NSDA Reference
To be added by NSDA

Revision made by NSDA_25 May 2015

QUALIFICATION FILE – CONTACT DETAILS OF SUBMITTING BODY

Name and address of submitting body:
Telecom Sector Skill Council
2nd Floor, Plot NO: - 105, Sector – 44
Gurgaon – 122003 Ph.: 0124-4148029

Name and contact details of individual dealing with the submission
Name: Shiv Kumar Pandey
Position in the organisation: Manager
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List of documents submitted in support of the Qualifications File

1. Qualification Pack
2. Assessment Criteria – Annexure in Qualification Pack
3. Occupational Mapping
4. Skill Gap Report – KPMG & JUXT
5. Industry Engagement Certificate
6. Affiliation Protocol – Assessment Agency & Assessor
7. Assessment Framework

QUALIFICATION FILE SUMMARY

Qualification Title	TEL/Q6202
Body/bodies which will assess candidates	Telecom Sector Skill Council
Body/bodies which will award the certificate for the qualification.	Telecom Sector Skill Council
Body which will accredit providers to offer the qualification.	Telecom Sector Skill Council
Occupation(s) to which the qualification gives access	Field Maintenance Engineer
Proposed level of the qualification in the NSQF.	5
Anticipated volume of training/learning required to complete the qualification.	Duration (300 Hr.)
Entry requirements / recommendations.	ITI / Diploma/B.E/B.Tech
Progression from the qualification.	Will give access to Transmission Engg.
Planned arrangements for RPL.	Anybody with 1 year experience wrt. the job role
International comparability where known.	

Formal structure of the qualification

Title of unit or other component (include any identification code used)	Mandatory/ Optional	Estimated size (learning hours)	Level
TEL/N6208 (Undertake site acceptance testing)	M	300 Hours	5
TEL/N6209 (Perform preventive maintenance at radio locations)	M		
TEL/N6210 (Perform change management at radio locations)	M		
TEL/N6211 (Perform corrective maintenance/ fault management at radio locations)	M		

Please attach any document giving further detail about the structure of the qualification – eg a Curriculum or Qualification Pack.

Give details of the document here: Qualification pack

SECTION 1

ASSESSMENT

Name of assessment body:

1. **Aspiring Minds**
2. **Mettl**
3. **Multi Skills Assessment Guild (MSAG)**
4. **Independent Qualitative Assessors Guilde (IQAG)**
5. **Cocubes Technologies Pvt. Ltd**

Will the assessment body be responsible for RPL assessment?

Yes, assessing body is responsible for RPL assessment.
Mode of Assessment : Online
1. Theory: MCQ questions mapped with performance criteria of each NOS in a QP.
2. Viva : Scenario Based questions mapped with performance criteria of each NOS in a QP.
3. Practical: Practical test conducted wrt. Job role.

Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, consistent and fair and show that these are in line with the requirements of the NSQF:

The Assessment Agency is affiliated through stringent measures and undergo QA process. The Assessors are certified before conducting any assessments. The Question Bank before being made online are scrutinized and validated for linkage with Performance Criteria and randomization during the assessment.
Mode of Assessment : Online
1. Theory: MCQ questions mapped with performance criteria of each NOS in a QP.
2. Viva : Scenario Based questions mapped with performance criteria of each NOS in a QP.
3. Practical: Practical test conducted wrt. Job role.

Please attach any documents giving further information about assessment and/or RPL.
Give details of the document(s) here:

ASSESSMENT EVIDENCE

Complete the following grid for each grouping of NOS, assessment unit or other component as listed in the entry on the structure of the qualification on page 1.

Criteria for Assessment of Trainee							
Job Role : Field Maintenance Engineer							
Qualification Pack: TEL/Q6202							
Sector Skill Council: Telecom							
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 of 40% in every NOS and Overall 50% pass percentage. 5. 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 Outcomes	**Assessment Criteria**		Total Mark (400+100)	Total of Sub-Element	Out Of	Theory	Skills Practical
1. TEL/N6208 (Undertake Site acceptance	Prepare to undertake Acceptance Test of	PC1. ensure checklist for performing site acceptance test is obtained from the supervisors.	100	15	2	2	0
		PC2. obtain site documents and specifications from the Project's team			2	2	0

testing)	new sites	PC3. ensure availability of test equipments required for performing acceptance tests			4	4	0
		PC4. ensure that equipment specific software are installed in the laptop device			5	3	2
		PC5. ensure that the software versions are current and ready to use			2	2	0
	Undertake Acceptance Test of new sites	PC1. ensure completion of physical tests of the site as per the checklist - like physical upkeep, shelter status, weather proofing, equipment grouting, effective cabling, earthing and utilization of connectors		40	15	10	5
		PC2. ensure completion of logical tests (VSWR levels, alarm connectivity, equipment connectivity) as per the checklist			15	8	7
		PC3. ensure co-ordination with the infrastructure engineer and the riggers in completing testing of passive infrastructure antenna tilt, diesel generator working, battery/ SMPS condition			10	5	5
	Communicate test results & Record	PC1. ensure all relevant parties (including BSS/ BTS support engineer, NOC team, other supervisors and the projects) are notified of the test results		20	4	0	4
		PC2. ensure clear communication of the remaining punch points that need to be addressed by the Projects team before site handover			6	0	6
		PC3. ensure site is approved for handover/ integration only once no punch points are observed during the testing			6	3	3
		PC4. ensure that documents that are required to be updated are identified and updated			2	2	0
		PC5. ensure that documents are available to all appropriate authorities to inspect			2	2	0
	Health and Safety	PC1. ensure compliance with site risk control, OHS, environmental and quality requirements as per company's norms		25	2	2	0
		PC2. ensure that work is carried out in accordance to the level of competence and legal requirements			2	0	2
		PC3. ensure that sites are periodically assessed for health and safety risk as per company's guidelines			5	3	2
		PC4. ensure that hazards associated with the workplace that have not been previously controlled, are reported in accordance with appropriate procedures			5	0	5
		PC5. ensure periodic tool-box talk is carried out for the infra technicians and other third party vendors			2	2	0
		PC6. ensure that Personal protection equipments like anti-static bands, harness, belts and helmets are appropriately used as required			3	3	0
		PC7. ensure compliance to health and safety guidelines both contractually and on site by the third party vendors and infra technicians			2	2	0
		PC8. ensure availability of first aid box at site			2	0	2
		PC9. ensure escalation of safety incidents to relevant authorities as per guidelines			2	2	0
					100	57	43
2. TEL/N6209(Perform preventive maintenance at radio locations)	Obtain schedule & notify NOC	PC1. ensure maintenance of site folder containing list of sites, BTS type, and number of transceivers	100	15	5	5	0
		PC2. obtain the preventive maintenance schedule and the corresponding checklist from the supervisors			5	5	0
		PC3. coordinate with Network Operating Centre (NOC) prior to undertaking the maintenance activities			5	5	0
	Arrange for tools and spares	PC1. ensure availability of login cables (RJ45, RS232, Hi-speed USB)		5	1	0	1
		PC2. ensure that equipment specific software are installed in the laptop device			1	0	1
		PC3. ensure that the software versions are current and ready to use			1	0	1

		PC4. ensure availability of spare hardware equipments like TRX cards and raise request for spares, in case the same are not available			1	0	1
		PC5. ensure that faulty equipments are sent to logistics team for repair and replacement			1	1	0
	Undertake Maintenance activities	PC1. conduct periodic (monthly, quarterly, half yearly) maintenance activities		40	4	4	0
		PC2. ensure completion of physical maintenance tasks like checking site temperatures, routing of Ethernet cables & optical fibers, fan working condition, battery – voltage levels; DG set – oil filter, lubrication; Air conditioner – refill gas, clean evaporator and condenser, other power equipments (including MCBs, power plan)			20	10	10
		PC3. ensure review of equipment grouting, earthing connections, watering of earthing pit, site matting for insulation, adequacy of wiring			8	4	4
		PC4. ensure completion of logical maintenance tasks like checking alarm status, system availability parameters, logical redundancy			2	2	0
		PC5. ensure that for 3rd party elements that require maintenance, tickets are raised to the respective vendors by the NOC team			3	3	0
		PC6. ensure timely escalation of emergency/ unresolved issues according to established Company's procedure			1	1	0
		PC7. ensure environmental up-keep of sites in coordination with infra engineer and technicians			2	2	0
	Test effectiveness & close activity	PC1. confirm effectiveness of the change process, by monitoring site's alarm status in co-ordination with the NOC team		10	5	0	5
		PC2. ensure completion of administrative jobs like site clearance, return of test equipments			5	0	5
	Health and Safety	PC1. ensure compliance with site risk control, OHS, environmental and quality requirements as per company's norms		20	2	2	0
		PC2. ensure that work is carried out in accordance to the level of competence and legal requirements			2	0	2
		PC3. ensure that sites are periodically assessed for health and safety risk as per company's guidelines			3	3	0
		PC4. ensure that hazards associated with the workplace that have not been previously controlled, are reported in accordance with appropriate procedures			3	0	3
		PC5. ensure periodic tool-box talk is carried out for the infra technicians and other third party vendors			2	2	0
		PC6. ensure that Personal protection equipments like anti-static bands, harness, belts and helmets are appropriately used as required			3	3	0
		PC7. ensure compliance to health and safety guidelines both contractually and on site by the third party vendors and infra technicians			2	2	0
		PC8. ensure availability of first aid box at site			2	0	2
		PC9. ensure escalation of safety incidents to relevant authorities as per guidelines			1	1	0
	Report & Record	PC1. ensure all relevant parties (including BSS/ BTS support engineer, NOC team, other supervisors) are notified of the results of the maintenance activities and the sign-off is obtained from relevant personnel		10	4	4	0
		PC2. ensure that documents that are required to be updated are identified			2	2	0
		PC3. ensure completion of routine maintenance logs, activity logs and spare tracker within stipulated timelines			2	2	0
		PC4. ensure that documents are available to all appropriate authorities to inspect			2	2	0
					100	65	35

3. TEL/TEL/N6210 (Perform Change management at radio locations)	Determine change requirement	PC1. receive change requests from the relevant teams (NOC, change management, network planning team)	100	40	5	5	0
		PC2. identify activity type to be performed – hardware upgrade, software upgrade, capacity augmentation, antenna re-alignment, Microwave back-up			10	5	5
		PC3. identify criticality, and timelines for carrying out the changes			7	0	7
		PC4. develop work plan and identify dependencies if any			10	0	10
		PC5. assess the potential impact of the proposed activity and plan for possible outage condition or deferral of the activity			5	5	0
		PC6. ensure that Network Operating Centre (NOC) is notified prior to undertaking the change activities			3	3	0
	Arrange for tools and spares	PC1. ensure availability of login cables (RJ45, RS232, Hi-speed USB)		5	1	0	1
		PC2. ensure that equipment specific software are installed in the laptop device			1	0	1
		PC3. ensure that the software versions are current and ready to use			1	0	1
		PC4. ensure availability of spare hardware equipments like TRX cards and raise request for spares, in case the same are not available			1	0	1
		PC5. ensure that faulty equipments are sent to logistics team for repair and replacement			1	1	0
	Carry out change and perform post change monitoring	PC1. ensure completion of the requested change task as per requestor's requirement		15	3	0	3
		PC2. ensure continuous monitoring of progress of change and notify change requestor of problems encountered if any			5	0	5
		PC3. abort change and implement contingency plan should the change plan not be realized without major disruption to network			5	0	5
		PC4. ensure compliance with the defined SLA for carrying out changes			2	2	0
	Test effectiveness & close activity	PC1. confirm effectiveness of the change process, by monitoring site's alarm status in co-ordination with the NOC team		10	5	0	5
		PC2. ensure completion of administrative jobs like site clearance, return of test equipments			5	0	5
	Health and Safety	PC1. ensure compliance with site risk control, OHS, environmental and quality requirements as per company's norms		20	2	2	0
		PC2. ensure that work is carried out in accordance to the level of competence and legal requirements			2	0	2
		PC3. ensure that sites are periodically assessed for health and safety risk as per company's guidelines			3	3	0
		PC4. ensure that hazards associated with the workplace that have not been previously controlled, are reported in accordance with appropriate procedures			3	0	3
		PC5. ensure periodic tool-box talk is carried out for the infra technicians and other third party vendors			2	2	0
		PC6. ensure that Personal protection equipments like anti-static bands, harness, belts and helmets are appropriately used as required			3	3	0
		PC7. ensure compliance to health and safety guidelines both contractually and on site by the third party vendors and infra technicians			2	2	0
		PC8. ensure availability of first aid box at site			2	0	2
		PC9. ensure escalation of safety incidents to relevant authorities as per guidelines			1	1	0

	Report & Record	PC1. ensure all relevant parties (including BSS/ BTS support engineer, NOC team, other supervisors) are notified of the results of the change management activities and sign-off is obtained from relevant personnel		10	4	4	0
		PC2. ensure that documents that are required to be updated are identified			2	2	0
		PC3. ensure completion of routine maintenance logs, activity logs and spare tracker within stipulated timelines			2	2	0
		PC4. ensure that documents are available to all appropriate authorities to inspect			2	2	0
					100	44	56
4.TEL/N6211 (Perform corrective maintenance/ fault management at radio locations)	Respond to Network Alarm	PC1. obtain alarm information from the NOC team and determine alarm severity, SLAs and the affected network elements	100	15	3	3	0
		PC2. ensure understanding of nature of alarm, and provide information to/ seek advice from relevant parties to identify the problem and root-cause of the alarm			8	2	6
		PC3. prioritize actioning on alarms based on fault's service impact analysis in coordination with the NOC engineer			4	4	0
	Arrange for tools and spares	PC1. ensure availability of login cables (RJ45, RS232, Hi-speed USB)		5	1	0	1
		PC2. ensure that equipment specific software are installed in the laptop device			1	0	1
		PC3. ensure that the software versions are current and ready to use			1	0	1
		PC4. ensure availability of spare hardware equipments like TRX cards and raise request for spares, in case the same are not available			1	0	1
		PC5. ensure that faulty equipments are sent to logistics team for repair and replacement			1	1	0
	Fault identification & rectification	PC1. ascertain if the alarms are due to passive infrastructure based on the alarm/ other site indicators		40	5	5	0
		PC2. coordinate with Infra engineer/ technicians if the fault was due to passive infrastructure			4	4	0
		PC3. in case of non-infra alarm, ensure that appropriate login cables are used to login to BTS, IDU (for microwave)			5	5	0
		PC4. ensure necessary diagnostic tests are carried out to identify the root cause of the alarm by logging in onto equipment specific application tool			10	5	5
		PC5. determine the options to rectify the fault and confirm with supervisors if required			4	4	0
		PC6. ensure rectification of network problem/ fault within the alarm SLAs			4	4	0
		PC7. ensure timely completion of work by monitoring activities performed by the Infra engineer and technicians			4	4	0
		PC8. ensure compliance to enterprise policy while escalating unresolved faults/ instances of delays			4	4	0
	Test effectiveness & close activity	PC1. confirm effectiveness of the maintenance process, by monitoring site's alarm status in co-ordination with the NOC team		10	5	0	5
		PC2. ensure completion of administrative jobs like site clearance, return of test equipments			5	0	5
	Health and Safety	PC1. ensure compliance with site risk control, OHS, environmental and quality requirements as per company's norms		20	2	2	0
		PC2. ensure that work is carried out in accordance to the level of competence and legal requirements			2	0	2
		PC3. ensure that sites are periodically assessed for health and safety risk as per company's guidelines			3	3	0

		PC4. ensure that hazards associated with the workplace that have not been previously controlled, are reported in accordance with appropriate procedures			3	0	3
		PC5. ensure periodic tool-box talk is carried out for the infra technicians and other third party vendors			2	2	0
		PC6. ensure that Personal protection equipments like anti-static bands, harness, belts and helmets are appropriately used as required			3	3	0
		PC7. ensure compliance to health and safety guidelines both contractually and on site by the third party vendors and infra technicians			2	2	0
		PC8. ensure availability of first aid box at site			2	0	2
		PC9. ensure escalation of safety incidents to relevant authorities as per guidelines			1	1	0
	Report & Record	PC1. ensure all relevant parties (including BSS/ BTS support engineer, NOC team, other supervisors) are notified of the results of the change management activities and sign-off is obtained from relevant personnel		10	4	4	0
		PC2. ensure that documents that are required to be updated are identified			2	2	0
		PC3. ensure completion of routine maintenance logs, activity logs and spare tracker within stipulated timelines			2	2	0
		PC4. ensure that documents are available to all appropriate authorities to inspect			2	2	0
					100	68	32

SECTION 2

EVIDENCE OF NEED

What evidence is there that the qualification is needed?

As per Industry requirement and recommendations, we TSSC have followed in order to prepare the qualification pack and got vetted by NSDC during the QRC. (Attached –Industry Engagement Certificate).

What is the estimated uptake of this qualification and what is the basis of this estimate?

Skills Gap analysis Reports for industry demand and secondary research data, though these do not lend to accurate demand projection. Feedback from industry for demand though again sample size may not lend to accurate figures and depends on Industry quarterly requirements. (Attached Skill Gap Study Report)

What steps were taken to ensure that the qualification(s) does/do not duplicate already existing or planned qualifications in the NSQF?

- NSDC list of Approved and Under-Development QPs was checked prior to commissioning the work
- NSDC QRC team also confirmed the same

What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated?

- Agencies have been appointed by the SSC to interact with training providers to gather feedback in implementation.
- Monitoring of results of assessments
- A formal review is scheduled in two year time

Please attach any documents giving further information about any of the topics above.
Give details of the document(s) here: NA

SECTION 3

SUMMARY EVIDENCE OF LEVEL

Level of qualification: NSQF Level 5

Summary of Direct Evidence (from learning outcomes):

Justify the NSQF level allocated to the QP by building upon the five descriptors of NSQF. Explain the reasons for allocating the level to the QP.

Justification of NSQF Level 5: Capable of working independently in his designated area. He must also learn new aspects of the job while executing the work assigned and manage the team.

Generic NOS is/are linked to the overall authority attached to the job role.

Field Management Engineer - TEL/Q6202					
Process required	**Professional Knowledge**	**Professional Skills**	**Core Skills**	**Responsibility**	**Level**
The job holder requires well developed skills and knowledge should be clear in decision making in terms of procedure in familiar context. He/she have to perform various task such as : • Undertaking site acceptance testing. • Perform preventive maintenance at radio location. • Perform change management at radio locations • (Perform corrective maintenance/ fault management at radio locations.	The job holder is expected to monitor equipment's and maintain hygiene as per guidelines, acceptance of new sites as mentioned in the assessment criteria. This demonstrates factual knowledge on the field. Learn to manage the team and get the desired output as required. Adding more: he/she will have knowledge of the company norms ie. Monitoring and respond to network alarm.	Based on professional knowledge, the job holder is expected to maintain the site operational under any circumstances. His/her technical knowledge which will demonstrate his/her practical skills such as • Identifying/rectify the fault in hardware if any • Based on report generated by NOC team replacement of hardware or repairing of cables will be done. • Checking the parameters while accepting a new site	The job holder is expected to handle all the technical issues raised at ground level and resolve it on basis of his professional knowledge. He/she need to be constantly interact with NOC team and O&M team. Analyse the report/log generated at NOC level and take up the necessary action for maintenance. He/she to be reasonably good in mathematical calculation and communicate logically when explaining to higher authority.	The job holder is largely responsible for his/her own work as evidenced in the columns for professional knowledge/skills. Additionally he is expected to respond to situations ((such as replacing the equipment and taking preventive action if required, Monitoring network from NOC location and maintaining network uptime. Which may demonstrate his/her ability for learning on the job as well as he/she responsible for task performed by his team. Adding more: He is responsible for accepting new sites	5

Skill in managing the team and rolling out on field. Adding more: FM Engg have to co-ordinate with the NOC and transmission team to ensure fault free network through periodic maintenance.	Knowledge of identify/rectifying the fault if any wrt the hardware installed, accordingly taking corrective action to prevent fault free network. Basics of Computer system (Operating system : LINUX) and command Network topology like ring structure, daisy chain structure and their characteristics. Service application characteristic and capabilities of GSM, WCDM network. Knowledge of transmission equipment's like Microwave (TDM and IP based). Functionality of passive infrastructure equipment like DG set , PIU panel, transformer, SMPS, AC and battery bank. Functionality of BSC and BTS site equipment's like BSC node, Indoor and Outdoor BTS.	(including the passive and active equipment's). Based on technical expertise the job holder will find solution to his problem faced at ground level. Adding more : the job holder will be skilled in performing • Equipment operating Skill • Analytical skills • Problem solving skill. • Team management skills.		from projects team and ensuring completion of upgrade/change activities as required.	

Level :- 5	Level :- 5	Level :- 5	Level :- 5	Level :- 5	

Summary of other evidence (if used): NA

SECTION 4

EVIDENCE OF RECOGNITION OR PROGRESSION

What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?
Horizontal and vertical mobility options have been articulated.

Please attach any documents giving further information about any of the topics above.
Give details of the document(s) here: NA