

QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR TELECOM INDUSTRY

What are Occupational Standards(OS)?

- OS describe what individuals need to do, know and understand in order to carry out a particular job role or function
- OS are performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding

Contact Us:

2nd Floor, PLOT :
105, Sector - 44,
GURGAON - 122003
T: 0124 - 4148029
E-mail:
tssc@tsscindia.com



Contents

1. Introduction and Contacts.....	1
2. Qualifications Pack.....	2
3. OS Units.....	3
4. Glossary of Key Terms.....	4
5. AssessmentCriteria.....	24

Introduction

Qualifications Pack- Wireless Technician

SECTOR: TELECOM

SUB-SECTOR: Passive Infrastructure

OCCUPATION: Operation & Maintenance

REFERENCE ID: TEL/Q4105

ALIGNED TO: NCO-2004/NIL

Brief Job Description: Wireless Technician is responsible for installation, configuration and testing of WiFi Backhaul Eqpt (5 GHz) and WiFi Access Points (2.4 GHz) for broadband access. He also establishes connectivity in the backhaul between WiFi nodes and Access Points at multiple sites and carries out basic trouble-shooting for identifying, localizing & rectifying cable, connectivity and equipment faults in coordination with Network Operation Centre (NOC).

Personal Attributes: This job requires the individual to have good communication skills with a clear diction; regional language proficiency; strong customer service focus; pleasant personality; should be self-motivated; should be able to apply practical judgment to successfully perform the assigned responsibilities and a team player with ability to work under pressure.

Job Details

Qualifications Pack Code	TEL/Q4105		
Job Role	Wireless Technician		
Credits (NSQF)	TBD	Version number	1.0
Sector	Telecom	Drafted on	30 /6/2016
Sub-sector	Passive Infrastructure	Last reviewed on	10/7/2016
Occupation	Operation & Maintenance	Next review date	10/7/2018
NSQC Clearance on	DD/MM/YYYY		

Job Role	Wireless Technician
Role Description	Wireless Technician is responsible for installation, configuration and testing of WiFi Backhaul Eqpt (5 GHz) and WiFi Access Points (2.4 GHz) for broadband access. He also establishes connectivity in the backhaul network.
NSQF level	4
Minimum Educational Qualifications*	10+2 class, Preferably
Maximum Educational Qualifications*	
Training (Suggested but not mandatory)	NA
Experience	NIL
Minimum entry Job Age	18 Years
Experience	NIL
Applicable National Occupational Standards (NOS)	Compulsory: 1. TEL/N4122 (WiFi Backhaul Equipment (5 GHz) &WiFi Access Points (2.4 GHz) wiring & Installation at different sites) 2. TEL/N4123(Configuration of Equipment and establishing connectivity) 3. TEL/ N4124(Troubleshoot to localize and rectify faults.) 4. TEL/ N4125 (UPS Installation & domestic Power supply checks.) 5. TEL/N2313(Health and Safety)
Performance Criteria	As described in the relevant OS units

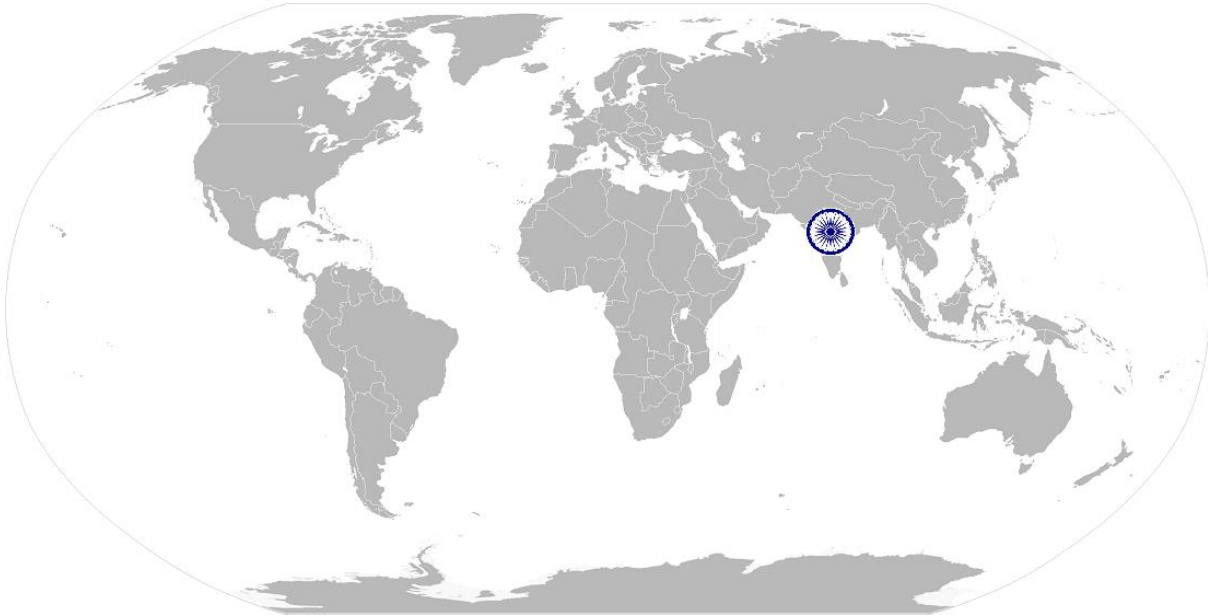
Definitions

Keywords /Terms	Description
Sector	Sector is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/related set of functions in an industry.
Function	Function is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of OS.
Job Role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
OS	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the knowledge and understanding they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria	Performance Criteria are statements that together specify the standard of performance required when carrying out a task.
NOS	NOS are Occupational Standards which apply uniquely in the Indian context.
Qualifications Pack Code	Qualifications Pack Code is a unique reference code that identifies a qualifications pack.
Qualifications Pack	Qualifications Pack comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification pack code.
Unit Code	Unit Code is a unique identifier for an Occupational Standard, which is denoted by an 'N'.
Unit Title	Unit Title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Knowledge and Understanding	Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to perform to the required standard.
Organizational Context	Organizational Context includes the way the organization is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills or Generic Skills	Core Skills or Generic Skills are a group of skills that are key to learning and working in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.

Acronym	Keywords /Terms	Description
	OFC	Optical Fiber Cable
	UTP	Un-shielded Twisted pair
	STP	Shielded Twisted Pair
	PoP	Point of Presence
	TCP	Transmission Control Protocol
	IP	Internet Protocol
	IPv4	Internet Protocol version 4
	IPv6	Internet Protocol version 6

TEL/N4122 WiFi Backhaul Equipment (5 GHz) & WiFi Access Points (2.4 GHz) wiring
& Installation at different sites

National Occupational Standard



Overview

This unit is about WiFi Backhaul Equipment (5 GHz) & WiFi Access Points (2.4 GHz) wiring & Installation at different sites.

TEL/N4122 WiFi Backhaul Equipment (5 GHz) & WiFi Access Points (2.4 GHz) wiring & Installation at different sites

National Occupational Standard

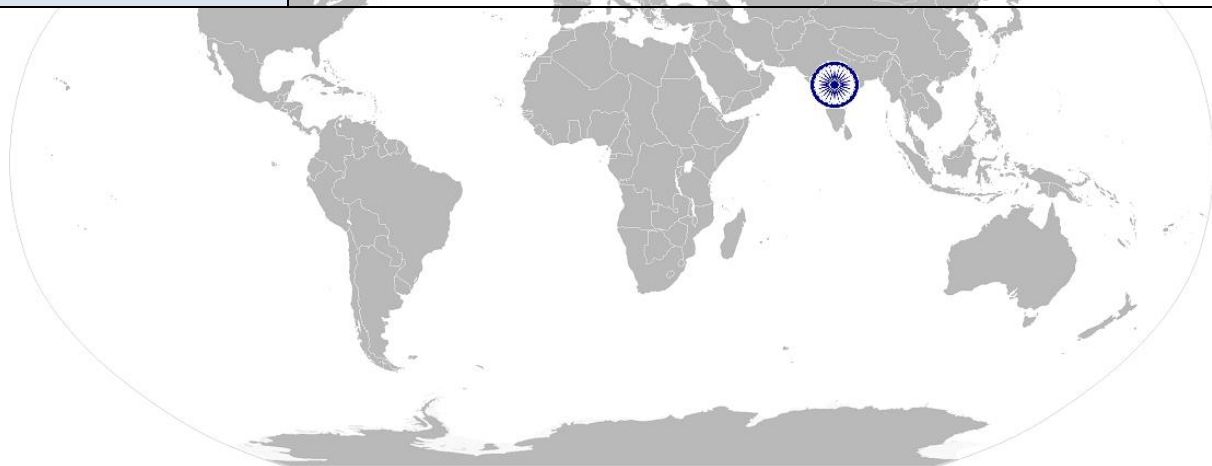
Unit Code	TEL/N4122
Unit Title (Task)	WiFi Backhaul Equipment (5 GHz) & WiFi Access Points (2.4 GHz) wiring & Installation at different sites.
Description	This unit is about cable/system wiring & installation of WiFi Backhaul equipment (5 GHz) along with Antenna at different sites as well as WiFi Access Points (2.4 GHz) as per the surveyed plan. Cables include OFC, UTP/STP, Co-axial cable and Feeder Cable for connecting the WiFi Backhaul Eqpt (5 GHz) with Antenna on Mast / Tower.
Scope	This unit/task covers the following: • Prepare the wiring & equipment installation of WiFi Backhaul Equipment (5 GHz), Antenna and WiFi Access Points (2.4 GHz). • Undertake wiring and install system hardware, cable route from PoP to WiFiEqpt sites, Access Points. • Cleanup worksite and complete documentation.
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Prepare the wiring & equipment installation of WiFi Backhaul Equipment (5 GHz), Antenna and WiFi Access Points (2.4 GHz).	To be competent, the user/individual on the job must be able to PC1. arrange access to sites according to required procedure. PC2. organize tools (Drill Machine, Wrench set, Hammer, Crimping tool, Screwdriver set etc), equipment to be installed as per survey and approved plan and materials (Pole with Antenna fixtures, Electrical cables, Distribution Box etc.) for a given work PC3. match cable type including feeder cable and connectors to installation environment and different site requirements as per the plan. PC4. check cable length for continuity using test equipment (level & measuring tape, electrical tester) PC5. verify cable route is free of electrical hazards and obstructions both outdoors and indoors. PC6. verify that the cable running length is free from obstruction for connecting the Eqpt with antenna at different sites. PC7. select suitable location for equipment installation at different site wrt Location of Mast / Tower & power point etc.
Undertake wiring and Install system hardware cable route from PoP to WiFiEqpt sites, Access Points.	PC8. ensure structured wiring from PoP to different sites as per surveyed site plan PC9. ensure neat wiring and clipping at all points up to the Eqpt at each site. PC10. ensure proper cable termination and use of appropriate connectors. PC11. ensure proper feeder cable termination between Eqpt and Antenna. PC12. test the cable & joints for transmission loss and strength. Re-terminate if loss exceeds prescribed limits. PC13. install equipment following electrical safety norms by principals and manufacturer's instructions PC14. power-up the system ensuring proper earthing arrangement
Clean up worksite and complete documentation	PC15. removal and proper dispose of installation waste PC16. restore worksite to customer's satisfaction PC17. update plans and records with details of installation and test results. PC18. complete all installation documents
Knowledge and Understanding (K)	

TEL/N4122 WiFi Backhaul Equipment (5 GHz) & WiFi Access Points (2.4 GHz) wiring & Installation at different sites

A. Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: KA1. risk and impact of not following defined procedures/work instructions issued as per guidelines. KA2. risk of working above the ground level on Mast / Towers. KA3. escalation matrix for reporting identified incidents, troubles and/ or emergencies e.g. system failures, fire and power failures KA4. records to be maintained and implications of non-maintenance of the same KA5. knowledge of obtaining cables and equipment from company and keeping them in safe conditions at sites. KA6. knowledge of payment options and procedures KA7. first aid requirements in case of electrical shocks, cuts, fall and other common injuries
B. Technical Knowledge	The person on the job needs to know and understand: KB1. cabling types (OFC, UTP, STP, Twisted Pair etc.) and connectors (RJ-45, RJ-11 etc.) as well as feeder cable and connectors. KB2. structured cabling norms (pertaining to laying the cables) KB3. working knowledge of cable laying, feeder cable laying and connectorisation KB4. knowledge of WiFi Backhaul Equipment (5.0 GHz), WiFi Access Points (2.4 GHz), all types of cable & connectors required in the system, Test & measuring instruments.
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: SA1. fill up appropriate technical forms, activity logs in required format of the company SA2. maintain proper records as per given format
	Reading Skills
	The user/ individual on the job needs to know and understand how to: SA3. read and understand manuals, work orders, health and safety instructions, memos, reports etc.
	Oral Communication (Listening and Speaking Skills)
	The user/ individual on the job needs to know and understand how to: SA4. courteous to the customers SA5. liasoning and coordination skills SA6. communicate with supervisor and peers SA7. communicate in the local language (preferable)
B. Professional Skills	Decision Making
	Not Applicable
	Plan and Organize
	The user/ individual on the job needs to know and understand how to: SB1. plan the sites as per the schedule SB2. organize all equipments (network testers, crimpers, connectors etc) and support from the team during the the setup SB3. plan testing activities

TEL/N4122 WiFi Backhaul Equipment (5 GHz) & WiFi Access Points (2.4 GHz) wiring & Installation at different sites

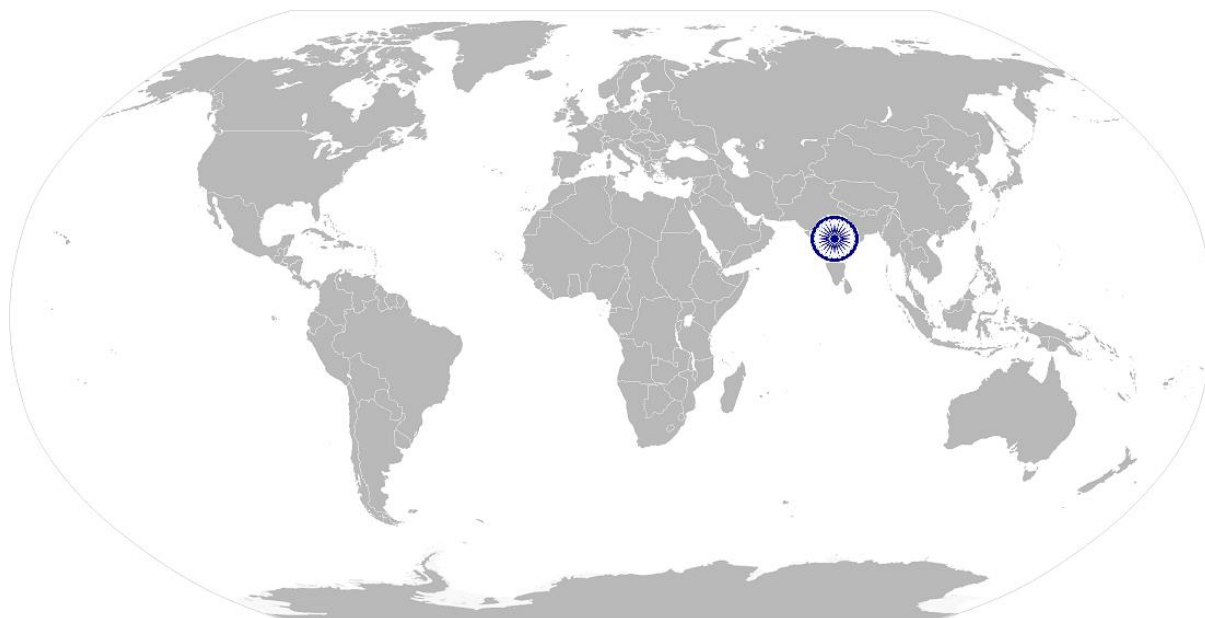
	SB4. time and work management
	Customer Centricity
	Not Applicable
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB5. read and comprehend/understand equipment installation manual SB6. perform fault clearance
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB7. select a suitable installation location adhering to cabling norms and signal coverage (for Wi-Fi backhaul equipment) SB8. climb the mast / Tower as per the requirement for laying of feeder cable and termination at antenna point as well as Eqpt point. SB9. work systematically with required attention to detail and adherence to all safety requirements
	Critical Thinking
	Not Applicable



**TEL/N4122 WiFi Backhaul Equipment (5 GHz) & WiFi Access Points (2.4 GHz) wiring
& Installation at different sites**

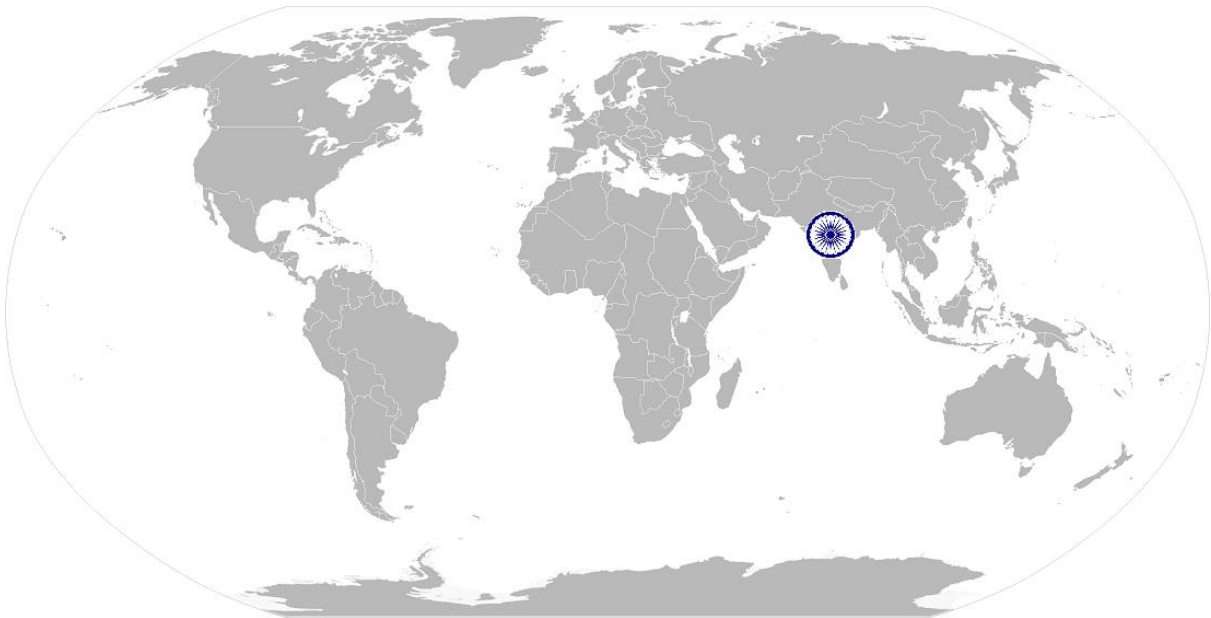
NOS Version Control

NOS Code	TEL /N4122		
Credits (NSQF)	TBD	Version number	1.0
Industry	Telecom	Drafted on	30 /6/2016
Industry Sub-sector	Passive Infrastructure	Last reviewed on	10 /7/2016
Occupation	Operation & Maintenance	Next review date	10/7/2018



TEL/N4123 Configuration of equipment and establishing broadband connectivity

National Occupational Standard



Overview

This unit is about Configuration of Equipment and establishing broadband connectivity.

TEL/N4123 Configuration of equipment and establishing broadband connectivity

National Occupational Standard

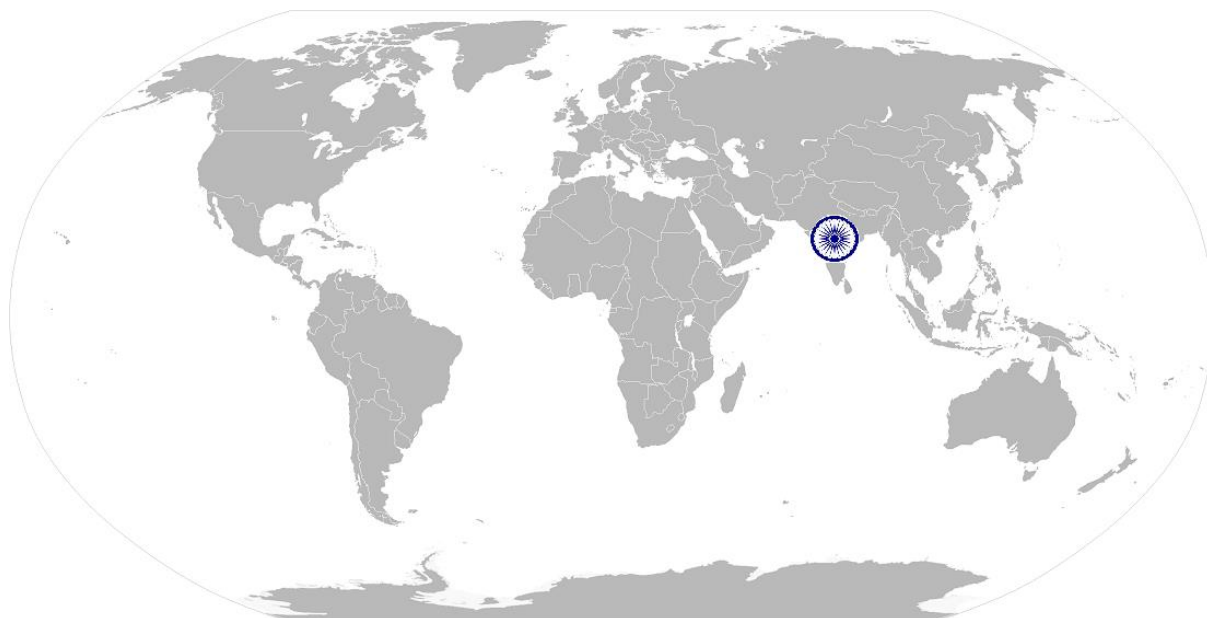
Unit Code	TEL/N4123
Unit Title (Task)	Configuration of Equipment and establishing broadband connectivity.
Description	This unit is about configuring of WiFiBackhaul Eqpt (5 GHz), WiFiAccess Points (2.4 GHz)and establishing broadband connectivity between two ends and service provider gateway and also between theWiFiBackhaul Equipment and Access Points.
Scope	This unit/task covers the following: • Configuration of WiFiBackhaul Eqpt (5 GHz), WiFiAccess Points (2.4 GHz) at different sites. • Establishing connectivity with the service provider gateway. • Establishing connectivity between WiFiBackhaul Eqpt and WiFiAccess points and end user devices. • Record configuration setting and testing steps.
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Configuration of WiFiBackhaul Equipment (5 GHz),WiFi Access Points (2.4 GHz) at different sites.	To be competent, the user/individual on the job must be able to: PC1. connect up Feeder Cable with Antenna at different sites and measure VSWR / Return loss. PC2. connect WiFiBackhaul Eqpt with feeder cable and check Antenna orientation to get surveyed receive levels. PC3. connect WiFiBackhaul Eqpt with WiFiAccess Points. PC4. connect up laptop/PC, and other appropriate device to the interface eqpt at WiFibackhaul Eqptand establish connectivity with WiFi Access Points. PC5. access setting using default login credentials PC6. configure as per the base setting (IP, Gateway, Mask etc.)
Establishing connectivity with the service provider gateway.	PC7. ensure all cables/connectors are correctly plugged in PC8. ping service provider gateway PC9. analyze test results for connectivity and throughput parameters
Establishing connectivity between WiFi Backhaul Eqpt and WiFi Access Points and End user devices	PC10. configure end user device to establish connectivity with the WiFi Access Point. PC11. ping WiFi access point from end user device and analyze response.
Record configuration setting and testing steps.	PC12. record WiFi Backhaul Equipment (5 GHz) configuration settings & test results at all sites. PC13. record WiFi Access Equipment (2.4 GHz) configuration settings& test results at all sites. PC14. record end user device configuration setting PC15. record pinging procedure and expected result parameters PC16. brief customer on basic trouble-shooting steps/self-help
Knowledge and Understanding (K)	
A. Organizational Context	The user/individual on the job needs to know and understand: KA1. risk and impact of not following defined procedures/work instructions as per

TEL/N4123 Configuration of equipment and establishing broadband connectivity

(Knowledge of the company / organization and its processes)	guidelines KA2. escalation matrix for reporting identified incidents, troubles and/ or emergencies e.g. system failures, fire and power failures KA3. knowledge of sourcing equipment and base configuration details KA4. first aid requirements in case of electrical shocks, cuts, fall and other common injuries
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. basic concepts of wireless technologies including WiFi conforming to 802.11 standards, Antennas, Feeder Cables, WiFi Access Points. KB2. network topologies, broadband network elements, Gateways, TCP/IP, IP address, subnet masks, Ethernet address, MAC address, IPv4, IPv6 KB3. basic commands like ping & IP configuration and acceptable round-trip time for IP packets KB4. configuration settings at WiFi Equipment & WiFi Access Points KB5. command line access and command prompts to execute basic commands KB6. knowledge of customer premise equipment KB7. features and operating requirements of test equipment KB8. how to test the speed of connection and to demonstrate same to customer
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to:
	SA1. record system configuration and testing procedure
	Reading Skills
	The user/ individual on the job needs to know and understand how to:
	SA2. read and comprehend technical data on networks, configurations and testing
	SA3. read and comprehend organizational policies and procedures
B. Professional Skills	Oral Communication (Listening and Speaking Skills)
	The user/individual on the job needs to know and understand how to:
	SA4. courteous to the customers
	SA5. liaisoning and coordination skills
	SA6. communicate with supervisor and peers
	SA7. communicate in the local language (preferable)
	Decision Making
B. Professional Skills	Not Applicable
	Plan and Organize
	Not Applicable
	Customer Centricity
	Not Applicable
	Problem Solving
	The user/individual on the job needs to know and understand how to:
B. Professional Skills	SB1. interpret configuration screens for entering correct details
	SB2. interpret ping results

TEL/N4123 Configuration of equipment and establishing broadband connectivity

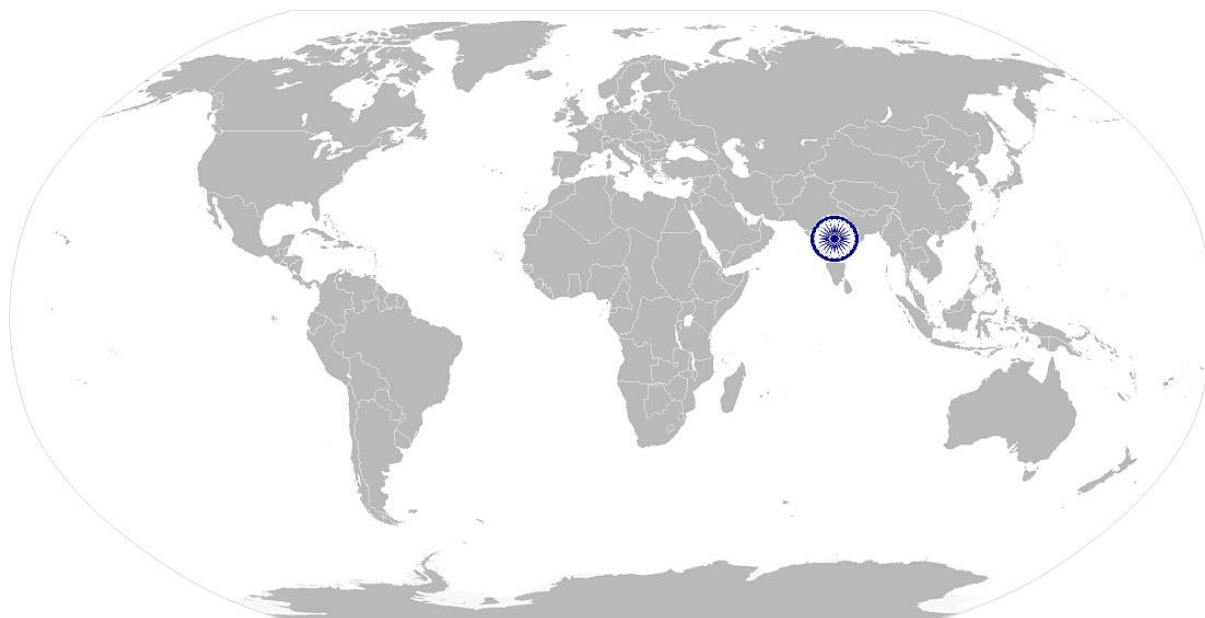
	SB3. interpret IP configuration and other basic command outputs
	SB4. interpret in-built diagnostics results for remedial action
	Analytical Thinking
	Not Applicable
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB5. configure WiFi Backhaul equipment & WiFi Access Points equipment SB6. test configuration SB7. level1 & 2 diagnostics



TEL/N4123 Configuration of equipment and establishing broadband connectivity

NOS Version Control

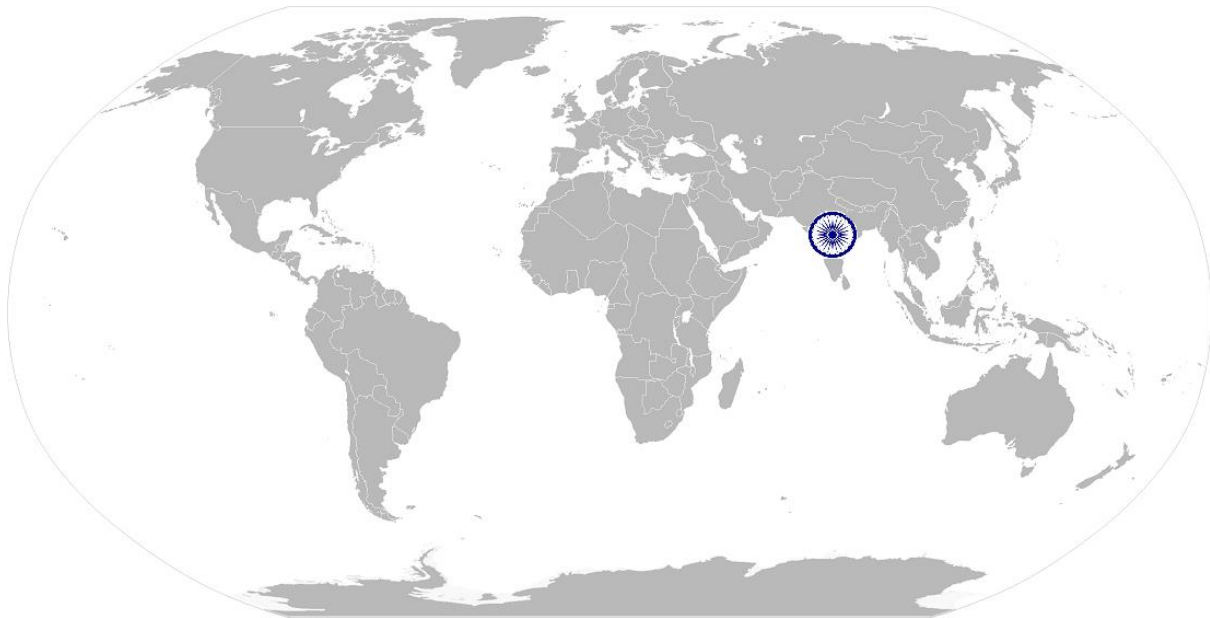
NOS Code	TEL /N4123		
Credits (NSQF)	TBD	Version number	1.0
Industry	Telecom	Drafted on	30 /6/2016
Industry Sub-sector	Passive Infrastructure	Last reviewed on	10 /7/2016
Occupation	Operation & Maintenance	Next review date	10/7/2018



TEL/N4124

Trouble – shoot to localize and rectify faults

National Occupational Standard



Overview

This unit is about troubleshooting to localize and rectify faults.

TEL/N4124

Trouble – shoot to localize and rectify faults

National Occupational Standard

Unit Code	TEL/N4124
Unit Title (Task)	Troubleshooting to localize and rectify faults
Description	This unit is about Performing corrective maintenance ,troubleshooting and testing effectiveness
Scope	This unit/task covers the following: • Locate and trouble shoot cable & connector fault. • Troubleshoot WiFi Backhaul Equipment (5Ghz) • Trouble shoot WiFi Access Points (2.4 GHz) • Rectify the faults with cable,connectors, backhaul equipments at service provider gateway, access point and end user devices • Complete documentation and clean up worksite
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Locate and trouble shoot cable & connector fault	To be competent, the user/individual on the job must be able to: PC1. differentiate between types of cables PC2. identify correct cable pairs PC3. undertake continuity check and localize fault distance
Troubleshoot WiFi Backhaul Equipment (5 GHz)	PC4. understand relevance of various indicative lights on the WiFiBackhaulequipment. PC5. connect Handheld Network Tester portable device for fault diagnostic. PC6. connect Cable & Antenna tester if required. PC7. check for Antenna orientation if required. PC8. decipher results to localize fault.
Trouble shoot WiFi Access Points (2.4 GHz)	PC9. understand relevance of various indicative lights on the WiFi Access Points equipment. PC10. connect Handheld Network Tester portable device for fault diagnostic. PC11. decipher results to localize fault. PC12. access WiFi Access Point through browser/software application and run diagnostic application.
Rectify the faults with cable,connectors, backhaul equipments at service provider gateway, access point and end user devices	PC13. carry out re-conectorization/crimping (of cable pairs with connector) or replace cable, if required PC14. replace feeder cable / antenna, if required. PC15. re-configure the WiFi Backhaul Eqptto correct settings, backhaul equipments at service provider gateway and end user devices if required. PC16. reset WiFi Access points, if required.
Complete documentation and clean up worksite	PC17. record steps undertaken for fault localization/isolation PC18. record changes undertaken for fault rectification PC19. restore any changes made to the worksite during fault repair to the client's satisfaction.
Knowledge and Understanding (K)	
A. Organizational Context	The user/individual on the job needs to know and understand: KA1. risk and impact of not following defined procedures/work instructions

TEL/N4124

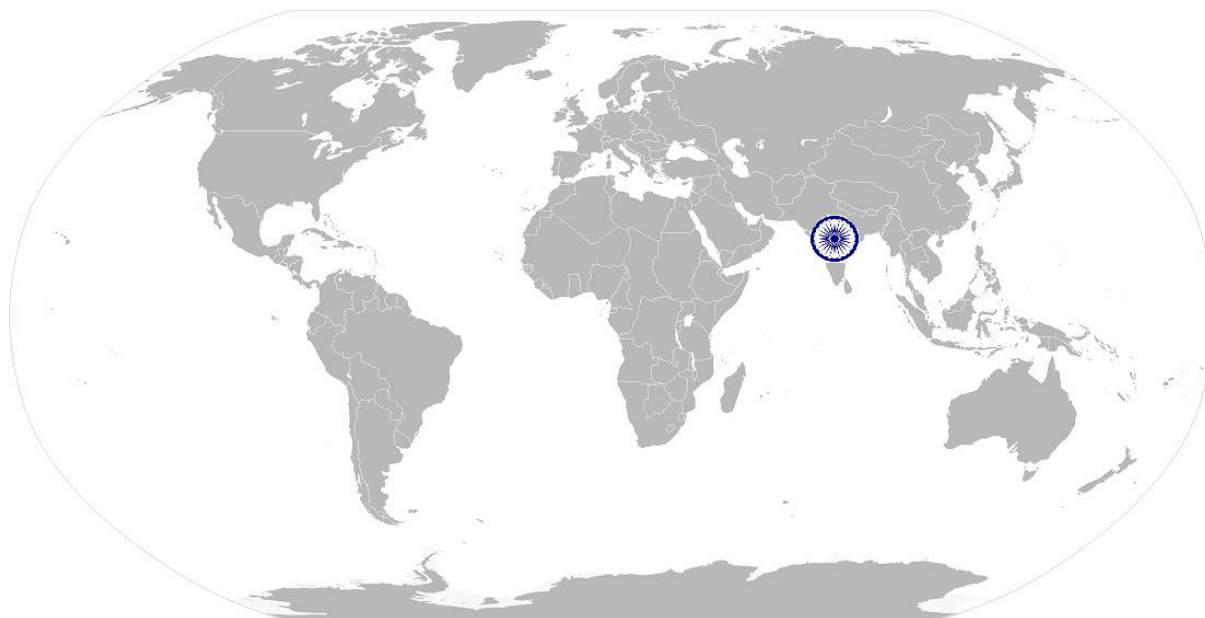
Trouble – shoot to localize and rectify faults

(Knowledge of the company / organization and its processes)	KA2. escalation matrix for reporting identified incidents, troubles and/ or emergencies e.g. system failures, fire and power failures KA3. knowledge of sourcing equipment and base configuration details KA4. guidelines and regulations as per company's norms KA5. first aid requirements in case of electrical shocks, cuts, fall and other common injuries usage of fire safety equipment
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. correct identifications of cables and cable pairs, feeder cable. KB2. knowledge of cable connectors, feeder cable connectors. KB3. crimping or soldering expertise KB4. knowledge of supported cable lengths to achieve designed throughput KB5. basic knowledge of EMI/EMC and preventive approach specific to modem KB6. use of test equipment such as Network Tester, cable & Antenna Tester etc.
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to:
	SA1. maintain proper records as per given format
	Reading Skills
	The user/ individual on the job needs to know and understand how to:
	SA2. read and comprehend technical manual and literature
	SA3. read and understand work orders, health and safety instructions, memos, reports etc.
B. Professional Skills	Oral Communication (Listening and Speaking Skills)
	The user/ individual on the job needs to know and understand how to:
	SA4. be courteous to end users/customers
	SA5. liaise with local authorities, especially for outdoor cabling
	SA6. communicate with supervisor and peers
	SA7. communicate in the local language
	Decision Making
	Not Applicable
	Plan and Organize
	Not Applicable
	Customer Centricity
	Not Applicable
	Problem Solving
	The user/individual on the job needs to know and understand how to:
	SB1. utilize appropriate tools for fault rectification
	SB2. use appropriate commands to reconfigure/rectify fault
	SB3. assess correct applications and reconfigure in end user device
	SB4. utilize appropriate communication channels to escalate unresolved problems.
	Analytical Thinking
	The user/ individual on the job needs to know and understand how to:
	SB5. interpret data on CPE interface accessed through laptop browser
	SB6. interpret right cable pairs for connectorisation

TEL/N4124

Trouble – shoot to localize and rectify faults

	SB7. interpret output of trouble shooting equipment/device
	Critical Thinking
	The user/ individual on the job needs to know and understand how to: SB8. operate trouble-shooting equipment for localizing cable & connector faults SB9. operate crimping and soldering equipment SB10. operate laptop or other specific portable device to connect to WiFi eqpt, WiFi access points and carryout fault diagnostics & repairs

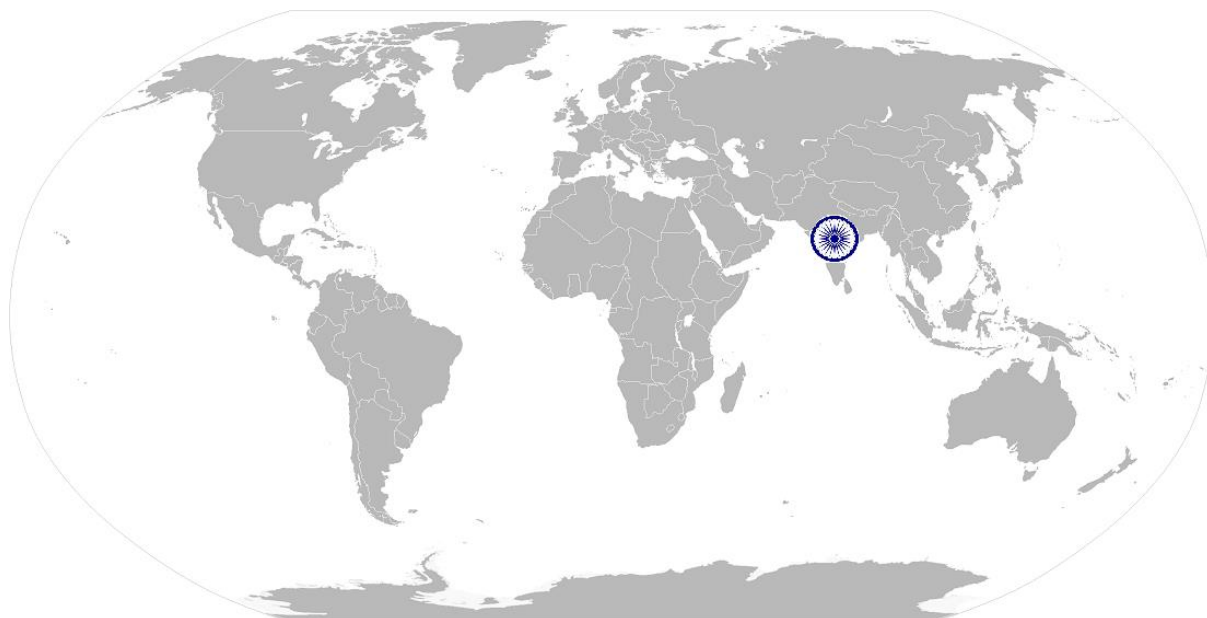


TEL/N4124

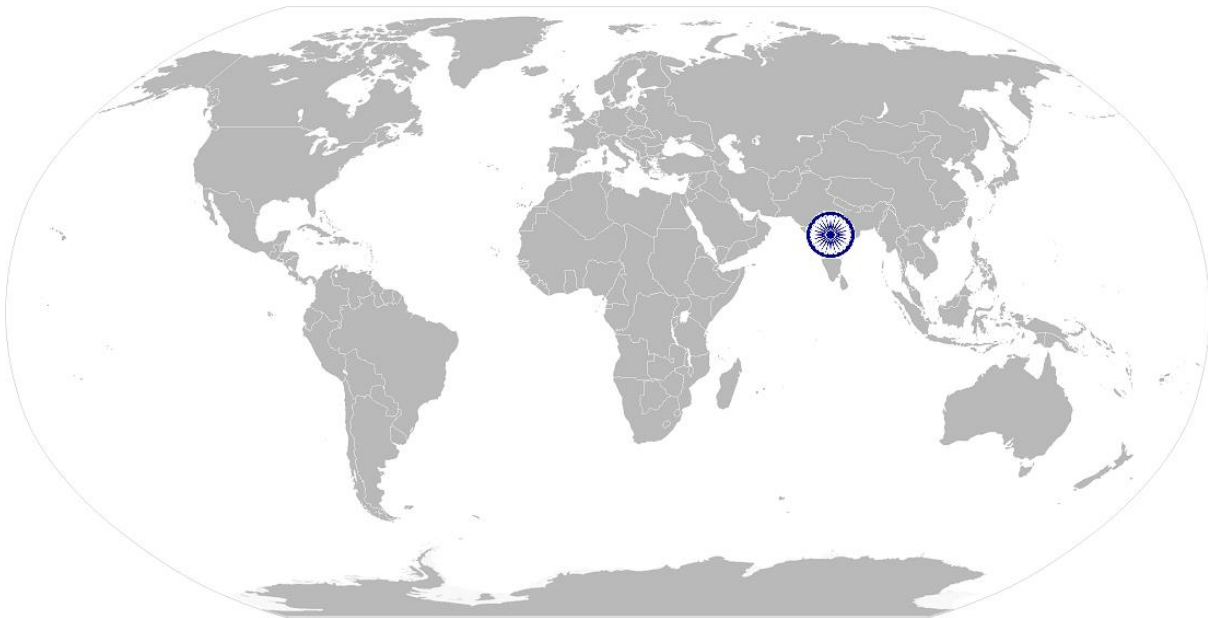
Trouble – shoot to localize and rectify faults

NOS Version Control

NOS Code	TEL /N4124		
Credits (NSQF)	TBD	Version number	1.0
Industry	Telecom	Drafted on	30 /6/2016
Industry Sub-sector	Passive Infrastructure	Last reviewed on	10 /7/2016
Occupation	Operation & Maintenance	Next review date	10/7/2018



National Occupational Standard



Overview

This unit is about understanding power supply checks and UPS installation at service provider/customer premise.

TEL/N4125

UPS Installation & Domestic Power Supply Checks

National Occupational Standard

Unit Code	TEL/N4125
Unit Title (Task)	UPS Installation & Domestic Power Supply Checks
Description	This unit is about undertaking power supply checks & UPS installation at service provider / customer premise.
Scope	This unit/task covers the following: Installation of UPS and checking the electrical parameters.
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Installation of UPS and checking the electrical parameters	To be competent, the user/individual on the job must be able to: - PC1. carry out voltage, current checks - PC2. carry out earthing checks - PC3. installation of UPS - PC4. routing of power supply through UPS - PC5. calculate equipment load vis-à-vis UPS rating - PC6. exercise precautions whilst handling power supplies - PC7. UPS battery checks & replacement
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: - KA1. UPS installation norms - KA2. compliance to Voltage/Current norms - KA3. UPS & compatible batteries - KA4. the basic process for maintaining AC
B. Technical Knowledge	The user/individual on the job needs to know and understand: - KB1. UPS & types of UPS - KB2. power rating of UPS - KB3. basic load calculations - KB4. routing of power supply through UPS - KB5. earth & continuity checks for power supply - KB6. use of test equipment for checking/measuring power supply - KB7. checks & replacement of UPS batteries
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: SA1. maintain proper records as per given format
	Reading Skills
	The user/ individual on the job needs to know and understand how to: - SA2. read and comprehend technical manual and literature - SA3. read and understand work orders, health and safety instructions, memos, reports etc.

TEL/N4125

UPS Installation & Domestic Power Supply Checks

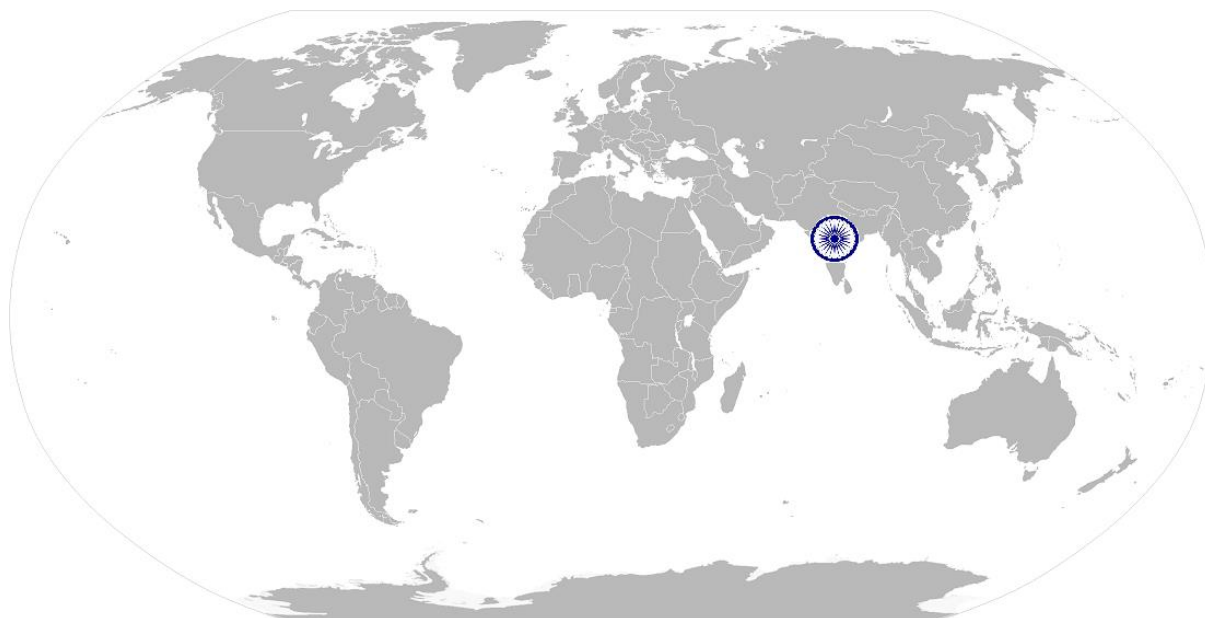
B. Professional Skills	Oral Communication (Listening and Speaking Skills)
	The user/ individual on the job needs to know and understand how to: SA4. be courteous to end users/customers SA5. liaise with local authorities, especially for outdoor cabling SA6. communicate with supervisor and peers SA7. communicate in the local language
	Decision Making
	Not Applicable
	Plan and Organize
	The user/individual on the job needs to know and understand how to: SB1. plan installation/check activities SB2. carry out installation with minimum disturbance
	Customer Centricity
	Not Applicable
	Problem Solving
	Not Applicable
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB3. analyse basic wiring diagrams to facilitate correct installation of UPS SB4. analyse house-hold circuits for correct installation of devices SB5. calculate equipment load and suggest UPS connection configuration
	Critical Thinking
	Not Applicable

TEL/N4125

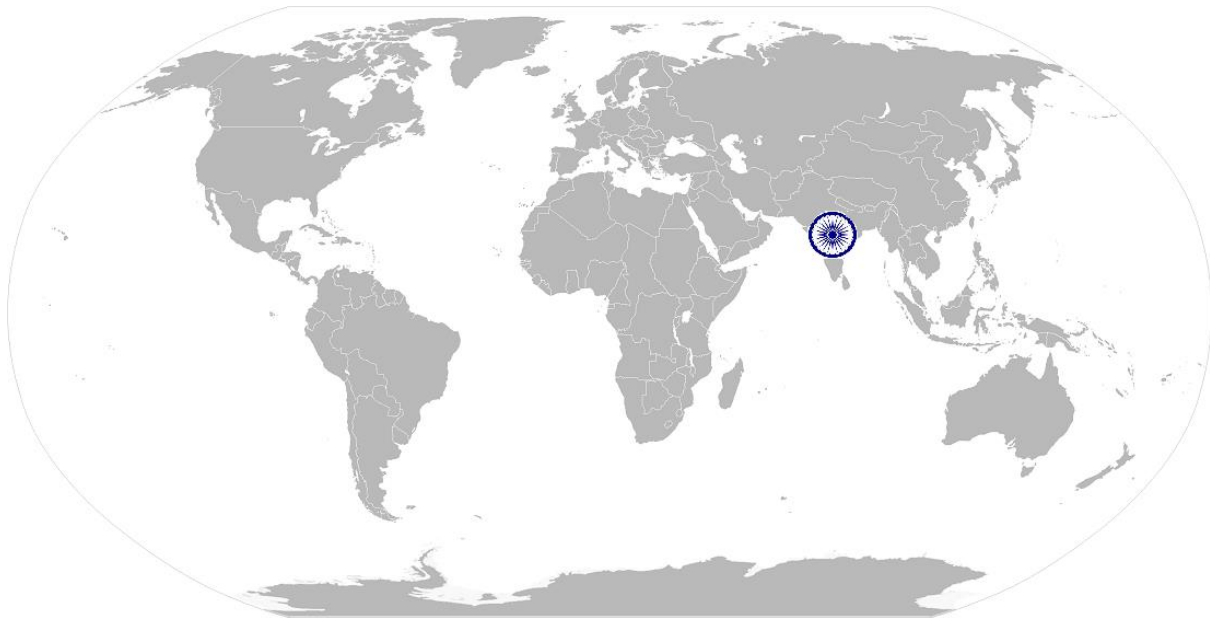
UPS Installation & Domestic Power Supply Checks

NOS Version Control

NOS Code	TEL /N4125		
Credits (NSQF)	TBD	Version number	1.0
Industry	Telecom	Drafted on	30 /6/2016
Industry Sub-sector	Passive Infrastructure	Last reviewed on	10 /7/2016
Occupation	Operation & Maintenance	Next review date	10/7/2018



National Occupational Standard



Overview

This unit is about monitoring the working environment and making sure it meets requirements for health, safety and security.

TEL/N2313

Health and Safety

National Occupational Standard

Unit Code	TEL/N2313
Unit Title (Task)	Maintain a healthy, safe and secure working environment
Description	This unit is about monitoring the working environment and making sure it meets requirements for health, safety and security.
Scope	This unit/task covers the following: - Health & Safety Compliance and Emergency procedures - hazards - fire - accident - site emergency
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Health & Safety compliance and Emergency procedures	To be competent, the user/individual on the job must be able to PC1. ensure that work is carried out in accordance with the laid down safety, security policies and procedures of the organization PC2. ensure that site is assessed for safety and emergency readiness compliance as per company's guidelines PC3. ensure electrical safety compliances and EMI/EMC hygiene requirements are met as per the guidelines PC4. identify and correct any hazards that you can deal with safely, competently and within the limits of your authority PC5. report any hazards that you are not competent to deal with to the relevant person in line with organizational procedures and warn other people who may be affected PC6. follow your organizations's emergency procedures promptly, calmly and efficiently PC7. identify and recommend opportunities for improving health, safety, security to the designated person PC8. complete any health and safety records legibly and accurately
Knowledge and Understanding (K)	
A.Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: KA1. legislative requirements and organizations procedures for health, safety and security and role and responsibilities in relation to this KA2. what is meant by hazard, including the different types of health and safety hazards that can be found in the workplace KA3. How and when to report hazards KA4. limits of yours responsibility for dealing with hazards KA5. your organization's emergency procedures for different emergency situations and the importance of following these KA6. the importance of maintaining high standards of health, safety and security KA7. Implications that any non – compliance with health, safety and security may have on individuals and the organization

TEL/N2313

Health and Safety

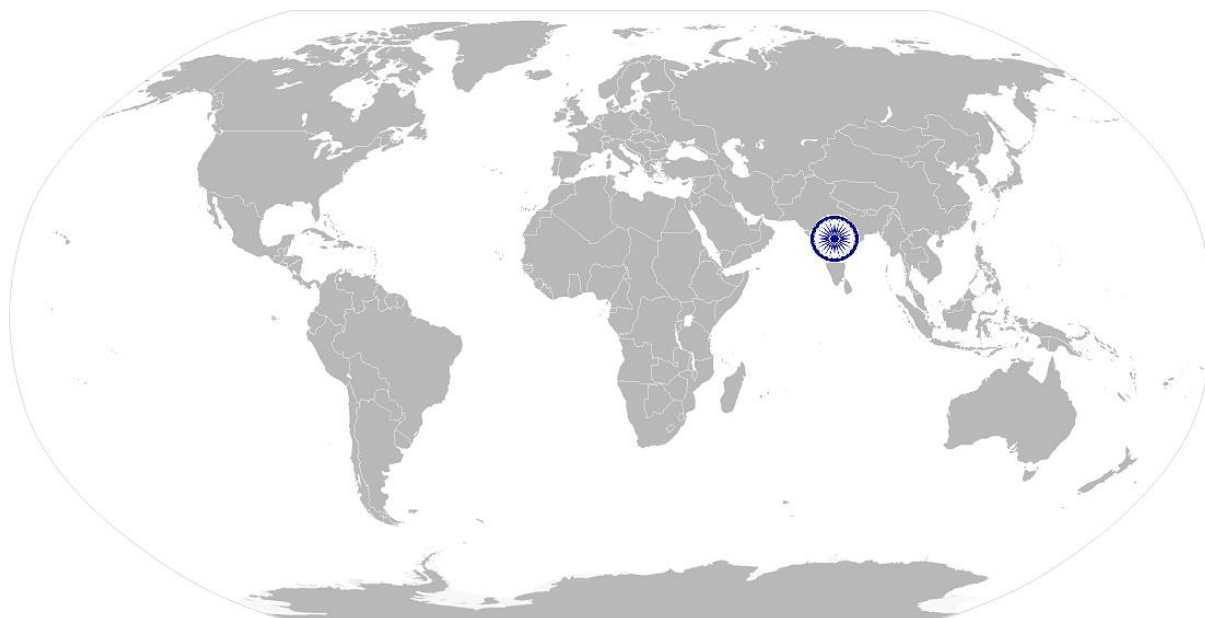
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. different types of breaches in health, safety and security and how and when to report these KB2. evacuation procedures for works and visitors KB3. how to summon medical assistance and the emergency services, where necessary KB4. how to use the health, safety and accident reporting procedures and the importance of these KA5. government agencies in the area of safety, health and security and their norms and services
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: SA1. complete accurate well written work with attention to detail
	Reading Skills
	The user/ individual on the job needs to know and understand how to: SA2. read instructions, guidelines, procedures rules and service level agreements
	Oral Communication (Listening and Speaking Skills)
B. Professional Skills	The user/ individual on the job needs to know and understand how to: SA3. listen effectively and orally communicate information accurately
	Decision Making
	The user/individual on the job needs to know and understand how to: SB1. make decisions on suitable course location
	Plan and Organize
	The user/individual on the job needs to know and understand how to: SB2. plan and organize your work to meet health, safety and security requirements
	Customer Centricity
	Not Applicable
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB3. apply problem solving approaches in different situations
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB4. analyze data and activities
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB5. apply balanced judgments to different situations SB6. apply, analyze and evaluate the information gathered from observation, experience, reasoning or communication, as guide to thought and action

TEL/N2313

Health and Safety

NOS Version Control

NOS Code	TEL /N2313		
Credits (NSQF)	TBD	Version number	1.0
Industry	Telecom	Drafted on	30 /6/2016
Industry Sub-sector	Passive Infrastructure	Last reviewed on	10 /7/2016
Occupation	Operation & Maintenance	Next review date	10/7/2018



TEL/Q4105

Qualifications Pack for Wireless Technician

Criteria for Assessment of Trainee					
Job Role	: Wireless Technician				
Qualification Pack	: TEL/Q4105				
Sector Skill Council	: Telecom Sector Skill Council				
1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC. 2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC. 3. Individual assessment agencies will create unique question papers for theory and skill practical part for each candidate at each examination/training center. 4. To pass the Qualification Pack , every trainee should score a minimum 70% in every NOS. 6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.					
Assessable Outcome	Assessment Criteria	Total Mark (500)	Out Of	Theory	Skills Practical
TEL/N4122 Prepare the wiring & equipment installation of WiFi Backhaul Equipment (5 GHz), Antenna and WiFi Access Points (2.4 GHz).	PC1. arrange access to sites according to required procedure.	100	6	3	3
	PC2. organize tools, equipment and materials for a given work.		6	3	3
	PC3. match cable type including feeder cable and connectors to installation environment and different site requirements as per plan.		6	3	3
	PC4. check cable length for continuity		6	3	3
	PC5. verify cable route is free of electrical hazards and obstructions both outdoor and indoors.		6	3	3
	PC6. verify that the cable running length is free from obstruction for connecting the eqpt with antenna at different sites.		5	3	2
	PC7. select suitable location for equipment installation at different sites w.r.t location of Mast / Tower & Power Point etc		5	3	2
Undertake wiring and Install system hardware cable route from PoP to WiFiEqpt sites, Access Points.	PC8. ensured structured wiring from PoP to different sites.		6	3	3
	PC9. ensure neat wiring and clipping at all points up to the eqpt at each site.		6	3	3
	PC10. ensure proper cable termination and use of appropriate connectors.		5	3	2
	PC11. ensure proper feeder cable termination between Eqpt and Antenna.		5	3	2
	PC12. test the cable & joints for transmission loss and strength. Re- terminate if loss exceeds prescribed limits.		6	3	2
	PC13. install equipment following electrical safety principals and manufacturer's instructions.		6	3	3
	PC14. power-up the system ensuring proper earthing arrangement		6	3	3
Clean up worksite and complete documentation	PC15. removal and proper dispose of installation waste	5	3	2	
	PC16. restore worksite to customer's satisfaction	5	3	2	
	PC17. update plans and records with details of installation and test results.	5	3	2	

TEL/Q4105

Qualifications Pack for Wireless Technician

	PC18. complete all installation documents		5	3	2
	Total		100	54	46
TEL/N4123 Configuration of WiFiBackhaul Equipment (5 GHz),WiFi Access Points (2.4 GHz) at different sites.	PC1. connect up Feeder Cable with Antenna at different sites and measure VSWR / Return loss.	100	6	3	3
	PC2. connect WiFiBackhaul Eqpt with feeder cable and check Antenna orientation to get surveyed receive levels.		6	3	3
	PC3. connect WiFiBackhaul Eqpt with WiFiAccess Points.		6	3	3
	PC4 connect up laptop/PC, and other appropriate device to the interface eqpt		6	3	3
	PC5. access setting using default login credentials		6	3	3
	PC6. configure as per the base setting (IP, Gateway, Mask etc.)		8	3	5
Establishing connectivity with the service provider gateway.	PC7. ensure all cables/connectors are correctly plugged in		6	3	3
	PC8. ping service provider gateway		6	3	3
	PC9. analyze test results for connectivity and throughput parameters		8	3	5
Establishing connectivity between WiFi Backhaul Eqpt and WiFi Access Points and End user devices.	PC10. configure end user device to establish connectivity with the WiFi Access Point.		6	3	3
	PC11. Ping WiFi access point from end user device and analyze response.		6	3	3
Record configuration setting and testing steps.	PC 12. record WiFi Backhaul Equipment (5 GHz) configuration settings & test results at all sites.	100	6	3	3
	PC 13. record WiFi Access Equipment (2.4 GHz) configuration settings & test results at all sites.		6	3	3
	PC14. record end user device configuration setting		6	3	3
	PC15. record pinging procedure and expected result parameters		6	3	3
	PC16. brief customer on basic trouble-shooting steps/self-help		6	3	3
	Total		100	48	52
TEL/N4124 Locate and troubleshoot cable and connector fault	PC1. differentiate between types of cables	100	5	3	2
	PC2. Identify correct cable pairs		5	3	2
	PC3. Undertake continuity check and localize fault distance		5	3	2
Troubleshoot WiFi backhaul Equipment (5 GHz)	PC4. understand relevance of various indicative lights on the WiFi Backhaul Equipment.		5	3	2
	PC5. connect Handheld Network Tester portable device for fault diagnostic.		5	3	2
	PC6. connect Cable & Antenna tester if required.		5	3	2
	PC7. check for Antenna orientation if required.		5	3	2
	PC8. decipher results to localize fault.		6	3	3
Troubleshoot WiFi Access Points (2.4 Hz)	PC9. understand relevance of various indicative lights on the WiFi Access Points Equipment.		5	3	2
	PC10. connect Handheld Network Tester portable device for fault diagnostic.		5	3	2
	PC11. decipher results to localize fault.		6	3	3
	PC12. access WiFi Access Point through browser/software application and run diagnostic application.		6	3	3
Rectify the faults with cable,connectors,	PC13. carry out re-conectorization/crimping (of cable pairs with connector) or replace cable, if required		5	3	2

TEL/Q4105

Qualifications Pack for Wireless Technician

backhaul equipments at service provider gateway, access point and end user devices	PC14. replace feeder cable / antenna, if required.		5	3	2
	PC15. re-configure the WiFi Backhaul Eqpt to correct settings, if required.		6	3	3
	PC16. reset WiFi Access points, if required.		6	3	3
Complete documentation and clean-up, worksite	PC17. record steps undertaken for fault localization/isolation		5	3	2
	PC18. record changes undertaken for fault rectification		5	3	2
	PC19. Restore any changes made to the worksite during fault repair to the client's satisfaction.		5	3	2
			100	57	43
TEL/N4125 Installation of UPS and checking the electrical parameters.	PC1. carry out voltage, current checks	100	5	0	5
	PC2. carry out earthing checks		10	4	6
	PC3. installation of UPS		20	5	15
	PC4. routing of power supply through UPS		10	4	6
	PC5. calculate equipment load vis-à-vis UPS rating		20	15	5
	PC6. exercise precautions whilst handling power supplies		20	10	10
	PC7. UPS battery checks & replacement		15	10	5
			100	48	52
TEL/N2313 Health & Safety	PC1. ensure that work is carried out in accordance with the laid down safety, security policies and procedures of the organization		10	6	4
	PC2. ensure that site is assessed for safety and emergency readiness compliance as per company's guidelines		12	6	6
	PC3. ensure electrical safety compliances and EMI/EMC hygiene requirements are met as per the guidelines		15	9	6
	PC4. identify and correct any hazards that you can deal with safely, competently and within the limits of your authority		15	10	5
	PC5. report any hazards that you are not competent to deal with to the relevant person in line with organizational procedures and warn other people who may be affected		12	7	5
	PC6. follow your organizations's emergency procedures promptly, calmly and efficiently		12	6	6
	PC7. identify and recommend opportunities for improving health, safety, security to the designated person		14	8	6
	PC8. complete any health and safety records legibly and accurately		10	5	5
Total		500	100	57	43