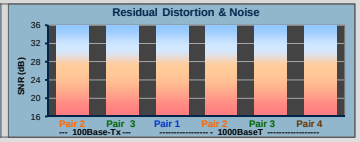
| | MDI Connection | | | | MDI-X Connection | | | |
|---|---|---|---|---|---|---|---|---|
| | 10BaseT | 100BaseTx | 1000BaseT Master | 1000BaseT Slave | 10BaseT | 100BaseTx | 1000BaseT Master | 1000BaseT Slave |
| Full Duplex | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Half Duplex | 100 | 100 | N/A | N/A | 100 | 100 | N/A | N/A |

## Transmitter & Interface Tests

### Tx Power Level

| Link Rate | Pair 1 | Pair 2 | Pair 3 | Pair 4 | Units |
|---|---|---|---|---|---|
| 100BaseTX | | 0.2 | 0.2 | | dBVnom |
| 1000BaseT | 0 | 0 | -0.1 | 0 | dBVnom |




### Signal Quality (SNR)

| Link Rate | Pair 1 | Pair 2 | Pair 3 | Pair 4 | Average | Min SNR | Units |
|---|---|---|---|---|---|---|---|
| 100BaseTX | | 36 | 36 | | 36 | 36 | dB |
| 1000BaseT | 36 | 36 | 36 | 36 | 36 | 36 | dB |

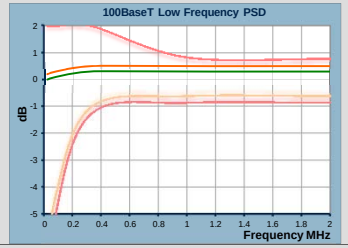
### Low Frequency PSD

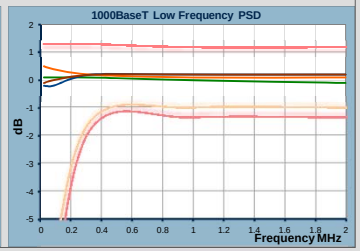
| Link Rate | Frequency | | Pair 1 PSD | Pair 2 PSD | Pair 3 PSD | Pair 4 PSD | Average | Min PSD | Units |
|---|---|---|---|---|---|---|---|---|---|
| 100BaseTX | 0.02 | MHz | | 0.2 | 0 | | 0.1 | 0 | dB |
| | 0.08 | MHz | | 0.3 | 0.1 | | 0.2 | 0.1 | dB |
| | 0.33 | MHz | | 0.5 | 0.3 | | 0.4 | 0.3 | dB |
| | 1 | MHz | | 0.5 | 0.3 | | 0.4 | 0.3 | dB |
| | 2 | MHz | | 0.5 | 0.3 | | 0.4 | 0.3 | dB |
| 1000BaseT | 0.02 | MHz | -0.2 | 0.5 | 0.1 | -0.1 | 0.075 | -0.2 | dB |
| | 0.08 | MHz | -0.2 | 0.4 | 0.1 | 0 | 0.075 | -0.2 | dB |
| | 0.33 | MHz | 0.2 | 0.2 | 0.1 | 0.2 | 0.175 | 0.1 | dB |
| | 1 | MHz | 0.2 | 0.1 | 0 | 0.2 | 0.125 | 0 | dB |
| | 2 | MHz | 0.2 | 0.1 | -0.1 | 0.2 | 0.1 | -0.1 | dB |

| Estimated Pk-Pk Voltage & Droop | | Pair 1 Vpp | Pair 2 Vpp | Pair 3 Vpp | Pair 4 Vpp |
|---|---|---|---|---|---|
| 100BaseTX | UTP Diff. Volts Pk-Pk | | 2.113 | 2.065 | |
| | 500ns Droop%, >2.4µsec τ | | 97.8% | 97.8% | |
| 1000BaseT | Pk. Diff. Volts T.S. #1 A->B | 1.540 | 1.523 | 1.489 | 1.540 |
| | Droop% T.S. #1 F->G,H->J | 94.9% | 96.5% | 96.2% | 95.3% |

PSD Trace Color Key: Pair 1 | Pair 2 | Pair 3 | Pair 4

Marginal Limit Line | Failing Limit Line



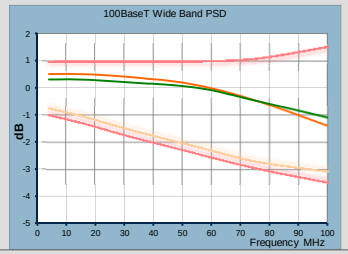

### Wide Band PSD

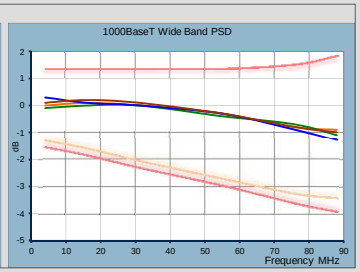
| Link Rate | Frequency | | Pair 1 PSD | Pair 2 PSD | Pair 3 PSD | Pair 4 PSD | Average | Min PSD | Units |
|---|---|---|---|---|---|---|---|---|---|
| 100BaseTX | 4 | MHz | | 0.5 | 0.3 | | 0.4 | 0.3 | dB |
| | 16 | MHz | | 0.5 | 0.3 | | 0.4 | 0.3 | dB |
| | 31 | MHz | | 0.4 | 0.2 | | 0.3 | 0.2 | dB |
| | 55 | MHz | | 0.1 | 0 | | 0.05 | 0 | dB |
| | 76 | MHz | | -0.5 | -0.5 | | -0.5 | -0.5 | dB |
| | 100 | MHz | | -1.4 | -1.1 | | -1.25 | -1.4 | dB |
| 1000BaseT | 4 | MHz | 0.3 | 0 | -0.1 | 0.1 | 0.075 | -0.1 | dB |
| | 16 | MHz | 0.1 | 0.1 | 0 | 0.2 | 0.1 | 0 | dB |
| | 31 | MHz | 0 | 0 | 0 | 0.1 | 0.025 | 0 | dB |
| | 55 | MHz | -0.3 | -0.3 | -0.4 | -0.3 | -0.325 | -0.4 | dB |
| | 76 | MHz | -0.9 | -0.8 | -0.7 | -0.8 | -0.8 | -0.9 | dB |
| | 88 | MHz | -1.3 | -0.9 | -1.1 | -1 | -1.075 | -1.3 | dB |

| Estimated Mask Fits | | Pair 1 Fit | Pair 2 Fit | Pair 3 Fit | Pair 4 Fit |
|---|---|---|---|---|---|
| 100BaseTX | Rise/Fall Time: 4+1 nsec | | 4.49 | 4.35 | |
| 1000BaseT | Test Signal #1 Mask Fit | Fit_OK | Fit_OK | Fit_OK | Fit_OK |

Pair 1 | Pair 2 | Pair 3 | Pair 4

Marginal Limit Line | Failing Limit Line

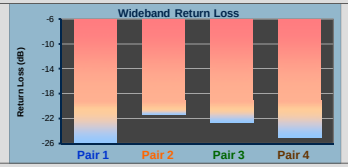


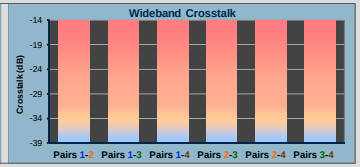




### Skew, Echo, Xtalk *(1000BaseT Interfaces)*

| | Pair 1 | Pair 2 | Pair 3 | Pair 4 | Average | Maximim | Units |
|---|---|---|---|---|---|---|---|
| Time Skew | 0 | 8 | 0 | 8 | 0 | 8 | nsec |
| Return Loss | -26 | -21.3 | -22.6 | -25.1 | -23.75 | -21.3 | dB |

| | Pairs 1-2 | Pairs 1-3 | Pairs 1-4 | Pairs 2-3 | Pairs 2-4 | Pairs 3-4 | Average | Maximim | Units |
|---|---|---|---|---|---|---|---|---|---|
| Crosstalk | -39 | -39 | -39 | -39 | -39 | -39 | -39 | -39 | dB |




## Receiver Tests

| 10Base-T MDI Line Loss and | | Link_Chk |
|---|---|---|
| Line Loss+Slew= | 5_ns -2.7dB | UP |
| Loss+Tx Offset | -50 ppm | UP |
| Loss+Tx Offset | 50 ppm | UP |
| Loss+Tx Offset | -100 ppm | UP |
| Loss+Tx Offset | 100 ppm | UP |
| Loss+Noise | 10 dB(40mV) | UP |
| Loss+Noise | 14 dB(40mV) | UP |
| Loss+Jitter | 17 dB(1.4ns) | UP |
| Loss+Jitter | 20 dB(1.4ns) | UP |
| Noise+Jitter | 10.5_17 dB & dB | UP |
| Noise+Jitter | 13.5_19.5 dB & dB | UP |

| 100Base-Tx MDI Line Loss and | | Link_Mon | |
|---|---|---|---|
| Line Loss+Slew= | 5_ns -2.7dB | 100 | % |
| Loss+Tx Offset | -50 ppm | 100 | % |
| Loss+Tx Offset | 50 ppm | 100 | % |
| Loss+Tx Offset | -100 ppm | 100 | % |
| Loss+Tx Offset | 100 ppm | 100 | % |
| Loss+Noise | 5 dB(40mV) | 100 | % |
| Loss+Noise | 11 dB(40mV) | 100 | % |
| Loss+Jitter | 11 dB(1.4ns) | 100 | % |
| Loss+Jitter | 17 dB(1.4ns) | 100 | % |
| Noise+Jitter | 4_10 dB & dB | 100 | % |
| Noise+Jitter | 10_16 dB & dB | 100 | % SNR1 |

| 1000Base-T MASTER: Line Loss+ | | Link_Mon | |
|---|---|---|---|
| Line Loss+Slew= | 3.5_ns -1.9dB | 100 | % |
| Line Loss+Slew= | 5_ns -2.7dB | 100 | % |
| Loss+Noise | -1 dB(40mV) | 100 | % |
| Loss+Noise | 1.5 dB(40mV) | 100 | % |
| Loss+Noise | 4 dB(40mV) | 100 | % |
| Loss+Jitter | -1 dB(1.4ns) | 100 | % |
| Loss+Jitter | 1.5 dB(1.4ns) | 97.8 | % |
| Loss+Jitter | 4 dB(1.4ns) | 81.9 | % |
| Noise+Jitter | -1.5_-2.5 dB & dB | 100 | % |
| Noise+Jitter | 1_0 dB & dB | 100 | % |
| Noise+Jitter | 3.5_2.5 dB & dB | 95.5 | % SNR3 |

| Summary | Limited | Good | Excellent |
|---|---|---|---|
| 10Base-T | | | |
| 100Base-Tx | | | |
| 1000Base-T | | | |

| 10Base-T MDI-X Line Loss and | | Link_Chk |
|---|---|---|
| Line Loss+Slew= | 5_ns -2.7dB | UP |
| Loss+Tx Offset | -50 ppm | UP |
| Loss+Tx Offset | 50 ppm | UP |
| Loss+Tx Offset | -100 ppm | UP |
| Loss+Tx Offset | 100 ppm | UP |
| Loss+Noise | 10 dB(40mV) | UP |
| Loss+Noise | 14 dB(40mV) | UP |
| Loss+Jitter | 17 dB(1.4ns) | UP |
| Loss+Jitter | 20 dB(1.4ns) | UP |
| Noise+Jitter | 10.5_17 dB & dB | UP |
| Noise+Jitter | 13.5_19.5 dB & dB | UP |

| 100Base-Tx MDI-X Line Loss and | | Link_Mon | |
|---|---|---|---|
| Line Loss+Slew= | 5_ns -2.7dB | 100 | % |
| Loss+Tx Offset | -50 ppm | 100 | % |
| Loss+Tx Offset | 50 ppm | 100 | % |
| Loss+Tx Offset | -100 ppm | 100 | % |
| Loss+Tx Offset | 100 ppm | 100 | % |
| Loss+Noise | 5 dB(40mV) | 100 | % |
| Loss+Noise | 11 dB(40mV) | 100 | % |
| Loss+Jitter | 11 dB(1.4ns) | 100 | % |
| Loss+Jitter | 17 dB(1.4ns) | 100 | % |
| Noise+Jitter | 4_10 dB & dB | 100 | % |
| Noise+Jitter | 10_16 dB & dB | 100 | % SNR2 |

| 1000Base-T SLAVE: Line Loss+ | | Link_Mon | |
|---|---|---|---|
| Line Loss+Slew= | 5_ns -2.7dB | 100 | % |
| Loss+Tx Offset | -100 ppm | 100 | % |
| Loss+Tx Offset | 100 ppm | 100 | % |
| Loss+Tx Offset | -115 ppm | 100 | % |
| Loss+Tx Offset | 115 ppm | 100 | % |
| Offset+Noise | -100_-1 ppm & dB | 100 | % |
| Offset+Noise | 100_-1 ppm & dB | 100 | % |
| Offset+Noise | -100_1.5 ppm & dB | 100 | % |
| Offset+Noise | 100_1.5 ppm & dB | 100 | % |
| Offset+Noise | -100_4 ppm & dB | 100 | % |
| Offset+Noise | 100_4 ppm & dB | 100 | % SNR4 |

| Local Rx Health (Lowest Pair) | | SNR dB |
|---|---|---|
| 100 Base-TX | SNR1 | 32.2 |
| 100 Base-TX | SNR2 | 29.3 |
| 1000 Base-T | SNR3 | 21.7 |
| 1000 Base-T | SNR4 | 25.2 |

*Report Ver: 4.1.03*