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प्रकाश संवृ कर्षण परियोजना / Optical Fibre Cable Projects
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Lr No: Addl.GM/OFC/HD/Campus LAN/12-13/72

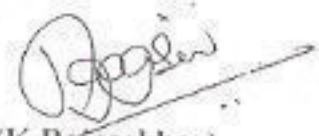
Dated: 01/12/2012.

सेवा में / To

All NMEICT Coordinators

Sub: Procedure for offering A/T of campus LAN in NME universities - regarding
Guide lines for carrying out Acceptance Testing (AT) of entire equipment installed by the vendor
including trench & OF Cable is hereby issued as under.

1. As soon as the installation of NMEICT LAN equipment including OFC laying is completed, the vendor shall request the SSA coordinator to offer for A/T to the inspection circle.
2. On the vendors request in writing, SSA Coordinators will offer for A/T to Inspection Circle (T&D Circle).
3. A/T will be offered through ATOMS as most of the SSA coordinators are having ATOMS username & Password.
4. If ATOMS username & password is not available with SSA coordinators, they can apply for the same to DGM (T&D) of their area.
5. If SSA coordinator did not get the username & password in time, A/T can be offered manually through T10 form.
6. A/T will be carried out by the respective DE (A/T) as per the test schedule approved by CGM (T&D), Jabalpur by conveying the dates for A/T to the SSA coordinator and to the vendor.
7. The SSA coordinator shall coordinate with the vendor during the entire process of A/T.
8. Test results shall be noted in the test schedule & will be signed by SSA coordinator, site in-charge deputed by the Vendor & A/T officer.
9. SSA coordinator shall hold one copy of the test results for future reference.
10. As soon as A/T is completed, the inspection circle shall issue commissioning memo within three to four working days.
11. For OF cable A/T, trench length shall be mentioned in the remarks column by the inspection circle.
12. A copy of the test results along with A/T certificate will be submitted by the vendor to SSA coordinator for bills processing.


(K. Rajasekhar)

Addl. General Manager, OFC Projects.
(National Coordinator for NME&NKN Projects)
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Encl. No. BA/NMEICT-Campus-LAN/2011-13/71 dt @CN1-8 the 17/11/13

Copy of the above letter & its enclosure are forwarded
to Heads of all SSA (except COM, DPI, ERD & TT SSAs) for
infn. & n/a pl.

H.S. Gudka
AGM (BAV),
o/o GM (NWP-CFA),
TN circle, CN1-8.

INFRASTRUCTURE TEST

S. No.	TEST DESCRIPTION	TEST PROCEDURE / REFERENCE	REMARKS
1	Network connectivity Diagram	As per approved Network diagram from officer in charge	
2	Check of earthing systems and its distribution to equipment	Earth resistance value should be < 0.5 ohm	
3	Cable laying & Terminations & marking on cables		
4	QA certificate of all equipment	For imported items factory test report is to be submitted	
5	Check of Documentation, Hard / soft copy.	As per P.O.	Latest version documentation with certificate.
6	General Check points	Visual check, sign writing etc.	
7	Check that all infra related equipments	As per Inspection Circle approved test schedule.	In case of existing it is to be ensured that these are operational.

Layer2/Layer-3 Switch(As Applicable)

S. No.	Test Item	Reference/Procedure	Remarks
1	Hardware Conformity		As per BOM or PO/Tender Document
2	Check of connectivity to switch		
3	Verify Host Name		
4	Verify IOS version		
5	Verify modules		
6	View Connections		
7	Test on VLAN		
8	IP address viewing		
9	Configurations		

10	Remote IP reachability		
11	Redundancy Check		
12	Power On Test		
13	Check of Alarms		
14	Check of proper working of GE/FE Ports		Verify all the ports
15	Log		

FIREWALL

S. No	Parameter	Procedure/Ref	Expected result
1	Functional check of firewall: Management service access <ol style="list-style-type: none"> a. Policy for FTP b. Data communication by n/w resource c. Support for common protocols viz http ,tftp ,IMAP,POP d. Live n/w monitoring e. Stateful connection oriented firewall f. Telnet function g. Management via <ol style="list-style-type: none"> 1. Web user interface(http and https) 2. Command line interface(console) 3. Secure command shell (ssh) h. The firewall systems shall provide the following security features: <ul style="list-style-type: none"> • Prevent of Deniel of service attack • Prevent unauthorized access to information • Prevent modification of information • Java Applet Filtering to stop dangerous Java applications on a per-client or per-IP address basis 	If part of PO	As per BSNL firewall policy To be checked as per TEC GR No. GR/FWS-01/02 SEP 2006)

2	<ul style="list-style-type: none"> Support for unicast Reverse Path forwarding to prevent IP spoofing attacks Prevent IP fragmentation attacks Support for ICMP filtering with configurable threshold UDP flood detection with configurable threshold Detect Ping of Death Detect Land attack Detect Win Nuke attack Filter IP source route option The Firewall system shall be able to filter packets based on the following criterion 		
3	<ul style="list-style-type: none"> The firewall shall Support filtering for at least following Internet Services: 		
4	<ul style="list-style-type: none"> The firewall shall support e-mail related filtering 		
5	<ul style="list-style-type: none"> The firewall shall support filtering for following authentication Protocols 		
6	<ul style="list-style-type: none"> The firewall shall support following filtering database applications: 		<p>2) Source and destination IP address, Source and destination IP address range (subnet), Protocol type , Port number, Fragments, Acknowledgement bits, Custom defined, Transmission Control Protocol (TCP), sequence numbers, TCP flags.</p> <p>3) TELNET, FTP, SMTP, HTTP, SNMP, UDP, ICMP ,RPC, DNS, DHCP, ARP, RTP</p> <p>4) MIME, S/MIME, Lotus Notes, Microsoft Exchange</p> <p>5) LDAP b) HTTPS c) RADILS d) TACACS</p> <p>6) Oracle, DB2, SOL</p>

Router Tests (Applicable for all Routers)

S. No.	Test	TEST PROCEDURE	Remarks
1	Hardware Conformity		
2	Router connectivity		
3	Verify Hostname		
4	View IOS version		
5	Verify modules		
6	View connections		

7	IP address viewing.		
8	Link status		
9	Configuration		
10	Route information		
11	Remote IP reachability		
12	View Neighbors		
13	MPLS functionality enable		IF APPLICABLE
14	Redundancy Check		Full Card Level / Router / Port Level Redundancy
15	Interface check.		
16	MPLS QoS Levels Check		IF APPLICABLE
17	Alarms		

Facility Management System.

S. No.	Test	TEST PROCEDURE	Remarks
1	Hardware Conformity(Console HW)		As per PO/Tender Document 1. Desktop Model 2. Dual Core CPU 3. Processor speed of minimum 2.6 GHz 4. 2 GB RAM 5. 1 TB of Usable Storage on 300/450 GB Disks or higher to meet RAID 10 6. combo DVD R/W drive 7. One Serial port & one parallel port 8. Two pairs of USB (USB 2.0 or above) ports 9. Two nos. of RJ45 GbE (10/100/1000) Ethernet ports 10. Preloaded OS with Original Licences copy (CD/DVD) 11. Desktop Antivirus, with one year subscription. 12. 17" TFT/LCD monitor or higher. 13. External Hard disk of 1TB capacity. 14. 100 Writable DVD's.
2	Security Management		
3	Log Management		Security/forensic analysis of logs for user identification etc.(store online logs for one month, Beyond this to

			be transferred to permanent storage)
4	Access Restriction management(Security Policies)		
5	Reporting Tool for generating customized reports from UTM.		All logs/reports must be grouped like Student Grouping, faculty grouping, not limited to just IP

Element Management System for Routers

S. No.	Test	TEST PROCEDURE	Remarks
1	Hardware Confirmity		
2	Viewing for topology Objects		
3	Interface Management 1. Viewing the interface information 2. Configuration of interface		
4	Link Management 1. Creating a link 2. Modify Link 3. View Links 4. Adding a device manually 5. Modify Link Name		
5	Alarm Management 1. Managing Alarm Templates 2. Browsing current alarms 3. Browsing history alarms 4. Dumping alarms manually		
6	Back up & Restoration		

TEST SCHEDULE FOR O.F.C. CABLE TRENCH DEPTH A/T.

ROUTE:

Modem selection:

Section under test:

Km Ref 1.

Dates of test:

2.

- LIMITS:**
1. Trench should be a depth of 100 cms within the campus without any protection
 2. Trench outside the campus needs protection with GI/DWC up to a depth of 100 cms
 3. Trench depth between 90 cms to 100 cms with protection of RCC full round for Normal area
 4. Trench depth between 90 cms to 100 cms with protection of GI for Road crossings.
 5. Trench depth between 60 cms to 90 cms with protection of CC (20x30cms) over GI.

**ALL MEASUREMENTS ARE FROM THE TOP OF HDPE Pipe/GI Pipe/RCC Pipe/CC.
CC:**

Test Pit No	Test pit location	Distance from CLR	DEPTH in cms	Nature of soil	Protection provided	Remarks
1						
2						
3						
4						
5						
6						
7						
8						

UTP Cable

S. No.	Test	TEST PROCEDURE	Remarks
1	Check for physical mounting of Rack		
2	Check for Network Support.		Should support for 10/100 ethernet, 155 Mbps ATM, 1000 Mbps IEEE802.3ab Ethernet
3	Check Of Performance & Connectivity		Attenuation, Pair to pair and PS NEXT, EL FEXT and PSELFEXT

			,Return Loss,ACR and PS ACR for Channel should Exceed the standard Specs by 400% Margin,Ping test for connectivity.
4	Check of UTP Cable laying		<ol style="list-style-type: none"> 1. Within 100 mtrs of channel, 6 terminations of cable should guarantee CAT6 performance 2. Should guarantee the CAT6 performance even when the termination of Information outlets are done within 15 mtrs of MDF 3. Check for the length of cable in each box(should be 305 mtrs) 4. Check for protection of cable with conduit
5	Check of UTP Jacks		Physical check for quality as per specification of Tender/PO
6	Check of UTP Patch panel		<ol style="list-style-type: none"> 1. Check for no of ports 2. Check for port arrangement 3. Check for circuit identification scheme 4. Check for port identification scheme

UPS:

UPS to be tested as per Inspection Circle Test Schedule no.TS_UPS_25072008 (Enclosed as a separate Attachment)