1000Base-T template

Test items: Template/Peak Volt/Droop

(1) Set PHY MDI or MDIX mode

=> Step1: PHY register setting offset 0x10=0x7800 (MDI mode)/0x7820(MDIX mode)

=> Step2: PHY register setting offset 0x0=0x9000

(2) Disable hibernation

=> Step3: PHY register setting offset 0x1d=0x000b Step4: PHY register setting offset 0x1e=0x3c80

(3) Set PHY 1000Base-T:

=> Step5: PHY register setting offset 0x00=0x140

(4) Set test mode 1:

=> Step6: PHY register setting offset 0x09=0x2200

Use Tektronix TDSET3 Ethernet Compliance Test Software as an example

Template	Configuration	Comments
Template/P eak Volt	 connect DUT to J490; connect the differential probe to: A P9; B P10; C P11; D P12. Tektronix: Select → 1000- T → Template/Volt → Select All(or test them one by one) → Configure → Disturbing signal:NO;Filter:Int → connect → View wfm → Run Test。 	Test A/B/C/D separately Use TC2 of the basic test fixture(TF-GBE)
Droop	 connect DUT to J490; connect the differential probe to: A P9; B P10; C P11; D P12. Tektronix: Select→1000-T→Droop→Select All→Configure→Disturbing signal:NO→connect→View wfm→Run Test。 	Test A/B/C/D separately Use TC2 of the basic test fixture(TF-GBE)

Test items: Jitter-Master mode

- (1) Set PHY MDI or MDIX mode
- => Step1: PHY register setting offset 0x10=0x7800 (MDI mode)/0x7820(MDIX mode)

(3)

- => Step2: PHY register setting offset 0x0=0x9000
- (2) Disable hibernation
- => Step3: PHY register setting offset 0x1d=0x000b
- Step4: PHY register setting offset 0x1e=0x3c80
- (3) Set PHY 1000Base-T:
- => Step5: PHY register setting offset 0x00=0x140
- (4) Set test mode 2:
- => Step6: PHY register setting offset 0x09=0x4200

Jitter Master	1)	connect DUT to J490;	Test
Filtered	2)		A/B/C/D
1	_,	A P9;	separately
		B P10;	oopa.acc.y
		C P11;	
		D P12.	T C2(
	3)		Use TC2 of
	,	T→Jit/Distortion→Jitter-	the basic
		Master:Filtered→Configure→TX_TCLK:NO→co	test
		nnect→View wfm→Run Test。	fixture(TF-
		meet / view wiiii / itali rest.	GBE)
Jitter Master	1)	connect DUT to J490;	Test
Unfiltered(TI	2)	connect the differential probe to:	A/B/C/D
E Method)		A P9;	separately
		B P10;	
		C P11;	
		D P12.	Use TC2 of
	3)	Tektronix: Select→1000-	the basic
		T→Jit/Distortion→Jitter-	test
		Master:Unfiltered \rightarrow Configure \rightarrow TX_TCLK:NO;	fixture(TF-
		Meas Type:TIE→connect→ View wfm→Run	GBE)
		Test。	
Jitter Master	1)	connect DUT to J490;	Test
Unfiltered(Hi	2)	connect the differential probe to:	A/B/C/D
stogram		A P9;	separately
Method)		B P10;	
		C P11;	
		D P12.	Use TC2 of
	3)	Tektronix: Select→1000-T→	the basic
			the busic

Jit/Distortion→Jitter-Master:Unfiltered	test
→Configure → TX_TCLK:NO; Meas	fixture(TF-
Type:Histogram→connect→View	GBE)
wfm→Run Test。	

Test items: Distortion/CM Voltage/Return loss

- (1) Set PHY MDI or MDIX mode
- => Step1: PHY register setting offset 0x10=0x7800 (MDI mode)/0x7820(MDIX mode)
- => Step2: PHY register setting offset 0x0=0x9000
- (2) Disable hibernation
- => Step3: PHY register setting offset 0x1d=0x000b

Step4: PHY register setting offset 0x1e=0x3c80

- (3) Set PHY 1000Base-T:
- => Step5: PHY register setting offset 0x00=0x140
- (4) Set test mode 4:
- => Step5: PHY register setting offset 0x09=0x8200

Distortion	1)	connect DUT to J490;	Test
	2)	connect the differential probe to:	A/B/C/D
		A P9;	separately
		B P10;	
		C P11;	
		D P12.	Use TC2 of
	3)	Tektronix: Select→1000-	the basic
		$T\rightarrow Jit/Distortion \rightarrow Distortion \rightarrow Configure \rightarrow$	test
		Disturbing signal:NO;	fixture(TF-
		$TX_TCLK:NO\rightarrow connect\rightarrow View wfm\rightarrow Run$	GBE)
		Test。	
CM Voltage	1)	connect DUT to J500;	Test
	2)	connect a BNC cable between J400 and the	A/B/C/D
	_,	configured channel of the oscilloscope;	separately
	3)	Short	,
		A J420;	
		В Ј430;	Use TC4 of
		C J431;	the basic
		D J440;	test
	4)	Tektronix: Select→1000-T→ CM	icst

Voltage→Configure→connect→View	fixture(TF-
wfm→Run Test。	GBE)

100Base-TX template test

Test items: all tests

(1) Set PHY MDI or MDIX mode

=> Step1: PHY register setting offset 0x10=0x7800 (MDI mode)/0x7820(MDIX mode)

=> Step2: PHY register setting offset 0x0=0x9000

(2) Disable hibernation

=> Step3: PHY register setting offset 0x1d=0x000b Step4: PHY register setting offset 0x1e=0x3c80

(3) Set PHY 100Base-TX:

=> Step4: PHY register setting offset 0x00=0x2000

Use Tektronix TDSET3 Ethernet Compliance Test Software as an example

	The state of the s	
All tests	1) DUT RJ45 connect to J490; Probe in P9;	Use TC2 of the
except	2) Tektronix: Select->100-TX->Parametric-	basic test
return loss	>Select All(or test them one by one)-	fixture(TF-GBE)
which uses	>Configure->Average->connect->View wfm-	
different	>Run Test.	
test fixture	277 110	
1	~ ~ ~	

10Base-Te template test

Test items: Link Pulse without Twisted-pair model, Link Pulse with Twisted-pair model

- (1) Set PHY MDI or MDIX mode
- => Step1: PHY register setting offset 0x10=0x7800 (MDI mode)/0x7820(MDIX mode)
- => Step2: PHY register setting offset 0x0=0x9000
- (2) Disable hibernation
- => Step3: PHY register setting offset 0x1d=0x000b

Step4: PHY register setting offset 0x1e=0x3c80

- (3) Set PHY 10Base-Te:
- => Step4: PHY register setting offset 0x00=0x100
- (4) Send link pulse out:
- =>Step5: PHY register setting offset 0x1d=0x0012
- =>Step6: PHY register setting offset 0x1e=0x4C07

Link Pulse without Twisted-pair model	 DUT RJ45 connect to TC6(J800);Probe in P20 Tektronix: Select→10-T→Template→Link Pulse→ A 100ohm W/O TPM (Short Load 3) 	Test A/B/C separately. Use TC6 of the basic test
	B Load 1 W/O TPM (Short Load 1)	fixture(TF- GBE)
	C Load 2 W/O TPM (Short Load 2)	
	→configure→Average→connect→View wfm	
	→Run Test.	
Link Pulse	1) DUT RJ45 connect to TC7(J990); Probe in P22; P21 NC.	Test A/B/C separately
with	2) Tektronix: Select→10-T→Template→Link	, ,
Twisted-pair	Pulse→	Use 10Base-
model	A 100ohm W/ TPM (Short Load 3)	Te test fixture(TF-
	B Load 1 W/ TPM (Short Load 1)	GBE-EE)
	C Load 2 W/ TPM (Short Load 2)	
	→configure→Average→connect→View	
	wfm→Run Test.	

Test items: MAU/MAU Inverted/TP_IDL/Differential Voltage/jitter/Common-mode output voltage/Return loss

- (1) Set PHY MDI or MDIX mode
- => Step1: PHY register setting offset 0x10=0x7800 (MDI mode)/0x7820(MDIX mode)
- => Step2: PHY register setting offset 0x0=0x9000
- (2) Disable hibernation
- => Step3: PHY register setting offset 0x1d=0x000b

Step4: PHY register setting offset 0x1e=0x3c80

- (3) Set PHY 10Base-Te:
- => Step4: PHY register setting offset 0x00=0x100
- (4) Send pseudo-random sequence signal out:
- =>Step5: PHY register setting offset 0x1d=0x0012
- =>Step6: PHY register setting offset 0x1e=0x4C06

MAU	1) DUT connect to (J6); Probe in P2; Short load3	Test A/B
	(100 ohm).	separately
	2) Tektronix: Select→10-T→MAU(Normal) →configure →MAU Type:	
		Use 10Base-Te test fixture(TF-

	A Internal; B External;	GBE-EE)
	MAC Scale: 0.9; Energy Efficient :Yes	
	Connect →View Wfm →Run Test。	
MAU Inverted	1) DUT connect to (J6); Probe in P2; Short load3 (100 ohm).	Test A/B separately
	2) Tektronix: Select→10-T→MAU (Inverted) →configure →MAU Type:	Use 10Base-Te
	MAC Scale: 0.9; Energy Efficient :Yes	test fixture(TF- GBE-EE)
	A Internal; B External;	
	Connect →View Wfm →Run Test。	
TP_IDL Without	1) DUT connect to TC6 (J800), Probe in P20. 2) Tektronix: Select→10-T→TP_IDL→	Test A/B/C separately
Twisted-pair model	A 100ohm W/O TPM (Short Load 3);	Use TC6 of the basic test
	B Load 1 W/O TPM (Short Load 1);	fixture(TF-GBE)
	C Load 2 W/O TPM (Short Load 2).	
	→configure→Average→connect→View wfm→Run Test。	
TP_ IDL With	1) DUT connect to (J6); Probe in P2; Short load3 (100 ohm).	Test A/B/C separately
Twisted-pair	2)Tektronix: Select→10-T→TP_IDL→	
model	A 100ohm W/ TPM (Short Load 3);	Use 10Base-Te
	B Load 1 W/ TPM (Short Load 1);	test fixture(TF- GBE-EE)
	C Load 2 W/ TPM (Short Load 2).	
	→configure →Average →connect →View Wfm→Run Test。	
Differential Voltage	1) DUT connect to TC6 (J800), Probe in P20 Short Load 3.	Template Voltage may be scaled by a factor of 1.1

	2) Tektronix: Select→10-T→Parametric→Diff	defined in
	Volt→ Min Max→	802.3az.
	Configure →Sample; Energy Efficient: Yes	Use TC6 of the basic test
	→connect →View Wfm →Run Test。	fixture(TF-GBE)
Jitter with cable	1) DUT connect to J6; Probe in P2; short Load 3.	Use 10Base-Te test fixture(TF-
Cable	2) Tektronix: Select→10-T→With Cable(TPM)	GBE-EE)
	→All→Configure→Sample→connect→View	
	wfm→Run Test。	
Jitter	1) DUT connect to TC6 (J800); Probe in P20; short	Use TC6 of the
without	Load 3.	basic test fixture(TF-GBE)
cable	2) Tektronix: Select→10-T→W/O Cable(TPM)	integration CDE,
	→All→Configure→Sample→connect→View	
	wfm→Run Test。	
Common-	1) DUT connect to TC4 (J500), SMA cable in J400	Use TC4 of the
mode	connect to oscilloscope; Short J420.	basic test
output	2) Tektronix: Select→10-T→CM	fixture(TF-GBE)
voltage	Voltage→Configure→connect→View wfm→Run	
	Test.	

Test items: Harmonic

(1) Set PHY MDI or MDIX mode

- => Step1: PHY register setting offset 0x10=0x7800 (MDI mode)/0x7820(MDIX mode)
- => Step2: PHY register setting offset 0x0=0x9000
- (2) Disable hibernation
- => Step3: PHY register setting offset 0x1d=0x000b

Step4: PHY register setting offset 0x1e=0x3c80

- (3) Set PHY 10Base-Te:
- => Step4: PHY register setting offset 0x00=0x100
- (4) Send pseudo-random sequence signal out:
- =>Step7: PHY register setting offset 0x1d=0x0012
- =>Step8: PHY register setting offset 0x1e=0x4C05

Harmonic	1) DUT connect to TC6 (J800), Probe in P20; short Load 3(100ohm).	Use TC6 of the basic test fixture(TF-GBE)
	2) Tektronix: Select→10-	TIXTUTE(TF-GBE)

T→Harmonic→Configure→connect→View	
wfm→Run Test。	

