HST-3000 Ethernet Layer 3 Traffic Testing



The following procedure outlines how to configure the HST-3000 utilizing the Electrical (*RJ*-45) Ethernet Interface to conduct a bit error rate test. Please read entire procedure **BEFORE** starting.

Menu selections are made from the HST-3000 front panel either by using the keypad to select the option number OR by using the arrow keys to scroll to the desired selection and pressing the OK key.

Please note that this same procedure may be used for Optical (MMF, SMF) Ethernet Interface, substituting appropriate Fiber Optic Connectors and selecting the **ETH OPTIC** soft key in Part 1, Step 2.



HST-3000 Front Panel:

Settings 🔺 Summary 🛛 Save 🔺

Part 1	1: Configuring the	he HST-3000						
Step	Action	Details						
1.	Power	Press the green Power Key to turn on the HST.						
2.	ETH ELEC	Press the ETH	ELEC Soft key to	o test 10/100/1000 Mbps				
		Ethernet via th	e SIM RJ-45 interf	face.				
3.	Terminate	Press the 1 key	on the Keypad to	select Terminate .				
4	Test	Press the 2 key	on the Keypad to	select Laver 3 IP Traffic.				
5	Configure	Press the Cont	figure Navigation 1	zev to configure test settings				
5.	Configure			to configure test settings.				
		Press keys 0 tr	rough 9 on the Ke	ypad, making appropriate				
		selections for A	Autonegotiation, E	ncapsulation, Load, and IP				
		Addressing Int	formation:	-				
		🖗 Summary S	ettings 🕺 🐔 🐔 🗍					
		1 - Test	Layer 3 IP Traffic					
		2 - Auto Negotiation	On					
		3 - Encapsulation	None					
		4 - Load(%)	100					
		5 - Source Type	Static IP					
		6 - Source IP	192.168.1.1					
		7 - Destination IP	192.168.1.2					
		8 - Subnet Mask	255.255.255.0					
		9 - Default Gateway	192.168.1.10					
		0 - Packet Length	40					
		Settings Al Summa	nv I Save 🔺					

6. Advance settings may be configured by pressing the **Settings** Soft key:

V2 Qt/Embedded VNC Server	C Qt/Embedded VNC Server	V2 Qt/Embedded VNC Server		
🕼 Summary Settings 👘 🕯 🐔	ी <u>∲Link Init</u> फे€ै	<u>∳IP</u> \$€		
1 - Test Layer 3 IP Traffic 1 - Summary Settings 2 2 - Test Mode he 3 - Link Init he 4 - Ethernet tic IP 5 - IP Init 1.168.1.1 7 - Traffic 2.168.1.2 8 - Error 5.255.265.0 9 - Filters 2.168.1.10 0 - Timer 2.680.0	1 - Auto Negotiation On 2 - Speed (Mbps) 1000 3 - Duplex Full 4 - Pause Quanta 1000	1 - Destination IP 192.168.1.2 2 - Time To Live 64 3 - TOS/DSCP Type Of Service: 0 4 - Protocol 0xF E 5 - Tx Payload Acterna 6 - Packet Length 40		
Ve Qt/Embedded VNC Server	Va Qt/Embedded VNC Server	Va Qt/Embedded VNC Server		
<u>VEthernet</u> fr		<u>ि Iraffic</u> के हे 🛛		
1 - Source Type Def. 00:80:16:45:07:8D 2 - Unit Identifier HST-3000 3 Destination Type Unicast	1 - ARP Mode Enable 2 - Source Type Static IP 3 - Source IP 102 168 1 1	1 - Load Type Constant 2 - Load Unit Percent 3 - Load (%) 100		
4 - Destination Type Official 4 - Destination MAC 00:00:00:00:00 5 - Frame Type DIX 6 - Encapsulation None	4 - Subnet Mask 255.255.2 5 - Default Gateway 192.168.1.10	3- Luau(//) 100		

Settings 🔺 Summary

Save

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Settings 🔺 Summary 🛛 Save 🔺

Part 2: Connecting to the Circuit					
Step	Action	Details			
1.	Home	Press the HOME Navigation Key to return to the Results Screen.			

2. Connect the HST-3000 to the line under test using the Electical RJ-45 connector labels R/T 1 on the left side of the SIM.



Part 3	Part 3: Verifying Connectivity						
Step	Action	Details					
1. 2.	Sync LED Restart	A green Sync LED indicates the Ethernet link is active Press the Restart soft key to reset counter and alarms. ALL SUMMARY RESULTS OK should be displayed. "ARP Successful" should also be displayed. Qt/Embedded VNC Server Summary Results HOME->Ethernet 10/100/1G Electrical Term Press CONFIGURE button to configure test 15:36:45: ARP Successful					
		ALL SUMMARY RESULTS OK Display Action Results Restart					

Part 4	1: P	Perfor	ming	the	Test
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Step	Action	Details
1.	Start Traffic	Press the Action soft key and select Start Traffic. Verify that
		Traffic is also started at far end test set.
2.	Data LED	A green Data LED indicates traffic is being received
3.	Insert Error	Press the Action soft key again, and then select 3-Insert Single
		FCS Error. Verify that the Error LED turns red and "Lost
		Frame 1" is displayed on the far end test set.
4.	Restart	Press the Restart soft key to reset counter and alarms.
		ALL SUMMARY RESULTS OK should be displayed.
5.	Test	Allow HST-3000 to perform test for desired amount of time.
6.	Display	Press the Display soft key to select Results views. Verify that
		test results in Link Stats and Error Stats meet requirements
		for the line under test.



Va Qt/Embedded VNC Server	
Server Stats HOME->Ethernet 10/100/1G Ele	trical Term 🏂 🐔 🗌
Laver 3 IP Traffic	
	<u>Port 1</u>
Undersized Frames	0 🔺
Runts	0
Jabbers	0
FCS Errored Frames	0
Errored Frames	0
IP Checksum Errors	0
Acterna Payload Errors	0
IP Packet Length Errors	0
OoS Frames	0 💳
Lost Frames	0 💌
Display 🔺 Action 🔺 R	esults 🔺 🛛 Restart

VA Ot/Embody	and VNC S	onv	ar.				
CINK Stats							
Laver 3 IP Traffic	net 10/100/	ne	Electrical Te	nm			
Lugor on munic				Port 1			
Total Util %. Cu	r			99.992			
Total Util %, Mir	n			99.991			
Total Util %, Avg	3			99.992			
Total Util %, Pe	ak			99.993 -			
Frame Rate, Mi	n n			256682			
Frame Rate, Av	g			257675			
Frame Rate, Pe	eak			258994			
Frame Size, Mir	1			64			
Flame Size, Avg	4		+	465 👱			
Display 🛋	Action	-	Results 🗕	Restart			
Va Qt/Embedo	led VNC S	erve	er				
🐼 Link S	tats			Ý. 🕈 🕈 📘			
HOME->Ether	net 10/100/	/1G	Electrical Te	rm			
<u>Laγer 3 IP Traffic</u>				_			
				Port 1			
Packet Size, Mi	n			40 🔺			
Packet Size, Av	g			446			
Rx Mbns Curl	1			999.92			
Rx Mbps, Cur L	2			958.77			
Rx Mbps, Cur L	3			920.19			
Tx Mbps, Cur L	1			999.91			
TX Mbps, Cur L. Ty Mbps, Cur L	2			958.70			
Delay, Min (us)	5			Unavail 💌			
Display 🔺	Action	4	Results 🔺	Restart			
V ^Q Ot/Embed	and VNC S	orvo	ar				
	1 - 1 -	91.14					
CINK S	tats	мо					
HUME->Ethen	net TU/TUU/	ne	Electrical Te	rm			
Lugorone traffic				Port 1			
Delay, Max (us)				Unavail			
Svc Disruption	0.13						
Packet Jitter, Av	0.00						
Packet Jitter, Ma	0.00						
VI AN ID	4.10 Unavail						
VLAN Priority	Unavail -						
SVLAN ID	Unavail						
SVLAN Priority Unavail							
OV/LONE Frances - 7				Lin avail -			
SVLAN Frame I	DEI	•1		Unavail 💌			

7. Display

Press the **Display** soft key to select additional Results views, if required to troubleshoot the line under test:

VC Qt/Embedded VNC Server			Va Qt/Embedded	VNC Serve	r	
& Auto-Neg Stats	÷ 🐔 🗌		IP Confic	1		Ť 🐔
HOME->Ethernet 10/100/1G Electrical Term	,		HOME->Ethernet 1	2 10/100/16 F	Electrical Terr	m
Laver 3 IP Traffic			Laver 3 IP Traffic			
	Port 1					Port 1
Link Advt Status	Done 🔺		Data Mode			IPoE
Link Config ACK	Yes		Source IP Addr		10	12 168 1 1
Speed (Mbps)	1000		IP Gateway		193	2168110
Duplex	Full		IP Subnet Mask		255.	255.255.0
10Base-TX FDX	Yes		Dest. IP Addr.		19	92.168.1.2
10Base-TX HDX	Yes		Destination MAC Ac	ldress	00:80:16	6:45:08:47
100Base-TX FDX	Yes					
100Base-TX HDX	Yes -					
1000Base-IXFDX	Yes					
1000Base-IX HDX						
Display 🔺 Action 🔺 Results 🔺	Restart		Display 🔺 🛛 A	lotion 🔺	Results 🔺	Restart
VS Qt/Embedded VNC Server			Va Qt/Embedded	VNC Serve	r	
🙉 LED Results	<u>э́ f 🗍 🚺 </u>		A link Cou	nts		Ý. 🐔
HOME->Ethernet 10/100/1G Electrical Terr			HOME->Ethernet 1	0/100/164	- Electrical Terr	m
Laver 3 IP Traffic		1	Laver 3 IP Traffic	0/100/10 1	- control field	
		1	Layor one marrie			Port 1
🗘 🍦 🛛 Sync Acquired			Dy France ALL		-	
🗘 🍦 🛛 Link Active			Ty Frames ALL		3	50219210
🗘 🍦 🛛 Frame Detect			Ry Frames		3	50210004
🗅 🍦 🛛 Acterna Detect			Rx Frame Bytes		1670	51379168
U VLAN Frame Detect	t		Tx Frame Bytes		1670	51409444
🗘 🗘 Q-in-Q Frame Detec	t		Rx Acterna Frames		3	59219210
🗘 🗘 Pause Frame Detec	t		Tx Acterna Frames		3	59217664
🖞 🍦 🛛 Packet Detect			Pause Frames			0
History			RX VLAN Frames			0
i natory			HX QINQ Frames			0
Display 🔺 Action 🔺 Results 🔺	Restart		Display 🔺 🛛 A	lotion 🔺	Results 🔺	Restart
			_			
Ve Qt/Embedded VNC Server			Va Qt/Embedded	VNC Serve	r	
Port 1 Event Table	Ť 🐔 🚺		Messade	s		î.€_[
HOME->Ethernet 10/100/1G Electrical Term	1		HOME->Ethernet 1	0/100/1GE	Electrical Terr	n
16:29:47 : Sending ARP request for destination M		1	16-29-46 · Waitin	a for APP	Service	
No. Event Date Start	Dur./Val. 🔺		16:29:40 . vvaltif 16:29:47 · Seedi	ng tui ARP i ng APP roo	upet for decti	instion
1 START 05/16/2009 04:29:27.6 PM	1		MAC	ng ARE req	uest for desti	mation
2 Link or 05/16/2000 04/20/24 e DM/	0.00.02.0		meto.			
2 LTIK LOSS 00/10/2009 04:29:41.6 PM (0.00:03.9					
3 Sync Loss 05/16/2009 04:29:41.6 PM (0:00:03.9					
4 Lost Frames 05/16/2009 04:29:46.5 PM	129271					
5 OoS Frames 05/16/2009 04:29:46.5 PM	1					
Display 🔺 Action 🔺 Results 🔺	Restart		Display 🔺 🔺	lotion 🔺	Results 🔺	Restart

- 8. Save Press the **Results** soft key and select **Save** to save test results.
- 9. Action

Press the **Action** soft key and select **1-Stop Traffic**.