

PHY Performance Test Suite Report

Color Key: Nominal Marginal Failure Suite Version: 5.3.11 05-01-23 PVA HW Ver: 2



192.168.221.108 Test Port: 5,1 Date: May 1 2023 Time: 4:20 PM DUT Type: Sample 10/100/1000Base-T Switch Port 1

Basic Capabilities

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=XX	YES	AUTO	LINKED
Rx_OK	Gig Mode	M-S Fault	Mstr Fault	Siv Fault	Stability	Details			
1000Base-T Links	YES	AUTO	NONE	NONE	NONE	OK	N/A		

Link Verification and Integrity

	MDI Connection				MDI-X Connection			
	10BaseT	100BaseTx	Master	1000BaseT Slave	10BaseT	100BaseTx	Master	1000BaseT Slave
Full Duplex	100	100	100	100	100	100	N/A	100
Half Duplex	100	100	N/A	N/A	100	100	N/A	100
Link Time*(sec)	0.3	0.2	1.3	1.8	* Link Time is auto-negotiated for MDI/MDI-X			

Transmitter & Interface Tests

Tx Power Level

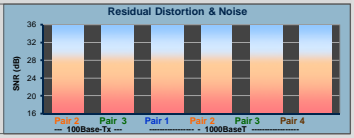
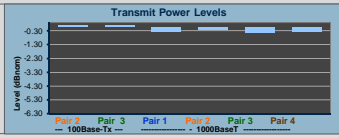
Link Rate	Pair 1	Pair 2	Pair 3	Pair 4	Units	1000 Tx Power Adaptation	
100BaseTX		0.1	0.1		dBVnom	Cable Len?	PVA Stim.
1000BaseT	-0.3	-0.2	-0.4	-0.3	dBVnom	NO	N/A

Signal Quality (SNR)

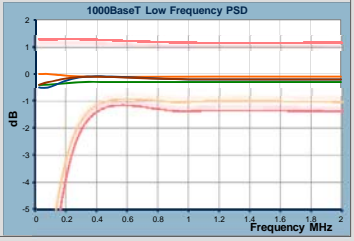
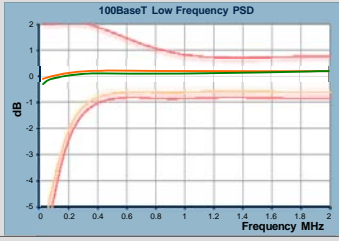
Link Rate	Pair 1	Pair 2	Pair 3	Pair 4	Average	Min SNR	Units
100BaseTX		36	36		36	36	dB
1000BaseT	36	36	36	36	36	36	dB

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			-0.1	-0.1	-0.2	-0.3	dB
	0.08 MHz			0	-0.1	-0.05	-0.1	dB
	0.33 MHz			0.2	0.1	0.15	0.1	dB
	1 MHz			0.2	0.1	0.15	0.1	dB
1000BaseT	2 MHz			0.2	0.2	0.2	0.2	dB
	0.02 MHz	-0.5	0	-0.4	-0.4	-0.325	-0.5	dB
	0.08 MHz	-0.5	0	-0.4	-0.4	-0.3	-0.5	dB
	0.33 MHz	-0.1	-0.1	-0.3	-0.1	-0.15	-0.3	dB
	1 MHz	-0.2	-0.1	-0.3	-0.2	-0.2	-0.3	dB
	2 MHz	-0.2	-0.1	-0.3	-0.2	-0.2	-0.3	dB

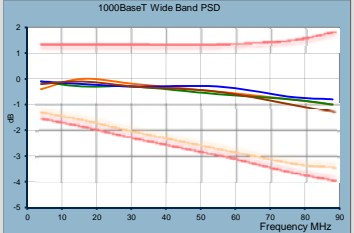
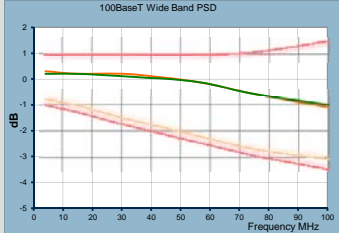


Estimated Pk-Pk Voltage & Droop	Pair 1 Vpp	Pair 2 Vpp	Pair 3 Vpp	Pair 4 Vpp	PSD Trace Color Key:
100BaseTX	UTP Diff. Volts Pk-Pk	2.042	2.042		Pair 1 Pair 2 Pair 3 Pair 4
	500ns Droop%, >2.4µsec <	97.8%	97.6%		Marginal Limit Line Failing Limit Line
1000BaseT	Pk. Diff. Volts T.S. #1 A->B	1.473	1.489	1.456	
	Droop% T.S. #1 F->G,H->J	95.1%	96.0%	95.5%	



Wide Band PSD

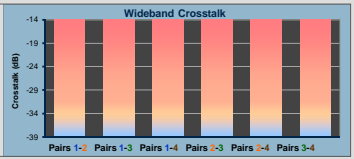
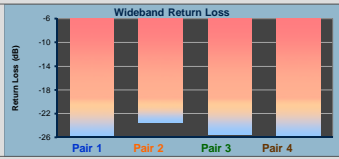
Link Rate	Frequency	Pair 1 PSD	Pair 2 PSD	Pair 3 PSD	Pair 4 PSD	Average	Min PSD	Units
100BaseTX	4 MHz			0.3	0.2	0.25	0.2	dB
	16 MHz			0.2	0.2	0.2	0.2	dB
	31 MHz			0.2	0.1	0.15	0.1	dB
	55 MHz			-0.1	-0.1	-0.1	-0.1	dB
1000BaseT	76 MHz			-0.6	-0.6	-0.6	-0.6	dB
	100 MHz			-1.1	-1	-1.05	-1.1	dB
	4 MHz	-0.1	-0.4	-0.1	-0.2	-0.2	-0.4	dB
	16 MHz	-0.2	0	-0.3	-0.1	-0.15	-0.3	dB
	31 MHz	-0.3	-0.2	-0.3	-0.3	-0.275	-0.3	dB
	55 MHz	-0.3	-0.5	-0.6	-0.5	-0.475	-0.6	dB
	76 MHz	-0.7	-0.8	-0.8	-1	-0.825	-1	dB
	88 MHz	-0.8	-1	-1	-1.3	-1.025	-1.3	dB



Estimated Mask Fits	Pair 1 Fit	Pair 2 Fit	Pair 3 Fit	Pair 4 Fit
100BaseTX	Rise/Fall Time: 44.1 nsec	4.33	4.31	
1000BaseT	Test Signal #1 Mask Fit	Fit_OK	Fit_OK	Fit_OK

Skew, Echo, Xtalk

1000BaseT Interfaces									
Time Skew	Pair 1	Pair 2	Pair 3	Pair 4	Average	Maximim	Units		
Return Loss	0	8	0	8	0	8	nsec		
	-26	-23.5	-25.4	-26	-25.225	-23.5	dB		
Crosstalk	Pairs 1-2	Pairs 1-3	Pairs 1-4	Pairs 2-3	Pairs 2-4	Pairs 3-4	Average	Maximim	Units
	-39	-39	-39	-39	-39	-39	-39	-39	dB



Receiver Tests Maximum Impairment

100Base-T MDI Line Loss and	Packets
Slew_Rate= 5_ns -2.7dB	100 %
Tx Offset= -50_ppm	100 %
Tx Offset= 50_ppm	100 %
Tx Offset= -100_ppm	100 %
Tx Offset= 100_ppm	100 %
Noise 10_dB(40mV)	100 %
Noise 14_dB(40mV)	100 %
Jitter 11.5_dB(1.4ns)	100 %
Jitter 16_dB(1.4ns)	100 %
Noise+Jitter 10.5_11.5_dB & dB	100 %
Noise+Jitter 13.5_15_dB & dB	100 %

1000Base-Tx MDI Line Loss and	Packets
Slew_Rate= 5_ns -2.7dB	100 %
Tx Offset= -50_ppm	100 %
Tx Offset= 50_ppm	100 %
Tx Offset= -100_ppm	100 %
Tx Offset= 100_ppm	100 %
Noise 5_dB(40mV)	100 %
Noise 11_dB(40mV)	100 %
Jitter 8.5_dB(1.4ns)	100 %
Jitter 14_dB(1.4ns)	100 %
Noise+Jitter 4.7_5_dB & dB	100 %
Noise+Jitter 10_13_dB & dB	100 % SNR1

1000Base-T MASTER: Line Loss and	Packets
Slew_Rate= 3.5_ns -1.9dB	100 %
Tx Offset= -50_ppm	100 %
Tx Offset= 50_ppm	100 %
Tx Offset= -100_ppm	100 %
Tx Offset= 100_ppm	100 %
Noise -1_dB(40mV)	100 %
Noise 1.5_dB(40mV)	100 %
Noise 4_dB(40mV)	100 %
Jitter -4_dB(1.4ns)	100 %
Jitter -2_dB(1.4ns)	100 %
Jitter 0_dB(1.4ns)	100 %
Noise+Jitter -1.5_-4.5_dB & dB	100 %
Noise+Jitter -1_-3_dB & dB	100 %
Noise+Jitter 3.5_-1_dB & dB	100 % SNR3

100Base-T MDI-X Line Loss and	Packets
Slew_Rate= 5_ns -2.7dB	100 %
Tx Offset= -50_ppm	100 %
Tx Offset= 50_ppm	100 %
Tx Offset= -100_ppm	100 %
Tx Offset= 100_ppm	100 %
Noise 10_dB(40mV)	100 %
Noise 14_dB(40mV)	100 %
Jitter 11.5_dB(1.4ns)	100 %
Jitter 16_dB(1.4ns)	100 %
Noise+Jitter 10.5_11.5_dB & dB	100 %
Noise+Jitter 13.5_15_dB & dB	100 %

1000Base-Tx MDI-X Line Loss and	Packets
Slew_Rate= 5_ns -2.7dB	100 %
Tx Offset= -50_ppm	100 %
Tx Offset= 50_ppm	100 %
Tx Offset= -100_ppm	100 %
Tx Offset= 100_ppm	100 %
Noise 5_dB(40mV)	100 %
Noise 11_dB(40mV)	100 %
Jitter 8.5_dB(1.4ns)	100 %
Jitter 14_dB(1.4ns)	100 %
Noise+Jitter 4.7_5_dB & dB	100 %
Noise+Jitter 10_13_dB & dB	100 % SNR2

1000Base-T SLAVE: Line Loss and	Packets
Slew_Rate= 5_ns -2.7dB	100 %
Tx Offset= -100_ppm	100 %
Tx Offset= 100_ppm	100 %
Tx Offset= -115_ppm	100 %
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

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

Local Rx Health (Lowest Pair)	SNR dB
100 Base-Tx SNR1	29
100 Base-Tx SNR2	27.8
1000 Base-T SNR3	23.1
1000 Base-T SNR4	23.6

PHY Performance Test Suite Report

Color Key: Nominal Marginal Failure Suite Version: 5.3.11 05-01-23 PVA HW Ver: 2



192.168.221.108 Test Port: 5,2 Date: May 1 2023 Time: 4:20 PM DUT Type: Sample 10/100/1000Base-T Switch Port 2

Basic Capabilities

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=NO	YES	AUTO	LINKED
Rx_OK	Gig Mode	M-S Fault	Mstr Fault	Siv Fault	Stability	Stability Details			
1000Base-T Links	YES	AUTO	NONE	NONE	NONE	OK	N/A		

Link Verification and Integrity

	MDI Connection				MDI-X Connection			
	10BaseT	100BaseTx	Master	1000BaseT Slave	10BaseT	100BaseTx	Master	1000BaseT Slave
Full Duplex	100	100	100	100	100	100	N/A	N/A
Half Duplex	100	100	N/A	N/A	100	100	N/A	N/A
Link Time*(sec)	0.3	0.3	1.3	1.8	* Link Time is auto-negotiated for MDI/MDI-x			

Transmitter & Interface Tests

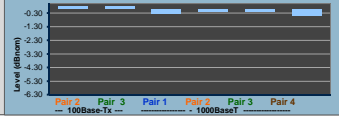
Tx Power Level

Link Rate	Pair 1	Pair 2	Pair 3	Pair 4	Units	1000 Tx Power Adaptation	
100BaseTX					dB/nom	Cable Len?	PVA Stim.
1000BaseT	-0.3	-0.2	-0.2	-0.5	dB/nom	NO	N/A

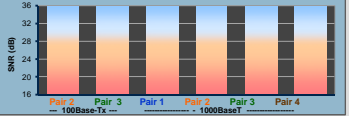
Signal Quality (SNR)

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

Transmit Power Levels



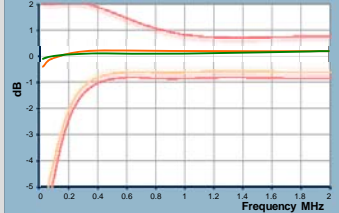
Residual Distortion & Noise



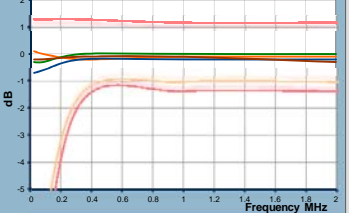
Low Frequency PSD

Link Rate	Frequency	Pair 1 PSD	Pair 2 PSD	Pair 3 PSD	Pair 4 PSD	Average	Min PSD	Units
100BaseTX	0.02 MHz			-0.4	-0.1	-0.25	-0.4	dB
	0.08 MHz			-0.1	0	-0.05	-0.1	dB
	0.33 MHz			0.2	0.1	0.15	0.1	dB
	1 MHz			0.2	0.1	0.15	0.1	dB
1000BaseT	2 MHz			0.2	0.2	0.2	0.2	dB
	0.02 MHz	-0.7	0.1	-0.3	-0.2	-0.275	-0.7	dB
	0.08 MHz	-0.6	0	-0.3	-0.2	-0.275	-0.6	dB
	0.33 MHz	-0.2	-0.2	0	-0.1	-0.125	-0.2	dB
	1 MHz	-0.2	-0.1	0	-0.1	-0.1	-0.2	dB
	2 MHz	-0.2	-0.1	0	-0.3	-0.15	-0.3	dB

100BaseT Low Frequency PSD



1000BaseT Low Frequency PSD



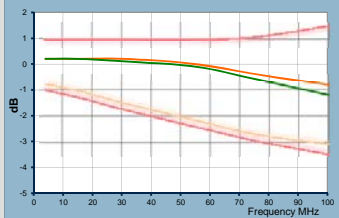
Estimated Pk-Pk Voltage & Droop

Link Rate	UTP Diff. Volts Pk-Pk	Pair 1 Vpp	Pair 2 Vpp	Pair 3 Vpp	Pair 4 Vpp	PSD Trace Color Key:
100BaseTX	500ns Droop% >2.4usec		2.042	2.042		Pair 1 Pair 2 Pair 3 Pair 4
1000BaseT	Pk. Diff. Volts T.S. #1 A->B	1.473	1.489	1.506	1.456	Marginal Limit Line Failing Limit Line
	Droop% T.S. #1 F->G.H->J	94.8%	96.0%	95.1%	96.0%	

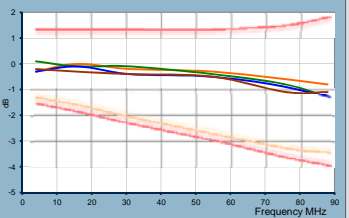
Wide Band PSD

Link Rate	Frequency	Pair 1 PSD	Pair 2 PSD	Pair 3 PSD	Pair 4 PSD	Average	Min PSD	Units
100BaseTX	4 MHz			0.2	0.2	0.2	0.2	dB
	16 MHz			0.2	0.2	0.2	0.2	dB
	31 MHz			0.2	0.1	0.15	0.1	dB
	55 MHz			0	-0.1	-0.05	-0.1	dB
1000BaseT	76 MHz			-0.4	-0.6	-0.5	-0.6	dB
	100 MHz			-0.8	-1.2	-1	-1.2	dB
	4 MHz	-0.3	-0.3	0.1	-0.2	-0.175	-0.3	dB
	16 MHz	-0.1	0	-0.1	-0.3	-0.125	-0.3	dB
	31 MHz	-0.4	-0.2	-0.1	-0.4	-0.275	-0.4	dB
	55 MHz	-0.5	-0.3	-0.4	-0.5	-0.425	-0.5	dB
	76 MHz	-0.9	-0.6	-0.8	-1.1	-0.85	-1.1	dB
	88 MHz	-1.3	-0.8	-1.3	-1.1	-1.125	-1.3	dB

100BaseT Wide Band PSD



1000BaseT Wide Band PSD



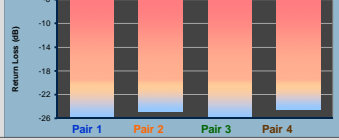
Estimated Mask Fits

Link Rate	Rise/Fall Time: 4x1 nsec	Pair 1 Fit	Pair 2 Fit	Pair 3 Fit	Pair 4 Fit
100BaseTX			4.21	4.35	
1000BaseT	Test Signal #1 Mask Fit	Fit_OK	Fit_OK	Fit_OK	Fit_OK

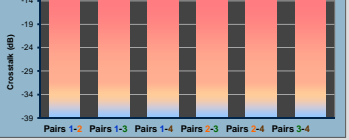
Skew, Echo, Xtalk

Time Skew	1000BaseT Interfaces				Average	Maximim	Units	
	Pair 1	Pair 2	Pair 3	Pair 4				
Return Loss	0	8	0	8	0	8	nsec	
	-26	-24.9	-26	-24.5	-25.35	-24.5	dB	
Crosstalk	Pairs 1-2		Pairs 1-3		Pairs 2-4		Pairs 3-4	
	-39	-39	-39	-39	-39	-39	-39	dB

Wideband Return Loss



Wideband Crosstalk



Receiver Tests Maximum Impairment

10Base-T MDI Line Loss and	Packets
Slew_Rate= 5_ns -2.7dB	100 %
Tx Offset= -50 ppm	100 %
Tx Offset= 50 ppm	100 %
Tx Offset= -100 ppm	100 %
Tx Offset= 100 ppm	100 %
Noise 10 dB(40mV)	100 %
Noise 14 dB(40mV)	100 %
Jitter 11.5 dB(1.4ns)	100 %
Jitter 16 dB(1.4ns)	100 %
Noise+Jitter 10.5 11.5 dB & dB	100 %
Noise+Jitter 13.5 15 dB & dB	100 %

100Base-Tx MDI Line Loss and	Packets
Slew_Rate= 5_ns -2.7dB	100 %
Tx Offset= -50 ppm	100 %
Tx Offset= 50 ppm	100 %
Tx Offset= -100 ppm	100 %
Tx Offset= 100 ppm	100 %
Noise 5 dB(40mV)	100 %
Noise 11 dB(40mV)	100 %
Jitter 8.5 dB(1.4ns)	100 %
Jitter 14 dB(1.4ns)	100 %
Noise+Jitter 4.7 5 dB & dB	100 %
Noise+Jitter 10 13 dB & dB	100 % SNR1

1000Base-T MASTER: Line Loss and	Packets
Slew_Rate= 3.5_ns -1.9dB	100 %
Tx Offset= -50 ppm	100 %
Tx Offset= 50 ppm	100 %
Tx Offset= -100 ppm	100 %
Tx Offset= 100 ppm	100 %
Noise 1.5 dB(40mV)	100 %
Noise 4 dB(40mV)	100 %
Jitter -4 dB(1.4ns)	100 %
Jitter -2 dB(1.4ns)	100 %
Jitter 0 dB(1.4ns)	100 %
Noise+Jitter -1.5 -4.5 dB & dB	100 %
Noise+Jitter -1 -3 dB & dB	100 %
Noise+Jitter 3.5 -1 dB & dB	100 % SNR3

10Base-T MDI-X Line Loss and	Packets
Slew_Rate= 5_ns -2.7dB	100 %
Tx Offset= -50 ppm	100 %
Tx Offset= 50 ppm	100 %
Tx Offset= -100 ppm	100 %
Tx Offset= 100 ppm	100 %
Noise 10 dB(40mV)	100 %
Noise 14 dB(40mV)	100 %
Jitter 11.5 dB(1.4ns)	100 %
Jitter 16 dB(1.4ns)	100 %
Noise+Jitter 10.5 11.5 dB & dB	100 %
Noise+Jitter 13.5 15 dB & dB	100 %

100Base-Tx MDI-X Line Loss and	Packets
Slew_Rate= 5_ns -2.7dB	100 %
Tx Offset= -50 ppm	100 %
Tx Offset= 50 ppm	100 %
Tx Offset= -100 ppm	100 %
Tx Offset= 100 ppm	100 %
Noise 5 dB(40mV)	100 %
Noise 11 dB(40mV)	100 %
Jitter 8.5 dB(1.4ns)	100 %
Jitter 14 dB(1.4ns)	100 %
Noise+Jitter 4.7 5 dB & dB	100 %
Noise+Jitter 10 13 dB & dB	100 % SNR2

1000Base-T SLAVE: Line Loss and	Packets
Slew_Rate= 5_ns -2.7dB	100 %
Tx Offset= -100 ppm	100 %
Tx Offset= 100 ppm	100 %
Tx Offset= -115 ppm	100 %
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

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

Local Rx Health (Lowest Pair)	SNR	SNR dB
100 Base-Tx	SNR1	28.6
100 Base-Tx	SNR2	31.6
1000 Base-T	SNR3	23.1
1000 Base-T	SNR4	23.1

PHY Performance Test Suite Report

Color Key: Nominal Marginal Failure Suite Version: 5.3.11 05-01-23 PVA HW Ver: 2



192.168.221.108 Test Port: 6,1 Date: May 1 2023 Time: 4:20 PM DUT Type: Sample 10/100/1000Base-T Switch Port 3

Basic Capabilities

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	Siv Fault	Stability	Details			
1000Base-T Links	YES	AUTO	NONE	NONE	NONE	OK	N/A		

Link Verification and Integrity

	MDI Connection				MDI-X Connection			
	10BaseT	100BaseTx	Master	1000BaseT Slave	10BaseT	100BaseTx	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
Link Time*(sec)	0.3	0.2	1.3	1.8				

* Link Time is auto-negotiated for MDI/MDI-X

Transmitter & Interface Tests

Tx Power Level

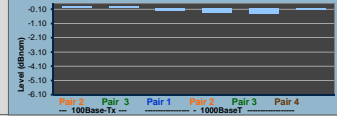
Link Rate	Pair 1	Pair 2	Pair 3	Pair 4	Units
100BaseTX		0.1	0.1		dBVnom
1000BaseT	-0.2	-0.3	-0.4	-0.1	dBVnom

1000 Tx Power Adaptation	Cable Len?	PVA Stim.
NO		N/A

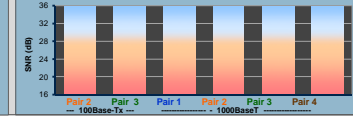
Signal Quality (SNR)

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

Transmit Power Levels

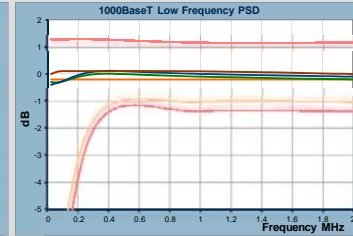
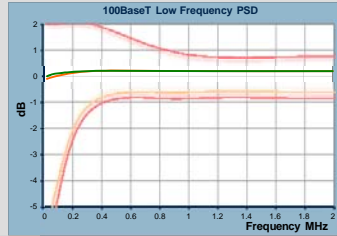


Residual Distortion & Noise



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			-0.1	0	-0.05	-0.1	dB
	0.08 MHz			0	0.1	0.05	0	dB
	0.33 MHz			0.2	0.2	0.2	0.2	dB
	1 MHz			0.2	0.2	0.2	0.2	dB
1000BaseT	2 MHz			0.2	0.2	0.2	0.2	dB
	0.02 MHz	-0.4	-0.2	-0.3	0	-0.225	-0.4	dB
	0.08 MHz	-0.3	-0.2	-0.3	0.1	-0.175	-0.3	dB
	0.33 MHz	0.1	-0.2	0	0.1	0	-0.2	dB
	1 MHz	0	-0.2	-0.1	0.1	-0.05	-0.2	dB
	2 MHz	-0.1	-0.2	-0.2	0	-0.125	-0.2	dB

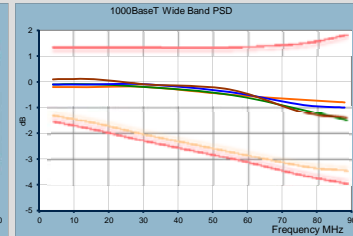
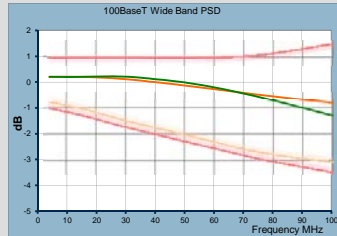


Estimated Pk-Pk Voltage & Droop	Pair 1 Vpp	Pair 2 Vpp	Pair 3 Vpp	Pair 4 Vpp
100BaseTX	2.042	2.042		
1000BaseT	1.489	1.473	1.473	1.506

PSD Trace Color Key:	Pair 1	Pair 2	Pair 3	Pair 4
Marginal Limit Line				
Failing Limit Line				

Wide Band PSD

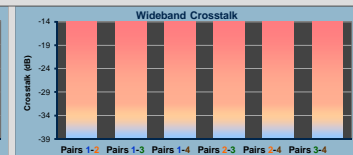
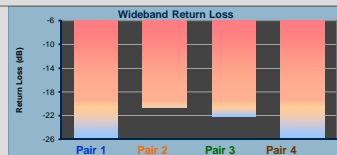
Link Rate	Frequency	Pair 1 PSD	Pair 2 PSD	Pair 3 PSD	Pair 4 PSD	Average	Min PSD	Units
100BaseTX	4 MHz		0.2	0.2	0.2	0.2	0.2	dB
	16 MHz		0.2	0.2	0.2	0.2	0.2	dB
	31 MHz		0.1	0.2	0.1	0.1	0.1	dB
	55 MHz		-0.2	-0.1	-0.1	-0.1	-0.15	-0.2
1000BaseT	76 MHz		-0.5	-0.6	-0.5	-0.55	-0.6	dB
	100 MHz		-0.8	-1.3	-1.05	-1.05	-1.3	dB
	4 MHz	-0.1	-0.2	-0.1	0.1	-0.075	-0.2	dB
	16 MHz	-0.1	-0.2	-0.1	0.1	-0.075	-0.2	dB
	31 MHz	-0.1	-0.2	-0.2	-0.1	-0.15	-0.2	dB
	55 MHz	-0.4	-0.5	-0.5	-0.3	-0.425	-0.5	dB
	76 MHz	-0.9	-0.7	-1.1	-1.2	-0.975	-1.2	dB
	88 MHz	-1	-0.8	-1.5	-1.4	-1.175	-1.5	dB



Estimated Mask Fits	Pair 1 Fit	Pair 2 Fit	Pair 3 Fit	Pair 4 Fit
100BaseTX	4.24	4.24	4.37	
1000BaseT	Fit OK	Fit OK	Fit OK	Fit OK

Skew, Echo, Xtalk

Time Skew	Pair 1	Pair 2	Pair 3	Pair 4	Average	Maximim	Units
Return Loss	-26	-20.7	-22.1	-26	-23.7	-20.7	dB
Crosstalk	-39	-39	-39	-39	-39	-39	dB



Receiver Tests Maximum Impairment

100Base-T MDI Line Loss and	Packets
Slew_Rate= 5 ns -2.7dB	100 %
Tx Offset= -50 ppm	100 %
Tx Offset= 50 ppm	100 %
Tx Offset= -100 ppm	100 %
Tx Offset= 100 ppm	100 %
Noise 10 dB(40mV)	100 %
Noise 14 dB(40mV)	100 %
Jitter 11.5 dB(1.4ns)	100 %
Jitter 16 dB(1.4ns)	100 %
Noise+Jitter 10.5 11.5 dB & dB	100 %
Noise+Jitter 13.5 15 dB & dB	100 %

100Base-Tx MDI Line Loss and	Packets
Slew_Rate= 5 ns -2.7dB	100 %
Tx Offset= -50 ppm	100 %
Tx Offset= 50 ppm	100 %
Tx Offset= -100 ppm	100 %
Tx Offset= 100 ppm	100 %
Noise 5 dB(40mV)	100 %
Noise 11 dB(40mV)	100 %
Jitter 8.5 dB(1.4ns)	100 %
Jitter 14 dB(1.4ns)	100 %
Noise+Jitter 4.7 5 dB & dB	100 %
Noise+Jitter 10 13 dB & dB	100 % SNR1

1000Base-T MASTER: Line Loss and	Packets
Slew_Rate= 3.5 ns -1.9dB	100 %
Tx Offset= -50 ppm	100 %
Tx Offset= 50 ppm	100 %
Tx Offset= -100 ppm	100 %
Tx Offset= 100 ppm	100 %
Noise 1.5 dB(40mV)	100 %
Noise 4 dB(40mV)	100 %
Jitter -4 dB(1.4ns)	100 %
Jitter -2 dB(1.4ns)	100 %
Jitter 0 dB(1.4ns)	100 %
Noise+Jitter -1.5 -4.5 dB & dB	100 %
Noise+Jitter -1 -3 dB & dB	100 %
Noise+Jitter 3.5 -1 dB & dB	100 % SNR3

100Base-T MDI-X Line Loss and	Packets
Slew_Rate= 5 ns -2.7dB	100 %
Tx Offset= -50 ppm	100 %
Tx Offset= 50 ppm	100 %
Tx Offset= -100 ppm	100 %
Tx Offset= 100 ppm	100 %
Noise 10 dB(40mV)	100 %
Noise 14 dB(40mV)	100 %
Jitter 11.5 dB(1.4ns)	100 %
Jitter 16 dB(1.4ns)	100 %
Noise+Jitter 10.5 11.5 dB & dB	100 %
Noise+Jitter 13.5 15 dB & dB	100 %

100Base-Tx MDI-X Line Loss and	Packets
Slew_Rate= 5 ns -2.7dB	100 %
Tx Offset= -50 ppm	100 %
Tx Offset= 50 ppm	100 %
Tx Offset= -100 ppm	100 %
Tx Offset= 100 ppm	100 %
Noise 5 dB(40mV)	100 %
Noise 11 dB(40mV)	100 %
Jitter 8.5 dB(1.4ns)	100 %
Jitter 14 dB(1.4ns)	100 %
Noise+Jitter 4.7 5 dB & dB	100 %
Noise+Jitter 10 13 dB & dB	100 % SNR2

1000Base-T SLAVE: Line Loss and	Packets
Slew_Rate= 5 ns -2.7dB	100 %
Tx Offset= -100 ppm	100 %
Tx Offset= 100 ppm	100 %
Tx Offset= -115 ppm	100 %
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

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

Local Rx Health (Lowest Pair)	SNR	SNR dB
100 Base-Tx	SNR1	23.9
100 Base-Tx	SNR2	29.2
1000 Base-T	SNR3	23.7
1000 Base-T	SNR4	24.9

PHY Performance Test Suite Report

Color Key: Nominal Marginal Failure Suite Version: 5.3.11 05-01-23 PVA HW Ver: 2



192.168.221.108 Test Port: 6,2 Date: May 1 2023 Time: 4:20 PM DUT Type: Sample 10/100/1000Base-T Switch Port 4

Basic Capabilities

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=XX	YES	AUTO	LINKED
Rx_OK	Gig Mode	M-S Fault	Mstr Fault	Siv Fault	Stability	Stability Details			
1000Base-T Links	YES	AUTO	NONE	NONE	NONE	OK	N/A		

Link Verification and Integrity

	MDI Connection				MDI-X Connection			
	10BaseT	100BaseTx	Master	1000BaseT Slave	10BaseT	100BaseTx	Master	1000BaseT Slave
Full Duplex	100	100	100	100	100	100	N/A	N/A
Half Duplex	100	100	N/A	N/A	100	100	N/A	N/A
Link Time*(sec)	0.4	0.2	1.3	1.8	* Link Time is auto-negotiated for MDI/MDI-X			

Transmitter & Interface Tests

Tx Power Level

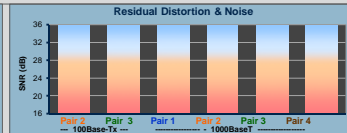
Link Rate	Pair 1	Pair 2	Pair 3	Pair 4	Units	1000 Tx Power Adaptation	
100BaseTX		0.1	0.1		dB/nom	Cable Len?	PVA Stim.
1000BaseT	-0.3	-0.5	-0.2	-0.2	dB/nom	NO	N/A

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

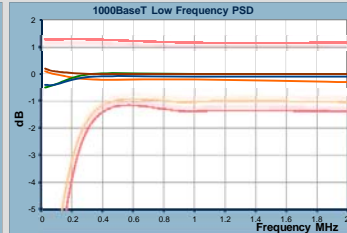
Low Frequency PSD

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	-0.3	-0.25	-0.3	dB
	0.08 MHz			0	-0.1	-0.05	-0.1	dB
	0.33 MHz			0.2	0.1	0.15	0.1	dB
	1 MHz			0.2	0.1	0.15	0.1	dB
1000BaseT	2 MHz			0.2	0.1	0.15	0.1	dB
	0.02 MHz	-0.4	-0.1	-0.5	0.2	-0.15	-0.5	dB
	0.08 MHz	-0.4	0	-0.4	0.1	-0.175	-0.4	dB
	0.33 MHz	-0.1	-0.2	0	0	-0.075	-0.2	dB
	1 MHz	-0.1	-0.2	0	0	-0.075	-0.2	dB
	2 MHz	-0.1	-0.3	0	0	-0.1	-0.3	dB



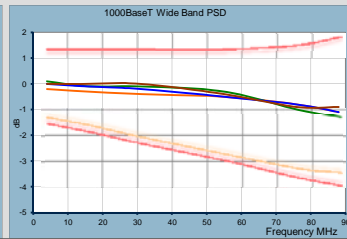
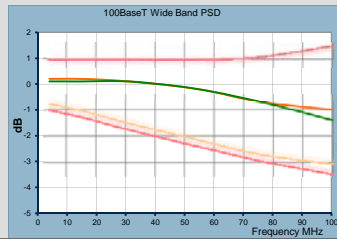
Estimated Pk-Pk Voltage & Droop	Pair 1 Vpp	Pair 2 Vpp	Pair 3 Vpp	Pair 4 Vpp
100BaseTX	2.042	2.019		
1000BaseT	1.489	1.456	1.506	1.506

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			0.2	0.1	0.15	0.1	dB
	16 MHz			0.2	0.1	0.15	0.1	dB
	31 MHz			0.1	0.1	0.1	0.1	dB
	55 MHz			-0.2	-0.2	-0.2	-0.2	dB
	76 MHz			-0.7	-0.7	-0.7	-0.7	dB
1000BaseT	100 MHz			-1	-1.4	-1.2	-1.4	dB
	4 MHz	0	-0.2	0.1	0	-0.025	-0.2	dB
	16 MHz	-0.1	-0.3	-0.1	0	-0.125	-0.3	dB
	31 MHz	-0.2	-0.4	-0.1	0	-0.175	-0.4	dB
	55 MHz	-0.5	-0.5	-0.3	-0.4	-0.425	-0.5	dB
	76 MHz	-0.8	-0.8	-1	-0.9	-0.875	-1	dB
	88 MHz	-1.1	-1.1	-1.3	-0.9	-1.1	-1.3	dB

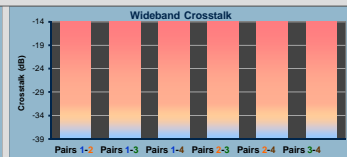
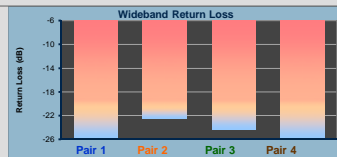


Estimated Mask Fits	Pair 1 Fit	Pair 2 Fit	Pair 3 Fit	Pair 4 Fit
100BaseTX	4.33	4.37		
1000BaseT	Fit OK	Fit OK	Fit OK	Fit OK

PSD Trace Color Key:	Pair 1	Pair 2	Pair 3	Pair 4
Marginal Limit Line	█	█	█	█
Failing Limit Line	█	█	█	█

Skew, Echo, Xtalk

Time Skew	Pair 1	Pair 2	Pair 3	Pair 4	Average	Maximim	Units		
Return Loss	-26	-22.5	-24.3	-26	-24.7	-22.5	dB		
Crosstalk	Pairs 1-2	Pairs 1-3	Pairs 1-4	Pairs 2-3	Pairs 2-4	Pairs 3-4	Average	Maximim	Units
	-39	-39	-39	-39	-39	-39	-39	-39	dB



Receiver Tests Maximum Impairment

10Base-T MDI Line Loss and	Packets
Slew_Rate= 5 ns -2.7dB	100 %
Tx Offset= -50 ppm	100 %
Tx Offset= 50 ppm	100 %
Tx Offset= -100 ppm	100 %
Tx Offset= 100 ppm	100 %
Noise 10 dB(40mV)	100 %
Noise 14 dB(40mV)	100 %
Jitter 11.5 dB(1.4ns)	100 %
Jitter 16 dB(1.4ns)	100 %
Noise+Jitter 10.5 11.5 dB & dB	100 %
Noise+Jitter 13.5 15 dB & dB	100 %

100Base-Tx MDI Line Loss and	Packets
Slew_Rate= 5 ns -2.7dB	100 %
Tx Offset= -50 ppm	100 %
Tx Offset= 50 ppm	100 %
Tx Offset= -100 ppm	100 %
Tx Offset= 100 ppm	100 %
Noise 5 dB(40mV)	100 %
Noise 11 dB(40mV)	100 %
Jitter 8.5 dB(1.4ns)	100 %
Jitter 14 dB(1.4ns)	100 %
Noise+Jitter 4.7 5 dB & dB	100 %
Noise+Jitter 10 13 dB & dB	100 % SNR1

1000Base-T MASTER: Line Loss and	Packets
Slew_Rate= 3.5 ns -1.9dB	100 %
Tx Offset= -50 ppm	100 %
Tx Offset= 50 ppm	100 %
Tx Offset= -100 ppm	100 %
Tx Offset= 100 ppm	100 %
Noise 1.5 dB(40mV)	100 %
Noise 4 dB(40mV)	100 %
Jitter -4 dB(1.4ns)	100 %
Jitter -2 dB(1.4ns)	100 %
Jitter 0 dB(1.4ns)	96.6 %
Noise+Jitter -1.5 -4.5 dB & dB	100 %
Noise+Jitter -1 -3 dB & dB	100 %
Noise+Jitter 3.5 -1 dB & dB	100 % SNR3

10Base-T MDI-X Line Loss and	Packets
Slew_Rate= 5 ns -2.7dB	100 %
Tx Offset= -50 ppm	100 %
Tx Offset= 50 ppm	100 %
Tx Offset= -100 ppm	100 %
Tx Offset= 100 ppm	100 %
Noise 10 dB(40mV)	100 %
Noise 14 dB(40mV)	100 %
Jitter 11.5 dB(1.4ns)	100 %
Jitter 16 dB(1.4ns)	100 %
Noise+Jitter 10.5 11.5 dB & dB	100 %
Noise+Jitter 13.5 15 dB & dB	100 %

100Base-Tx MDI-X Line Loss and	Packets
Slew_Rate= 5 ns -2.7dB	100 %
Tx Offset= -50 ppm	100 %
Tx Offset= 50 ppm	100 %
Tx Offset= -100 ppm	100 %
Tx Offset= 100 ppm	100 %
Noise 5 dB(40mV)	100 %
Noise 11 dB(40mV)	100 %
Jitter 8.5 dB(1.4ns)	100 %
Jitter 14 dB(1.4ns)	100 %
Noise+Jitter 4.7 5 dB & dB	100 %
Noise+Jitter 10 13 dB & dB	100 % SNR2

1000Base-T SLAVE: Line Loss and	Packets
Slew_Rate= 5 ns -2.7dB	100 %
Tx Offset= -100 ppm	100 %
Tx Offset= 100 ppm	100 %
Tx Offset= -115 ppm	100 %
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

Summary	10Base-T	100Base-Tx	1000Base-T
Line Loss	Limited	Good	Excellent
SNR	Limited	Good	Excellent
Overall	Limited	Good	Excellent

Local Rx Health (Lowest Pair)	SNR dB
100 Base-Tx SNR1	28.3
100 Base-Tx SNR2	26.5
1000 Base-T SNR3	23.6
1000 Base-T SNR4	24.3

PHY Performance Test Suite Limits

	Fail Below:	Marginal Below:	Marginal Above:	Fail Above:	Units
Link Integrity	99	99	100	100	Counts
Rx Power Level					
100BaseT Low	-0.90	-0.75	0.57	0.72	dB
1000BaseT Low	-1.68	-1.28	0.93	1.13	dB
Signal Quality (SNR)	27	31	36	36	dB
Low Frequency PSD					
20 KHz (100BaseT)	-9.00	-7.40	1.80	2.00	dB
80 KHz (100BaseT)	-5.00	-4.30	1.80	2.00	dB
330 KHz (100BaseT)	-1.25	-1.00	1.80	2.00	dB
1 MHz (100BaseT)	-0.85	-0.60	0.60	0.85	dB
2 MHz (100BaseT)	-0.85	-0.60	0.55	0.80	dB
20 KHz (1000BaseT)	-12.20	-10.00	1.05	1.30	dB
80 KHz (1000BaseT)	-8.25	-6.75	1.05	1.30	dB
330 KHz (1000BaseT)	-1.75	-1.45	1.05	1.30	dB
1 MHz (1000BaseT)	-1.35	-1.00	0.95	1.20	dB
2 MHz (1000BaseT)	-1.35	-1.00	0.95	1.20	dB
Wide Band PSD					
4 MHz (100BaseT)	-1.00	-0.75	0.70	1.00	dB
16 MHz (100BaseT)	-1.30	-1.05	0.70	1.00	dB
31 MHz (100BaseT)	-1.75	-1.50	0.70	1.00	dB
55 MHz (100BaseT)	-2.40	-2.15	0.70	1.00	dB
76 MHz (100BaseT)	-2.95	-2.70	0.80	1.10	dB
100 MHz (100BaseT)	-3.45	-3.05	1.15	1.50	dB
4 MHz (1000BaseT)	-1.55	-1.30	1.10	1.40	dB
16 MHz (1000BaseT)	-1.85	-1.60	1.10	1.40	dB
31 MHz (1000BaseT)	-2.30	-2.05	1.10	1.40	dB
55 MHz (1000BaseT)	-2.95	-2.70	1.10	1.40	dB
76 MHz (1000BaseT)	-3.60	-3.25	1.20	1.55	dB
88 MHz (1000BaseT)	-3.90	-3.40	1.35	1.85	dB
1000BaseT Skew	0	0	16	24	nsec
Bulk Return Loss	-26	-26	-20.5	-19	dB
Bulk Crosstalk	-39	-39	-34	-31	dB
10BaseT Rx Performance					
Packet Rx %	95	99.9	100	100	Packet %
Link_Check =	DOWN	UP	UP	UP	
100BaseT Rx Performance					
Link Monitor / Packet Rx %	≤ 95	99.8	100	100	%
Link_Check =	DOWN	UP	UP	UP	
1000BaseT Rx Performance					
Link Monitor / Packet Rx %	≤ 95	99	100	100	%
Link_Check =	DOWN	UP	UP	UP	

Impair Level:
Maximum

Estimations	Term 2	Term 1	Term 0	Fail Below:	Marginal Below:	Marginal Above:	Fail Above:
100BaseTX Pk-Pk Voltage	0	1.0131	0.0172	1.79	1.88	2.12	2.22
1000BaseT Pk-Pk Voltage	0	1.0256	-0.0361	1.28	1.34	1.66	1.73
100Base Rise/Fall Δ dB < 0.25	-1.0057	6.434	-10.056	2.64	2.88	5.20	5.60
100Base Rise/Fall Δ dB ≥ 0.25		-1.1827	4.24				
1000BaseT Mask Fit				-2.50	-1.76	0.40	0.55
Droop% (100BaseTx)	-0.0002	0.0053	0.9822	81.00%	85.00%	101.00%	101.00%
Droop% (1000BaseT)	-0.00011	0.0072	0.9576	72.00%	78.00%	101.00%	101.00%

PhyView Analyzer Measurements

Measurement	Description	Reported Units
Auto-Negotiation Parameters	Link Partner Base & Extended Page Advertisements & Acks: These parameters are related to the information obtained during initial auto-negotiation with the port-under-test.	AUTO-NEG: EXTENDED BASE NO ACKS: EXTENDED BASE NO N/A 1000BaseT: FULL HALF HALF-FULL NO 100BaseTX: FULL HALF HALF-FULL NO 10BaseT: FULL HALF HALF-FULL NO N/A 100BaseT4: YES NO N/A PAUSE: RESPOND XMT RESPOND+XMT NO N/A
	Link Partner Base Status & Capabilities: LINK_OK: link partner remote fault indicator MDI_MDI-X: indicates if link partner is Auto-MDI or not NLP_LINK: indicates if link partner will link without auto-neg.	LINK_OK: YES FAULT N/A MDI_MDI-X: AUTO MDI_ONLY MDI-X_ONLY N/A NLP_LINK (No Auto-Neg): LINKED UNLINKED
	Gigabit Link Status & Capabilities Rx_OK: Indicates error free performance of link partner receiver GIG_MODE: Indicates ability to link both MASTER & SLAVE M-S FAULT: Indicates Master-Slave resolution fault MSTR_FAULT: Indicates fault forcing SLAVE to port-under-test SLV_FAULT: Indicates fault forcing MASTER to port-under-test STABILITY: Assesses if links are stable after auto-negotiation to maximum link rate. Specifically look for Ports that cannot link 1000Base-T with wideband 2 or 3 dB loss in link. STABILITY DETAILS: Explanation for an UNSTABLE link. PVA_Coupler_Loss: indicates inability to link 1000Base-T with wideband 2 or 3 dB loss in link. Interop_Slave & Interop_Master indicate instability when forced to SLAVE or MASTER. Forced_Auto-Negs indicates poor response to forced auto-neg restart (100Base-Tx). Periodic_Drops indicates occasional spontaneous link drops (100Base-Tx)	Rx_OK: YES NO N/A GIG_MODE: AUTO MASTER_ONLY SLAVE_ONLY N/A M-S FAULT: NONE FAULT N/A MSTR_FAULT: NONE FAULT N/A SLV_FAULT: NONE FAULT N/A STABILITY_OK: UNSTABLE N/A DETAILS: PVA_Coupler_Loss Forced_Auto-Negs Periodic_Drops Interop_Slave Interop_Master
Link Verification and Integrity	Link Monitor (Stability) measurements of each advertised capability. Link Up Time: measuring time from physical connection until operable link. Link Time is measured without forcing MDI or MDI-X.	Link Monitor: Count 0-100 where 100 is 100% stable Link Up Time: Seconds (resolved to 0.1 seconds)
Tx Power Level	Wideband RF Power at DUT interface relative to an ideal transmitted signal (100BaseTx or 1000BaseT). 1000 Tx Pwr Cable Adapt is a flag that indicates that the port-under-test has a proprietary feature to reduce 1000Base-T transmit power when it perceives a short cable length connection.	dB(nominal) Where "nomina" is the ideal wideband power level specified for a 1000BaseTx or 1000BaseT transmitter. (A0dB result is therefore ideal.)
1000 Tx Power Adaptation	Cable Len?: Flag to indicate if low Tx Power Level in 1000Base-T is the result of DUT adjusting transmit power based upon perceived link length. NO means low power is always low regardless of link length. YES means port-under-test is adjusting power based on perceived cable length. PVA_Sm: Rx Level- Ports that adjust 1000Base-T Tx power based on received power level. Cable_Length- Ports that adjust 1000Base-T Tx power based on 'measured' cable length. Fixed- Ports that operate with reduced Tx power regardless of link length.	See Sites Application Note: Assessing Low Power Transmitters - PhyView Analyzer
SNR	Signal-to-Noise Ratio (SNR) characterizes all forms of non-correctable signal distortion including noise or crosstalk, ingress, signal compression and severe ISI (inter-symbol interference).	dB (Ideal Signal Power / Residual Distortion Components) The measurement ceiling for SNR is 36 dB - this corresponds to a distortion level of 1 part in 4000.
PSD	Power Spectral Distortion (PSD) characterizes the spectral frequency response of a LAN transmitter relative to that of an ideal transmitted signal (100BaseTx or 1000BaseT).	dB (33 frequency points over selected range). The measurement floor is below -25 dB.
Echo Response	Bulk (wideband) Echo Response is equivalent to Return Loss in a typical RF transmission system. It characterizes total reflected energy across the frequency spectrum and therefore assesses the degree of deviation from a nominal 100% transmission line.	dB Ratio of total reflected to total transmitted power. Measurements are normalized to test port calibrations. The measurement floor is -26 dB.
Crosstalk	Bulk (wideband) Crosstalk is equivalent to Isolation in a typical RF transmission system. It characterizes total power transmitted between any two specified pairs with the assumption that these transmissions are bi-directional on average.	dB. Ratio of total ingress (crosstalk) power to total transmitted power. Measurement are normalized to test port calibrations. The measurement floor is -30 dB.
Pair Skew	Pair Skew reports any symbol period timing differences between pairs in a 1000BaseT link. Each measurement reports 4 pairs, of which 3 pairs are each compared to a reference pair.	nsec. Measurement granularity is one symbol period, or 8 nsec per pair.
Link Stability (Link Monitor)	Samples live link status (10/100BaseT) and/or gigabit remote receiver status (1000BaseT) to assess link stability. Counts from 1 to 100 samples with sampling interval configurable as 20, 50, or 100msec.	Type: Link Status or Gigabit Remote Rx Status Count: 1 to 100 of Link "Up" or Remote Rx "OK" Indications
Packet Count	Count of Received MAC Frames. Each PVA-3000 port can transmit user-configured MAC frames with programmable size, burst duration, packet gap, and repeating 4-byte payload pattern. Each PVA-3000 port will count incoming MAC frames either independent of or coincident with MAC frame transmission. If Packet Count is negative (e.g. -105%), then the DUT is emitting many more packets than the test is transmitting and therefore compromising the integrity of the packet flow measurement.	Packet Count (Continuous transmission is supported with counts into billions of packets.)

PHY Performance Test Suite Estimated Parameters

Measurement	Description	Applicable Industry Specification
UTP Diff. Volts Pk-Pk	Estimate of Peak-Peak amplitude of the 1000BaseTx MLT-3 transmitted waveform. Estimate will be accurate to -2.5% (or ± 25mV) of reported Vpk-pk value.	ANSI X3.264 Clauses 9.1.2.2 & 9.1.10 Vpk- 1000±50mV, Vpk-pk- 2000±100mV
500ns Droop%, >2.4msec	Estimate of the %Droop allowed in 1000BaseTx Transmitted Waveform over a 500nsec measurement period. Reported as (100-droop%), similar to 1000BaseT Droop%. Typical accuracy will be ±4% of reported value.	IEEE 802.3 Clause 25.4.4a $V_e = V_0 * e^{(t/\tau)}$ where τ must be greater than 2.4 μ sec = 81.2% (or 18.8% maximum droop)
Pk. Diff. Volts T.S. #1 A->B	Estimate of Peak-Peak amplitude of the 1000BaseT Test Signal #1 from Pt. A to Pt. B with 2MHz High Pass Filter applied. Estimate will be accurate to -2.5% (or ± 25mV) of reported Vpk-pk value.	IEEE 802.3 Clause 40.6.1.2.1 1.34V ≤ Vpk-pk ≤ 1.64V NOTE: 100/1000BaseT transmitters are subject to a more stringent requirement under 1000BaseT specification.
Droop% T.S. #1 F->G,H->J	Estimate of the %Droop of the 1000BaseT Test Signal #1 measured from Pt. F to Pt. G or Pt. H to Pt. J. Reported as (100-droop%). Typical accuracy will be ±5% of reported value.	IEEE 802.3 Clause 40.6.1.2.2 Droop% > 73.1% (or < 24.9% measured droop) NOTE: 100/1000BaseT transmitters are subject to a more stringent requirement under 1000BaseT specification.
Rise/Fall Time: 4+1 nsec	Estimate of the 1000BaseTx Rise/Fall Time (or slew rate) of the MLT-3 transmitted waveform. Estimate will be typically be accurate to ± 0.4 nsec of reported value.	ANSI X3.264 Clauses 9.1.6 & 9.1.10 3 nsec ≤ Rise/Fall Time ≤ 5 nsec (measured 10% to 90%)
Test Signal #1 Mask Fit	This parameter estimates whether 1000BaseT Test Signal #1 will fit within the prescribed single-symbol pulse mask template given a hypothetical 2MHz high-pass measurement filter as defined in the standard. Possible outcomes are "OK", "Marginal", or "Fit Problem". Pulse Mask Fit is derived from PSD characteristics and will be affected by excessively slow or fast slew rates as well as any distortion affecting mid-range frequencies in the 16 - 64 MHz region.	IEEE 802.3 Clause 40.6.1.2.3 & Figure 40-26 Template #1 in Figure 40-26 defines the single-symbol pulse mask. NOTE: Template #2 Pulse Mask response is partially covered by the 1000BaseT Droop estimation above.

PhyView Analyzer Impairments for Rx Testing

Impairment	Description
Line Emulation	Emulates IEEE 802.3 worst case line loss (attenuation over frequency). May be applied to 2 or 4 pairs such that 1000BaseTx transmit can be separated from 1000BaseTx receive pair. This impairment models 90M Cat5e + 10M Cat5e patch cable and connector losses. Maintains 100 line impedance and approximately linear phase characteristics.
Noise (Alien Crosstalk)	Applies random noise per pair that is spectrally similar to 1000BaseTx. Noise source is isolated by 2.7dB from Test PHY so that DUT experiences greater noise levels. Amplitude is programmable from -6 dB to +21.5 dB in 0.5 dB steps where 0 dB corresponds to 1000BaseT 25mVpp amplitude.
Transmitter Offset	Applies a fixed frequency offset to transmitted 1000BaseTx and 1000BaseT signals. Frequency offset may be programmed to -115ppm, -100ppm, -50ppm, +50ppm, +100ppm, and +115ppm.
Transmitter Jitter	Applies random jitter to transmitted 1000BaseTx and 1000BaseT signals. Jitter level may be programmed to -6 dB to +24 dB in 0.5 dB steps where 0 dB corresponds to IEEE 802.3 specified 1.4 nsec peak peak jitter. Transmitter jitter is structured to meet 1000BaseT phase noise versus frequency profile such that jitter power above 5kHz is attenuated by -13.5 dB relative to total jitter power.
Transmitter Power	Transmitter power may be controlled on 1000BaseT and 1000BaseT signals over a range of -2.1 dB (or -25%). This range is then summed with a nominal 2.7dB fixed loss on all Test Ports. Ten power level steps are provided.
Transmitter Slew	Transmitter slew rate may be controlled on 1000BaseT and 1000BaseT signals over a range of 0.17V/nsec (or -75%). Eight slew rate steps are provided.

Local Rx Health	Description
SNR1, SNR2	SNR1 and SNR2 indicate the lowest PVA-side SNR reading observed during 1000Base-Tx Receiver Testing at the maximum Line Loss + Noise + Jitter impairment level. Because the Line Loss and Noise impairments are only applied to the outgoing Tx Pair during 1000Base-Tx testing, local PVA-side SNR should be relatively high for all impairment conditions. SNR's above -26 dB on the PVA receiver are assurance that any link drops or or packet loss are strictly related to port-under-test receiver performance under impairment.
SNR3, SNR4	SNR3 and SNR4 indicate the lowest PVA-side SNR reading observed during 1000Base-T Receiver Testing at the maximum Line Loss + Noise + Jitter impairment level in MASTER mode and maximum Line Loss + Noise + Frequency Offset in SLAVE mode. All impairments must be applied bi-directionally in 1000Base-T, though the PVA receiver is partially isolated from the Noise impairment. The goal is to maintain -23 dB or higher in the PVA receiver while performing Link Monitor or Packet Loss measurements of the port-under-test in order to assure that the impairments are not adversely affecting link stability on the PVA side of the link.