Pearson

Apprenticeships in Digital

Pearson Level 3 End-point Assessment for

Network Cable Installer

Specification date: **September 2021**
First assessment date: **October 2021**
Issue 2

About Pearson

We are the world's learning company operating in 70 countries around the world with more than 22,500 employees. We provide content, assessment and digital services to schools, colleges and universities, as well as professional and vocational education to learners to help increase their skills and lifelong employability prospects. We believe that wherever learning flourishes so do people.

This document is Issue 2. Key changes are summarised on the next page. We will inform centres of any changes to this issue.

Publication code: VQ000144

Summary of changes to Pearson Level 3 End-point Assessment for Network Cable Installer Issue 2

Summary of changes made between previous issue and this issue	Page number
This EPA is now regulated by Ofqual (previously IfATE). As a result, an Ofqual Qualification Number and regulation start date have been added.	2

If you need further information on these changes or what they mean, please contact us via our website at: qualifications.pearson.com/en/contact-us.html.

Contents

1 The Network Cable Installer Apprenticeship

What are Pearson End-point Assessments?

End-point assessment (EPA) takes place at the end of the apprenticeship programme when the apprentice has passed through gateway and been signed off as ready for the assessment by their employer. It is a synoptic assessment of the knowledge, skills and behaviours outlined in the apprenticeship standard learnt throughout the apprenticeship programme.

The EPA in this specification relates to the Network Cable Installer Apprenticeship.

Purpose

The purpose of the EPA is to confirm that the apprentice has met the required level of knowledge, skills and behavioural standards set by employers and that they are competent in their role as a network cable installer.

Network cable installers install, terminate, test and certify network cable infrastructure components in accordance with National and International industry standards. The size of the task or project that a network cable installer could be involved in ranges from a single outlet point in a customer's premises, to thousands of outlets in a new office blocks, or from a single fibre cable termination in a building to the installation of hundreds of fibres over many kilometres in local, national and international communities. The role of the installer is physical and often involves lifting and moving heavy equipment.

Striving to deliver excellent and consistent levels of customer service is a vital part of the role. Installers work diligently to interpret customer requirements accurately and endeavour to meet high quality standards. On completion the apprentice will be eligible to apply for registration as a full member for the Institute of Telecommunications Professionals.

Industry support and recognition

Pearson has worked in close collaboration with employers, other assessment organisations and experts from professional bodies and training providers in developing the assessment tools for this EPA. We are grateful to all who have generously shared their time and expertise to help us in the development process.

2 Summary of End-point Assessment

EPA Title	Pearson Level 3 End-point Assessment for Network Cable Installer
Qualification number (QN)	610/0405/4
Ofqual Regulation start date	25/01/2022
First Pearson assessment	01/10/2021
Assessment methods	• Practical Demonstration and Questions • Professional Discussion *Refer to Section 5 for detailed information about each assessment method.*
Grading	Fail/Pass/Distinction *Refer to Section 3 for detailed information.*
Duration of apprenticeship programme	The typical duration for this apprenticeship is 12-15 months (depending on the individual apprentice's previous experience and access to opportunities to gain the full range of competences).
Gateway requirements	• Employer confident that the apprentice is ready. • Maths and English requirements. • Portfolio of evidence to support the Professional Discussion (compiled throughout the apprenticeship and completed by the gateway).
Time period for completion of EPA	The EPA must be completed within an EPA period typically lasting three months, beginning when the apprentice has met the EPA gateway requirements
Apprenticeship certification	The certificate for the apprenticeship is awarded by the Institute for Apprenticeships and Technical Education (IfATE), through a process administered by the Education and Skills Funding Agency (ESFA). As the end-point assessment organisation (EPAO), Pearson will claim certificates on behalf of apprentices.

3 EPA structure

Network Cable Installer

The EPA for the Network Cable Installer Apprenticeship consists of the following two assessment methods:

- Assessment Method 1:
  - Component 1: Practical Demonstration
  - Component 2: Questions.
- Assessment Method 2: Professional Discussion.

The table below gives a summary of the structure of the end-point assessment.

End-point assessment methods	Duration	Assessment method grading
Practical Demonstration and Questions	7 hours	Fail/Pass/Distinction
Professional Discussion	75 minutes	Fail/Pass/Distinction

The assessment methods can be taken in any order.

EPA Grading

The grading for this EPA is Fail/Pass/Distinction.

All EPA methods must be passed for the EPA to be passed overall.

To achieve a Distinction, all pass and all distinction grade descriptors must be achieved for the Practical Demonstration with Questions and Professional Discussion.

Practical Demonstration and Questions	Professional Discussion	End-point assessment grade
A fail in either assessment method.		Fail
Pass	Pass	Pass
Pass	Distinction	Pass
Distinction	Pass	Pass
Distinction	Distinction	Distinction

4 Assessment

Assessment plan

Pearson's approach to assessing this EPA is set by the assessment plan for the apprenticeship standard. This document is available in *Annexe B*.

Language of assessment

Apprentices must use English only during the assessment of this EPA.

Further information on the use of language in assessment is available in our *Use of languages in qualifications policy*, available on our website.

Gateway

Before progressing to the EPA from on-programme, all apprentices must be signed off by their employer, through the 'gateway'. This gateway sign off confirms that apprentices have the level of occupational knowledge, skills and behaviours required to achieve the apprenticeship.

The EPA-specific requirements for gateway are stated in *Section 2: Summary of End- point Assessment* and the assessment plan in *Annexe B.*

Employers must complete a *Gateway Declaration Form* (*Annexe A*) with the apprentice. The form and the associated gateway evidence to prove apprentices have met the requirements must be supplied to Pearson before the EPA can take place.

5 End-point Assessment methods

Assessment method 1: Practical Demonstration and Questions

Structure

This assessment method includes two components:

- Component 1: Practical demonstration.
- Component 2: Questions.

Together, they assess apprentices' knowledge, skills and behaviours from the apprenticeship standard, in line with the assessment plan requirements. It is assessed by a Pearson independent end-point assessor (IEA).

Practical Demonstration	
Summary	The apprentice is observed by the IEA completing two distinctly separate tasks given to them as part of a scenario-based *Project Brief*. These tasks are defined as: • Installing, terminating and testing copper cable. • Installing, terminating and testing fibre optic cable. As part of the assessment and at appropriate times, the apprentice is asked a minimum of five questions to assess related underpinning knowledge, skills and behaviours.
Duration	Maximum 7 hours (the IEA has the discretion to increase the time of the assessment by up to 10% to allow the apprentice to complete the last task that is part of this assessment method).
Grading	Fail/Pass/Distinction Fail: Fails to meet the pass criteria. Pass: Apprentices must achieve all pass descriptors. Distinction: Apprentices must achieve all pass descriptors and all distinction descriptors. The grading criteria for this assessment method can be found in the assessment plan in *Annexe B*.

Practical Demonstration *(continued)*	
Preparation	Apprentices, with the support of their employer/training provider must use the *EPA Resource Pack* in their preparation for end-point assessment. This is available through ACE360 and emailed to the employer. The details of how the Practical Demonstration and Questions operates will be discussed and agreed as part of the employer consultation and at the EPA planning meeting.
Delivery and conduct	The IEA observes the apprentice and takes notes. The IEA will intervene or stop the observation if they judge that the apprentice or others are at risk.
Assessment	The IEA observes and asks the apprentice questions and judges their performance against the grade criteria using the guidance, published in the *EPA Resource Pack.*

Assessment site requirements	The Practical Demonstration should take place in either a simulated network equipment room, or in a real environment utilising an electrically and spatially separated area. Maximum dimensions for the work area will typically be 5m(w) x 10m(l) x 3m(h). The work area shall be fitted with:
	
	• Equipment cabinets:
	  o 3 x data racks, typically 42U 800mm x 1000mm data racks. Racks may be bayed together and shall have a minimum 1.2m front and rear working access, and a minimum 900mm side access at one end for egress.
	
	  Racks shall be fitted with:
	
	  ▪ 19" Mounting rails
	
	  ▪ Front/rear doors
	
	  ▪ Plinth
	
	  ▪ Earth bonding.
	
	• Workstations:
	  o to simulate individual work stations, backboards constructed of 25mm ply or MDF measuring typically 2m(l) x 1.6m(h) shall be installed on the walls or mobile units spaced equidistantly and at a minimum of 1m above floor level.

Practical Demonstration *(continued)*	
	• Cable containment: o cable basket, typically 100mm x 50mm shall be installed at a height of approximately 2m and shall be routed from the cabinets, completing a loop around the perimeter of the area. Cable basket is to be bonded throughout and incorporate waterfall drop-offs to the cabinets.
	• Lighting: o EPAO is to ensure that there is sufficient lighting for work to be undertaken in a safe manner. This should equate to 500 Lux measured at 1m above floor level in all areas. Assessment sites must meet these requirements for any assessment to take place. This will be discussed/confirmed during employer consultation and the planning meeting. To mitigate health and safety risk, the IEA will allow apprentices to request assistance from a representative/work in pairs for the sole purpose of initial cable installations when working at height, i.e. getting the cables into the basket. All other aspects (dressing-in, fastening etc) must be carried out unaided. Arrangements for 'pair working' will be discussed during the employer consultation.

Standards Assessed

The Practical Demonstration and Questions assesses the following knowledge, skills and behaviours from the apprenticeship standard.

KSBs	Apprenticeship standard outcomes
Knowledge	
K1	Design specifications and documentation including floor plans, patch lists, bills of materials, rack face layout plans etc. Has an appreciation of literacy and numeracy skills required in order to select and quantify tools and equipment required for tasks, calculate time frames for work activities and plan work schedules
K4	The key components of a structured cabling infrastructure and the relationship between campus, building and floor distributors, with relevance to the cable installation plan. Understands the basic elements of IT network architecture, including the range of cable types and networking equipment including routers and switches
K5	The test parameters for copper and fibre cable certification in accordance with appropriate industry standards e.g. BSEN 50346 – Information Technology-Testing of Installed Cables, the routine for test equipment service and calibration
K6	Own responsibilities under the Health and Safety at Work Act 1974, in particular the need to take care of their own health and safety in the workplace whilst also being responsible for those that might be affected by his/her actions
K15	The structural components of equipment racks/cabinets and how to assemble them to meet the requirements on the infrastructure design
Skills	
S1	Install copper cabling components for Local Area Networking (LAN). Carry out maintenance tasks on copper cable networks. Can identify, locate and repair common faults
S2	Install fibre optic cabling components for Local Area Networking (LAN) and Wide Area Network (WAN) infrastructure. Can identify, locate and repair common faults
S3	Carry out testing on copper cabling in accordance with equipment manufacturer's procedures, and compliant to industry standards, interpret results and rectify failures
S4	Carry out testing of fibre optic cabling using an optical loss test set (Tier 1), an optical time domain reflectometer (Tier 2) and fibre inspection tool in accordance with equipment manufacturer's procedures, and compliant to industry standards
S5	Analyse copper and fibre test results and provides certification to the customer

KSBs	Apprenticeship standard outcomes
S6	Prepare, constructs and installs telecommunications equipment cabinets, either pre-built or from flat-pack. Arrange and install fixtures and fittings appropriate for the intended use. Correctly selects network equipment components for installation into cabinets, differentiating between switches and routers
S7	Work at height in a safe manner and is competent in the use of Mobile Equipment Work Platforms (MEWPs) and can assemble, dismantle, use and inspect prefabricated low-level access towers
S8	Reduce the danger of working in confined spaces by implementing appropriate health and safety procedures, using and maintaining personal protective equipment
S9	Carry out network cable installation within the public highway to the standards required by the New Roads and Street Works Act 1991
S10	Analyse plans, make decisions about equipment types and quantity, and accurately predict time frames
S11	Assess the requirements for cable containment by type and size to build a pathway suitable for routing data cables. Install containment systems in a safe manner, using the correct tools and methods for cutting, shaping and mounting tray, basket trunking and conduit
S12	Install end-point equipment, i.e. CCTV camera, Wireless Access Point, Access Control etc using appropriate fixings and media
S13	Interpret the customer statement of requirements to determine the correct quality of components to be used in the cable network
S14	Use literacy and numeracy skills to quantify equipment requirements and timelines for tasks to be carried out
S15	Communicate effectively with key stakeholders in the customer's organisation including the customer, the Construction Design and Management (CDM) co-ordinator, the project manager and the Information Technology (IT) security officer
S16	Work diligently to maintain cyber security by applying processes and procedures aimed at protecting data confidentiality

KSBs	Apprenticeship standard outcomes
Behaviours	
B1	Highly self-motivated and driven when carrying out work alone
B2	Assumes responsibility for the accuracy and quality of own work
B4	Disciplined, applies effective time management and meets deadlines
B7	Focused and thorough, working to consistently high standards

Assessment method 2: Professional Discussion

Structure

The Professional Discussion assesses apprentices' knowledge, and behaviours from the apprenticeship standard, in line with the assessment plan requirements. It is assessed by a Pearson independent end-point assessor (IEA).

Professional Discussion	
Summary	The Professional Discussion is structured to draw out the best of the apprentice's competence and excellence and coverage of the required the KSBs.
Duration	75 minutes (the IEA has the discretion to increase the time of the Professional Discussion by up to 10% to allow the apprentice to complete their last answer).
Portfolio	Apprentices are required to provide evidence in a portfolio to validate and support their responses in the Professional Discussion. It is not directly assessed. The portfolio is compiled throughout the apprenticeship and completed and submitted at gateway.
Grading	Fail/Pass/Distinction Fail: Fails to meet the pass criteria. Pass: Apprentices must achieve all pass descriptors. Distinction: Apprentices must achieve all pass descriptors and all distinction descriptors. The grading criteria for this assessment method can be found in the assessment plan in *Annexe B.*
Preparation	Apprentices, with the support of their employer/training provider must use the *EPA Resource Pack* in their preparation for end-point assessment.
Delivery and conduct	The Professional Discussion will be conducted face to face or remotely. This must take place in a quiet environment away from the apprentice's normal working environment. The IEA asks the apprentice a minimum of 20 questions related to the knowledge and behaviours being assessed and having reviewed the portfolio. Apprentices present their responses using their portfolio evidence where appropriate.

Professional Discussion (*continued*)	
	The IEA will take notes and the Professional Discussion will be audio or video recorded.
Assessment	The IEA will review the apprentice's responses against the pass and distinction grade criteria using the assessment guidance in the *EPA Resource Pack* as guidance.

Standards Assessed

The Professional Discussion assesses the following knowledge and behaviours from the apprenticeship standard.

KSBs	Apprenticeship standard outcomes
Knowledge	
K2	The principles associated with the transmission of digital information over copper cable networks and the impact poor-quality workmanship has on the communication link. Has a fundamental knowledge of Ohm's Law and can recognise the changes in the electrical characteristics of copper cable caused through handling and installation irregularities
K3	The principles associated with the transmission of digital information over fibre cable networks and the impact poor-quality workmanship has on the communication link. Understands the principles of light propagation and has a fundamental knowledge of attenuation within the fibre channel. Recognises where losses can occur through poor handling and installation techniques
K7	The types of health and safety risk that could be incurred whilst carrying out cable installation tasks, who might be affected by the risk, and what actions can be taken to mitigate the risk
K8	The requirements to comply with National and International standards e.g. British Standards Institute BSEN 50173-Series, and the importance of following manufacturers' best-practice guidelines
K9	The criteria against which the network components will be inspected and the consequence of failing to meet the required quality standards as described above
K10	The customer's organisation, structure and the roles of personnel involved in the project, who they need to communicate with and for what reasons
K11	Asbestos Containing Materials (ACMs) and is conversant with the actions to be taken if ACMs are identified whist installation work is being carried out

KSBs	Apprenticeship standard outcomes
K12	The status and scope of the Electricity at Work Act and how work carried out during network cable installation tasks are governed by supporting standards i.e. BS7671
K13	The legislative requirements under the Working at Height regulations, including personal competence and inspection regimes, with particular relevance to the need for PASMA training and certification
K14	The concept of the 'internet of things' and the effects of emerging technologies on media selection, installation practices and additional testing requirements
K16	The requirement for the segregation of data cables from electrical cables in accordance with BSEN 50174. Can also identify media supporting other data services e.g. telephone, security, alarms and AV systems and the precautions to be taken to prevent interference or damage to the systems
K17	The need to maintain accurate documentation and the depth of information required for successful completion and handover to the customer
K18	The fundamental principles involved in the maintenance of cyber security, in particular workplace processes implemented by the organisation for the protection of data
K19	Workforce management systems and the workflow functionality
K20	The fundamental requirements of the New Roads and Streetworks Act and associated codes of practice. Knows when legislation applies and the levels of authorisation required to perform works
Behaviours	
B3	Team focused and makes an effective contribution
B5	Applies initiative to overcome any obstacles encountered in the workplace
B6	Anticipates security issues and demonstrates a commitment to safeguarding data integrity

6 Delivery of End-point Assessment

End-point assessment planning and scheduling

Employers and/or training providers must have an agreement in place to conduct EPAs with Pearson, and apprentices must be registered on the ACE360 system. Once the gateway evidence has been uploaded to ACE360, this will alert the IEA to review the evidence and start the planning and scheduling process.

The purpose of the EPA planning meeting is to share information with the IEA in order to support the assessment process and to agree a plan for the upcoming assessment activities for the apprentices. The IEA will agree a plan and schedule for each assessment activity. The end-point assessment planning meeting can be conducted remotely using appropriate technology.

Both assessment methods of the end-point assessment must be completed within the time period specified in *Section 2: Summary of End-point Assessment*.

Reassessment

Reassessment, including both resit and retake, is permitted in agreement between Pearson and the employer. The timescale will be agreed on a case-by-case basis with Pearson. As part of that agreement, any reassessments must not provide an apprentice with an unfair advantage over others.

For additional EPA-specific requirements, refer to the assessment plan in *Annexe B.*

Booking reassessment

Reassessment is requested using the ACE360 system. Once the request is confirmed, the allocated IEA will liaise with the key contact to start the scheduling process.

Appeals

The *End-point assessment enquiries and appeals policy* is available on the Pearson website and ACE Knowledge base. This has full information about what will happen if an apprentice or centre wishes to query the result of an assessment.

7 Access to assessment

Access to assessment for apprentices with disabilities or specific needs

Equality and fairness are central to our work. Our *Equality, diversity and inclusion policy* requires all apprentices to have equal opportunity to access our assessments, and that our EPAs are awarded in a way that is fair to every apprentice.

We are committed to making sure that:

- apprentices with a protected characteristic (as defined by the Equality Act 2010) are not, when they are taking one of our assessments, disadvantaged in comparison to apprentices who do not share that characteristic
- all apprentices achieve the recognition they deserve from their EPA and that this achievement can be compared fairly to the achievement of their peers.

For apprentices with disabilities and specific needs, the assessment of their potential to achieve the EPA must identify, where appropriate, the support that will be made available to them during delivery and assessment.

Centres must deliver the EPA in accordance with current equality legislation. For full details of the Equality Act 2010, please visit www.legislation.gov.uk

Reasonable adjustments

A reasonable adjustment relates to an adjustment that helps to reduce the effect of a disability or a physical or mental health condition, which may place the apprentice at a disadvantage compared to others. If an apprentice requires any adjustment to their assessment than this must be recorded within the ACE360 system to support the discussion at the EPA planning meeting.

Pearson will apply the *Reasonable adjustment matrix* published by the Institute for Apprenticeships and Technical Education (IfATE).

8 Malpractice

Dealing with malpractice in assessment

'Malpractice' refers to acts that undermine the integrity and validity of assessment, the certification of qualifications and/or may damage the authority of those responsible for delivering the assessment and certification.

Pearson does not tolerate actual or attempted actions of malpractice by learners, centre staff or centres in connection with Pearson qualifications. Pearson may impose penalties and/or sanctions on learners, centre staff or centres where malpractice or attempted malpractice has been proven.

Malpractice may occur or be suspected in relation to any unit or type of assessment within a qualification. For further details on malpractice and advice on preventing malpractice by learners, please see Pearson's Centre Guidance: Dealing with Malpractice, available on our website.

Centres are required to take steps to prevent malpractice and to investigate instances of suspected malpractice. Learners must be given information that explains what malpractice is for internal assessment and how suspected incidents will be dealt with by the centre. The Centre Guidance: Dealing with Malpractice document gives full information on the actions we expect you to take.

Pearson may conduct investigations if we believe a centre is failing to conduct internal assessment according to our policies. The above document gives further information and examples, and details the penalties and sanctions that may be imposed.

In the interests of learners and centre staff, centres need to respond effectively and openly to all requests relating to an investigation into an incident of suspected malpractice.

Learner malpractice

The head of centre is required to report incidents of suspected learner malpractice that occur during Pearson qualifications. We ask centres to complete *JCQ Form M1* (www.jcq.org.uk/malpractice) and email it with any accompanying documents (signed statements from the learner, invigilator, copies of evidence, etc) to the Investigations Processing team at candidatemalpractice@pearson.com. The responsibility for determining appropriate sanctions or penalties to be imposed on learners lies with Pearson.

Learners must be informed at the earliest opportunity of the specific allegation and the centre's malpractice policy, including the right of appeal. Learners found guilty of malpractice may be disqualified from the qualification for which they have been entered with Pearson.

Failure to report malpractice constitutes staff or centre malpractice.

Teacher/centre malpractice

The head of centre is required to inform Pearson's Investigations team of any incident of suspected malpractice (which includes maladministration) by centre staff, before any investigation is undertaken. The head of centre is requested to inform the Investigations team by submitting a *JCQ M2 Form* (downloadable from www.jcq.org.uk/malpractice) with supporting documentation to pqsmalpractice@pearson.com. Where Pearson receives allegations of malpractice from other sources (for example Pearson staff, anonymous informants), the Investigations team will conduct the investigation directly or may ask the head of centre to assist.

Pearson reserves the right in cases of suspected malpractice to withhold the issuing of results/certificates while an investigation is in progress. Depending on the outcome of the investigation, results and/or certificates may not be released, or they may be withheld.

You should be aware that Pearson may need to suspend certification when undertaking investigations, audits and quality assurances processes. You will be notified within a reasonable period of time if this occurs.

Sanctions and appeals

Where malpractice is proven, we may impose sanctions or penalties, such as:

- mark reduction for affected external assessments
- disqualification from the qualification
- debarment from registration for Pearson qualifications for a period of time.

If we are concerned about your centre's quality procedures, we may impose sanctions such as:

- working with centres to create an improvement action plan
- requiring staff members to receive further training
- placing temporary suspensions on certification of learners
- placing temporary suspensions on registration of learners
- debarring staff members or the centre from delivering Pearson qualifications
- suspending or withdrawing centre approval status.

The centre will be notified if any of these apply.

Pearson has established procedures for considering appeals against penalties and sanctions arising from malpractice. Appeals against a decision made by Pearson will normally be accepted only from the head of centre (on behalf of learners and/or members or staff) and from individual members (in respect of a decision taken against them personally). Further information on appeals can be found in the JCQ Appeals booklet (www.jcq.org.uk/exams-office/appeals).

9 Further information

Edexcel, BTEC and Pearson Work Based Learning contact details:

- https://qualifications.pearson.com/en/contact-us.html

Books, software and online resources for UK schools and colleges:

- www.pearsonschoolsandfecolleges.co.uk

Documents that further support the information in this specification:

- *EPA Service Guide* (Pearson, this is made available to approved centres).

10 Glossary

Term	Description
Apprenticeship standard	A short document prepared by a Trailblazer group that sets out concisely the requirements to be competent in a job role. All apprenticeship standards are published on www.gov.uk.
Assessment plan	This document is also prepared by a Trailblazer group and sets out the requirements that end-point assessment organisations must follow when assessing the EPA.
Competence	The minimum knowledge, skills and behaviours (KSBs) required to perform a job role effectively.
Assessment method	The different assessments that form the overarching EPA. Most EPAs will typically have between two and four assessment methods that assess set parts of the overarching standard. Assessment methods may include individual components.
End-point assessment	A synoptic assessment of the knowledge, skills and behaviours outlined in the apprenticeship standard that have been learned throughout the apprenticeship programme. The apprentice has to pass the EPA to be successful in their apprenticeship programme and demonstrate competence.
Gateway	The point at which the apprentice is identified as being competent by their employer and therefore ready to plan to take their end-point assessment. There are requirements for maths and English to enter gateway and there may be other requirements, such as mandatory qualifications, that vary depending on the apprenticeship standard.
Independent end-point assessor	The assessor appointed by Pearson to work with the apprentice and employer to plan their EPA during gateway and then assess the apprentice in the final EPA.
On-programme	The first and main part of the apprenticeship when the apprentice is developing their KSBs towards competence. 20% of on-programme is required to be off-the-job training.
Retake	An apprentice requires further learning after failing an assessment method before they can be re-entered for it.
Resit	An apprentice fails a component but is able to be re-entered immediately without any further learning.

Term	Description
Trailblazer group	A group of employers who have worked together to agree the apprenticeship standard and write the associated assessment plan.
Institute for Apprenticeships and Technical Education (IfATE)	IfATE is a non-departmental public body that oversees the development, approval and publication of apprenticeship standards and assessment plans. In addition, the institute is responsible for technical education, including T Levels.

Annexe A: Gateway Declaration Form

Apprentice name:	
Apprenticeship standard	
On-programme start date:	
Gateway date:	

Evidence	**Y/N**	**Comments (if applicable)**
English and maths certificates (L2 or above)		
Portfolio of evidence		

Employer declaration

I confirm that the apprentice has:

- Achieved the occupational knowledge, skills and behaviours required to achieve the apprenticeship
- Produced their evidence portfolio to the specified criteria.
- Achieved the prerequisites listed above and is ready for their end-point assessment.

Name:_____ Date:_____

Signature:_____

Apprentice declaration

I confirm the gateway evidence is my own and I agree to be put forward for my EPA.

Signature:_____ Date:_____

Annexe B: Assessment Plan

End-point assessment plan for Network Cable Installer apprenticeship standard

Standard reference number	Level of this EPA plan	Integrated
ST0485	3	No

Contents

Introduction and overview

This document sets out the requirements for end-point assessment (EPA) for the Network Cable Installer apprenticeship standard. It is for end-point assessment organisations (EPAOs) who need to know how EPA for this apprenticeship must operate. It will also be of interest to Network Cable Installerapprentices, their employers and training providers.

Full time apprentices will typically spend 12 months on-programme (before the gateway) working towards the occupational standard, with a minimum of 20% off-the-job training. All apprentices willspend a minimum of 12 months on-programme.

The EPA period should only start, and the EPA be arranged, once the employer is satisfied that the apprentice is consistently working at or above the level set out in the occupational standard, all of thepre-requisite gateway requirements for EPA have been met and that they can be evidenced to an EPAO.

All pre-requisites for EPA methods must also be complete and available for the independent assessoras necessary.

For level 3 apprenticeships and above apprentices without English and mathematics at level 2 must achieve level 2 prior to taking their EPA.

The EPA must be completed within an EPA period typically lasting 3 months, beginning when theapprentice has met the EPA gateway requirements.

The EPA consists of 2 distinct assessment methods.

The individual assessment methods will have the following grades:

Practical Demonstration and Questions

- Fail
- Pass
- Distinction

Professional Discussion

- Fail
- Pass
- Distinction

Performance in the EPA will determine the overall apprenticeship grades of:

- Fail
- Pass
- Distinction

EPA summary table

On-programme (typically 12months)	Training to develop the occupation standard's knowledge, skills andbehaviours.
End-point Assessment Gateway	• Employer is satisfied the apprentice is consistently working at,or above, the level of the occupational standard. • English/mathematics Level 2 Apprentices must complete: • A portfolio, compiled throughout the apprenticeship and completed by the gateway, must be sufficient to evidence the apprentice can apply the knowledge, skills and behaviours required as mapped to the Professional Discussion.
End-point Assessment (which would typically take months)	Assessment Method 1: Practical Demonstration and Questions Assessment Method 2: Professional Discussion
Professional recognition	Aligns with recognition by: • Institute of Telecommunications Professionals

Length of end-point assessment period:

The EPA (including all assessment methods) will typically be completed within 3 months.

Order of assessment methods

The assessment methods can be taken in any order.

Gateway

The EPA period should only start once the employer is satisfied that the apprentice is consistently working at or above the level set out in the occupational standard, that is to say they are deemed to have achieved occupational competence. In making this decision, the employer may take advice fromthe apprentice's training provider(s), but the decision must ultimately be made solely by the employer.

In addition to the employer's confirmation that the apprentice is working at or above the level in the occupational standard, the apprentice must have completed the following gateway requirements prior tobeginning EPA:

English and mathematics at level 2.

For those with an education, health and care plan or a legacy statement the apprenticeships English and mathematics minimum requirement is Entry Level 3 and British Sign Language qualification are an alternative to English qualifications for whom this is their primary language.

For the Practical Demonstration and Questions:

- No specific requirements

For the Professional Discussion, the apprentice will be required to submit

- A portfolio, compiled throughout the apprenticeship and completed by the gateway. The portfolio must be sufficient to evidence the apprentice can apply the knowledge, skills and behaviours required as mapped to assessment method 2 (AM2): Professional Discussion and Questions. There must be at least one piece of evidence relating to each knowledge, skill and behaviour mapped to AM2. One piece of evidence can be referenced against more than one knowledge, skill or behavioural requirement. It is expected that there will typically be a minimum of 5 pieces of evidence. The portfolio should contain written accounts of activities that have been completed and referenced against the knowledge, skills and behaviours, supported by appropriate evidence, including photographic evidence and work products, such as work instructions, safety documentation, company policies and procedures as appropriate to the activities. Progress review documentation should also be included. Self-reflective accounts or self-assessment are not permissible.

The apprentice's Manager/Mentor will typically support the development of the portfolio in accordancewith company policy and procedures, by:

- Providing sufficient time for the apprentice to prepare a portfolio
- Provide work-based opportunities for the apprentice to gather evidence
- Authenticating that the content of the portfolio is the apprentice's own work

Managers/mentors shall not:

- Provide evidence for the apprentice to include in the portfolio
- Assess or review the portfolio

The portfolio will not be directly assessed but will underpin the Professional Discussion.

Assessment Methods

Assessment Method 1: Practical Demonstration and Questions

(This Method has two components.)

Method 1 Component 1: Practical Demonstration and Questions

Overview

Apprentices must be observed by an independent assessor completing a practical demonstration consisting of two distinctly separate tasks, in which they will demonstrate the KSBs assigned to thisassessment method. The tasks are defined as:

- Install, terminate and test copper cable
- Install, terminate and test fibre optic cable

The end-point assessment organisation will arrange for the Practical Demonstration and Questions to take place, in consultation with the employer. The Practical Demonstration and Questions must be carried out over a maximum total assessment time of seven hours. The tasks may be split into discrete sections held over a maximum of two working days. The reason for this is that there are two tasks that can be separated into two different activities, the separation allows for flexibility and resource planning with the employer and will accommodate the needs of all parties. The independent assessor has the discretion to increase the time of the Practical Demonstration and Questions by up to 10% to allow the apprentice to complete the last task that is part of this element of the EPA.

The independent assessor may conduct and observe a maximum of two apprentices during this assessment method. On the occasions where only one apprentice is being assessed, the EPAO will arrange for either the EPAO or the employer to provide an additional person to assist where 2-person working is required for health and safety reasons.

The rationale for this assessment method is:

The Network Cable Installer role is heavily biased toward practical (hands-on) installation activities. Theability to install network cabling in demanding environments, in a safe manner, using the correct tools, and in accordance with highest quality standards, could only be assessed fairly and accurately in a simulated environment. It was felt that the primary test method should be a practical assessment with questions ensuring that the apprentice can not only demonstrate their practical skills but can also underpin this with a broader knowledge of the task at hand.

Delivery

Apprentices must be provided with both written and verbal instructions on the two tasks that they mustcomplete, including the timescales they are working to.

The Practical Demonstration and Questions should be conducted in the following way to take account ofthe occupational context in which the apprentice operates:

- The independent assessor shall provide an introductory brief to the apprentices detailing domestic arrangements and conduct of the Practical Demonstration and Questions.
- To mitigate health and safety risk, the independent assessor may allow apprentices to work in pairs for the sole purpose of initial cable installations when working at height i.e. getting the cables into the basket. All other tasks (dressing-in, fastening etc) must be carried out unaided.
- The independent assessor may terminate the EPA for any apprentice that works in an unsafe manner. This may include:
    - multiple minor infractions - working practices which, if allowed to continue unchecked, could be likely to cause harm to the individual or other persons present in the immediate vicinity. Four infractions will result in the termination of this assessment method.
    - a single serious safety error - an occurrence that could have or has caused serious injury tothe individual or other persons present in the work environment.
- Apprentices may take in user manuals for technical equipment. The EPAO shall inject errors into the project briefing document which will offer apprentices an opportunity to assess technical irregularities and offer suggestions for escalation and reparation.

The following activities MUST be observed during the Practical Demonstration and Questions i.e. a practical demonstration without these tasks would seriously hamper the opportunity for the apprenticeto demonstrate occupational competence in the KSBs assigned to this assessment method:

- Lay cable
- Install wire basket and UPVC trunking, incorporating vertical and horizontal containment routes at high and low levels
- Loom of cables into cabinet
- Install brackets using spirit level
- Terminate copper (Unshielded Twisted Pair and Foil Twisted Pair [UTP/FTP]) and fibre optic cables including:
    - one UTP and one FTP outlets at low level
    - six copper (UTP) panel to panel links
    - one fibre cable panel to panel link with 4 spliced fibres and 4 direct terminated type fibres

Method 1 Component 2: Questions

EPAOs will create and set open questions to assess related underpinning knowledge, skills and behaviours. The questions can be asked at appropriate times during the Practical Demonstration and Questions, however the independent assessor must only ask questions when it is safe to do so and avoid untimely interruptions. The independent assessor will ask a minimum of five questions. Follow-upquestions are permitted. Questioning must be completed within the total time allowed for the Practical Demonstration and Questions.

There may be breaks during the Practical Demonstration and Questions to allow the apprentice to movefrom one location to another and for meal breaks.

KSBs observed and answers to questions must be documented by the independent assessor.The independent assessor will make all grading decisions.

Questions and resources development

EPAOs will create and set open questions to assess related underpinning knowledge, skills andbehaviours.

EPAOs will produce specifications to outline in detail how the practical demonstrations will operate, what it will cover and what should be looked for. It is recommended that this be done in consultation with employers. EPAOs should put measures and procedures in place to maintain the security and confidentiality of their specifications if employers are consulted. Specifications must be standardised bythe EPAO.

EPAOs must develop 'practical specification banks' of sufficient size to prevent predictability and reviewthem regularly (and at least once a year) to ensure they, and the specifications they contain, are fit for purpose. The specifications, including questions relating to underpinning knowledge, skills and behaviours must be varied, yet allow assessment of the relevant KSBs.

Venue

Practical demonstrations must be conducted in one of the following locations:

- The employer's premises
- A suitable venue selected by the EPAO (e.g. a training provider's premises or another employer's premises)
- Video conferencing can be used to conduct the practical demonstration (i.e. live streaming), but the EPAO must have processes in place to verify the identity of the apprentice and ensure the apprentice is not being aided in some way, e.g. use a widescreen or other suitable camera, and subject to appropriate health and safety conditions being met. The observation of more than oneapprentice via video conferencing is not permitted.

The practical demonstration should take place in either a simulated network equipment room, or in areal environment utilising an electrically and spatially separated area. Maximum dimensions for the workarea will typically be 5m(w) x 10m(l) x 3m(h). The work area shall be fitted with:

- Equipment cabinets
    - 3 x data racks, typically 42U 800mm x 1000mm data racks. Racks may be bayed together and shall have a minimum 1.2m front and rear working access, and a minimum 900mm side access at one end for egress.
    - Racks shall be fitted with:
        - 19" Mounting rails
        - front/rear doors
        - plinth
        - earth bonding
- Workstations
    - to simulate individual work stations, backboards constructed of 25mm ply or MDF measuring typically 2m(l) x 1.6m(h) shall be installed on the walls or mobile units spaced equidistantly and at a minimum of 1m above floor level.
- Cable Containment
    - cable basket, typically 100mm x 50mm shall be installed at a height of approximately 2m and shall be routed from the cabinets, completing a loop around the perimeter of the area. Cable basket is to be bonded throughout and incorporate waterfall drop-offs to the cabinets.

- Lighting
    - EPAO is to ensure that there is sufficient lighting for work to be undertaken in a safe manner. This should equate to 500 Lux measured at 1m above floor level in all areas.

Induction

Each apprentice shall be given an induction briefing into the assessment venue on the day of the assessment before beginning the practical demonstration, paying particular attention to:

- The extent or limits of the work area to be worked in by the apprentice during the practical demonstration
- Known health and safety risks or hazards
- Actions in the event of an emergency
- Planned alarm tests
- Tools and equipment available for use

Support material

EPAOs will produce the following material to support this assessment method:

- Briefing document for employers and apprentices to describe how the demonstration will be delivered / administered.
- A briefing / job pack describing the two tasks to be completed during the demonstration.
- A fully documented risk assessment is to be made available for apprentices to review.
- A marking sheet
- Guidance document for Independent Assessors on how to administer the practical demonstration
- A process for capturing and accommodating any additional needs for the apprentice in line with the EPAOs Reasonable Adjustments Policy.
- Technical Equipment (including user manuals)
    - installation equipment, including UPVC trunking and conduit for outlet drops Cat 6 components for (outlet, cable. patch panels) for horizontal links.
    - installation Tools:
        - hand tools for cutting and mounting trunking/conduit
        - stripping and termination tools:

- fibre and copper certification test equipment, minimum Cat 6a and Tier 1 OpticalFibre testing
- fusion splicing tools
- labelling machines

Assessment Method 2: Professional Discussion

(This Method has one component)

Method 2 Component 1: Professional Discussion

Overview

This assessment will take the form of a Professional Discussion, which must be appropriately structuredto draw out the best of the apprentice's competence and excellence and cover the KSBs assigned to this assessment method. It will involve questions that will focus on coverage of prior learning or activity.

The Professional Discussion can take place in any of the following:

- Employer's premises
- A suitable venue selected by the EPAO (e.g. a training provider's premises)

The rationale for this assessment method is:

The Network Cable Installer role requires that installations are carried out to the highest technical and quality standards which are detailed through legislation, national/international standards and manufacturers best practice guides. More often, documentation of this type is specified in contracts andcan easily determine the success or failure of a project. In addition, there is a significant amount of technical knowledge underpinning their practical capabilities and the Professional Discussion offers the best platform for the apprentice to demonstrate their knowledge through topical discussions.

Delivery

The independent assessor will conduct and assess the Professional Discussion.

The Professional Discussion must last for 75 minutes. The independent assessor has the discretion to increase the time of the Professional Discussion by up to 10% to allow the apprentice to complete their last answer. Further time may be granted for apprentices with appropriate needs In line with the EPAOsReasonable Adjustment Policy.

During the Professional Discussion, the independent assessor must only use the EPAO's questionbank.

The Professional Discussion will be conducted as set out here:

- This is a 1:1 conversation, with no other parties involved
- Both parties may refer to the apprentice's portfolio to support the Professional Discussion
- The portfolio must be submitted at gateway and must be a minimum of 14 days before the Professional Discussion. The independent assessor should utilise this time to familiarise themselves with the portfolio and structure their questions around this

- A minimum of 20 questions shall be based on the knowledge mapped to this assessment method and these will be generated from the EPAO question bank

The independent assessor must use the assessment tools and procedures that are set by the EPAO torecord the Professional Discussion.

The independent assessor will make all grading decisions.

Venue

The Professional Discussion should take place in a quiet room, free from distractions.

Video conferencing can be used to conduct the Professional Discussion but the EPAO must have processes in place to verify the identity of the apprentice and ensure the apprentice is not being aidedin some way, e.g. use a widescreen or other suitable camera, and subject to appropriate health and safety conditions being met.

Other relevant information

A structured specification and question bank must be developed by EPAOs. The 'question bank' must be of sufficient size to prevent predictability and review it regularly (and at least once a year) to ensurethat it, and its content, are fit for purpose. The specifications, including questions relating to the underpinning knowledge, skills and behaviours, must be varied yet allow assessment of the relevant KSBs. EPAOs must ensure that apprentices have a different set of questions in the case of re-sits/re- takes.

Independent assessors must be developed and trained by the EPAO in the conduct of Professional Discussions and reaching consistent judgement.

EPAOs will produce the following material to support this assessment method:

- A marking sheet
- A briefing document for apprentices and employers on how the discussion will be administered
- Question bank

Weighting of assessment methods

All assessment methods are weighted equally in their contribution to the overall EPA grade.

Grading

Assessment Method 1: Practical Demonstration and Questions

KSBs	Name of grade	Grade descriptor
K1, K4, K5, K6, K15	Fail	Fails to meet the pass criteria
	Pass	**All of the following pass criteria need to be achieved to obtain a pass:**
S1, S2, S3, S4, S5, S6, S7, S8,S9, S10, S11, S12, S13, S14, S15, S16		Creates a schedule for their own work from the taskdescriptions supplied Creates a plan of sub-tasks required to complete the project and accurately estimates timings and allocates appropriate timing to each sub-task
B1, B2, B4, B7		Extracts detail from project documentation to quantify tools and equipment required for tasks Describes the components of the horizontal permanent link and channel, explaining the role of the floor distributor Provides detail of different cable categories and construction types Describes when and how the following tests are undertaken: • Copper cable certification • Tier 1 testing of optical cables • Tier 2 testing of optical cables Explain required items and their uses in the construction of communications equipment cabinets

KSBs	Name of grade	Grade descriptor
		Demonstrates compliance of the individual in the workplace as specified in the HASAW 1974 Installs cables into containment systems in accordance with national standards, in a safe manner and free of damage Accurately interprets diagrams and confidently selects the correct range of tools and installation components required to complete the task Assess the appropriate MEWP equipment required for installation activities. States the procedure for the setting up and safe use of MEWPs Prepares to enter and exit confined spaces in a safe manner Correct safety and personal protective equipment are selected and used in accordance with the NRSWA Selects the correct components for copper and fibre optic cable testing and carries out testing and records results Fastens cables securely and labels at the appropriate locations Terminates copper and fibre cables using appropriate components, and demonstrating the correct manufacturer techniques Sets up the required test parameters as per the customers requirement Interprets test certificates to ensure that the correct criteria have been applied to the cable under test and is able to explain the fields included in the test report Can correctly explain the criteria for pass/fail test results.

KSBs	Name of grade	Grade descriptor
		Correctly demonstrates the procedures for preparing to carry out works in the highway, in particular, the activities involved in cable avoidance testing and the setting up of signing, lighting and guarding systems Correctly analyses and interprets design documentation to create a list of tools and installation components for completion of the installation task Determines the appropriate containment system to support the cabling media, defined by type, construction and size Uses appropriate tools for preparing and constructing containment routes Works safely at height Completes the installation of trunking and conduit in a safe manner Components are securely mounted to the wall Ensures that cabinets are locked when complete and keys are given to the appropriate person Delivers a task brief to the independent assessor detailing the approach to the project and the health and safety controls to be implemented.
	Distinction	**In addition to achieving all pass criteria, all of the following distinction criteria need to be achieved to obtain a distinction:** Completes the tasks in under 6 hours without detriment to safety procedures and installation quality Cables are free from stress and there are no signs of multiple re-terminations The termination area is free from debris

KSBs	Name of grade	Grade descriptor
		Describes the escalation process to be used when errors in project documentation arise Is able to create a schedule for the installation team from the task descriptions supplied Can describe the campus hierarchy, giving detail of the distribution points including locations and capacities Explains the rationale for the selection of cable media Explains the rationale underpinning the contractual requirements for testing and the acceptance of *Pass/*Fail test results Describes the selection criteria for communications cabinets and discuss the range of sizes with respect to footprint and height Explains the requirement of the supervisor in the workplace as specified in the HASAW 1974

Assessment Method 2: Professional Discussion

KSBs	Name of grade	Grade descriptor
K2, K3, K7, K8, K9, K10, K11, K12, K13, K14, K16, K17, K18,K19, K20 B3, B5, B6	Fail	Fails to meet the pass criteria
	Pass	**All of the following pass criteria need to be achieved to obtain a pass:** Explains how Ohm's law is applied when calculating electrical values Explains how analogue electrical signals represent digital data Explains how light is transmitted through optical fibres Explains how own workmanship can affect the quality of performance Explains the risk associated with the tasks that they might be expected to undertake and explains what actions they would take to reduce those risks Explains the values of being an effective team member and provides examples of how they have made an effective contribution to team working scenarios Explains the basic principles of the NRSWA and the role of the NRSWA operative Explains the principles of signing, lighting and guarding Can list the six standards documents in the BSEN 50173 series and in what situation they might be used Describes what actions they may undertake to ensure that work is finished to the highest quality Defines who they are required to communicate with from the customers organisation

KSBs	Name of grade	Grade descriptor
		Identifies the three types of asbestos and explains the risk associated with asbestos and where it might be present in the workplace Describes the purpose of BS7671 and the relevance of the edition number and the colour of the cover Is able to describe situations where the Working atHeight Regulations come into force and the safe working practices to be applied Describes examples of 'smart' devices and how theywould connect to a network Explains how they have used their own initiative to overcome any obstacles encountered in the workplace Explains the effect of electromagnetic interference andprovide examples of sources of interference Describes different types of media supporting otherdevices Can describe the following documents: • Bill of Materials • Rack Face Layout • Patch list Explains own responsibilities and actions to be taken inprotecting cyber security Explains their organisations system for task planningand management Explains own responsibilities when using a workflowmanagement system Identifies potential security issues such as breach ofsecure areas and demonstrates a commitment to safeguarding data integrity

KSBs	Name of grade	Grade descriptor
	Distinction	**In addition to achieving all pass criteria all of the following distinction criteria need to be achieved to obtain a distinction:** Describe the escalation process to be used when errors in project documentation arise Can explain how to calculate loss budgets in the fibre channel Describes the formal risk assessment process, themethod for evaluating and quantifying risk, and reporting requirements Explains examples of quality criteria and how theywould differentiate between a pass and fail Explains the difference between quality and compliance Explains the immediate actions and escalation processwhen ACM is believed to have been identified in the workplace Explains how working practices can be adapted to avoidrisks associated with working at height Explains the role of shielded cable in protecting againstEMI and the installation process to ensure correct earthbonding Describes the project closure document set Explains the requirements to protect customers dataand can detail the process for reporting potential security breeches Explains the limitation of the qualification and therenewal process Identifies the safety and PPE equipment required whenundertaking streetworks

Overall EPA grading

All EPA methods must be passed for the EPA to be passed overall.To achieve a distinction:

- All distinction grade descriptors must be achieved for the Practical Demonstration with Questionsand Professional Discussion.

Apprentices who do not meet the requirements to achieve a pass will be deemed to have failed.

Grades from individual assessment methods should be combined in the following way to determine thegrade of the EPA as a whole:

Practical Demonstration and Questions	Professional Discussion	Overall grading
Fail	Any Grade	Fail
Any Grade	Fail	Fail
Pass	Pass	Pass
Pass	Distinction	Pass
Distinction	Pass	Pass
Distinction	Distinction	Distinction

Roles and responsibilities

Role	Responsibility
Apprentice	• Complete the on-programme element of the apprenticeship • Prepare for and complete the EPA • Prepare a portfolio in line with the requirements of the EPA
Employer	• Identify when the apprentice is ready to pass the gateway and undertake their EPA • Make any company policies / procedures linked to the EPA available to the independent Assessor • Support the apprentice in the development of their portfolio by: o Providing sufficient time for the apprentice to prepare aportfolio o Providing work-based opportunities for the apprentice togather evidence o Ensuring content of portfolio is the apprentice's own work

Role	Responsibility
EPAO	As a minimum EPAOs should: • Appoint administrators/invigilators and markers to administer/invigilate and mark the EPA • Provide training and CPD to the independent assessors they employ to undertake the EPA • Create learner specifications detailing the EPA, process, content etc. • Ensure there is no direct connection with the apprentice, their employer or training provider i.e. there must be no conflict of interest • Have processes in place to conduct internal quality assurance and do this on a regular basis • Organise standardisation events and activities in accordance with this plan's IQA section • Organise and conduct moderation of independent assessors' marking in accordance with this plan • Have, and operate, an appeals process • Conform to the requirements of the nominated EQA provider • Create supporting documents for each assessment method
Independent assessor	As a minimum an independent assessor should: • Be independent of the apprentice, their employer and training provider(s) i.e. there must be no conflict of interest • Attend the required number of EPAOs standardisation and training events per year (as defined in the IQA section and as specified by the EPAO)
Training provider	As a minimum the training provider should: • Work with the employer to ensure that the apprentice is given the opportunities to develop the KSBs outlined in the standard and monitor their progress during the on-programme period • Advise the employer, upon request, on the apprentice's readiness for EPA prior to the gateway • Play no part in the EPA itself

Internal Quality Assurance (IQA)

Internal quality assurance refers to the requirements that EPA organisations must have in place to ensure consistent (reliable) and accurate (valid) assessment decisions. EPA organisations for this EPAmust:

- Appoint independent assessors who have knowledge of the following areas:
  - have a minimum 5 years demonstrable experience within the Network Infrastructuresector.
  - have received training and certification in all practical aspects of the apprenticeshipstandard
  - be able to demonstrate through interview a commitment to continued professionaldevelopment, by demonstrating a knowledge of industry legislation, standards andindustry technical developments.
- Appoint independent assessors who have recent relevant experience of the occupation/sector at least one level above the apprentice gained in the last three years or significant experience of the occupation/sector.
- The independent assessors will have the following minimum skills, knowledge and occupational competence:
  - hold or be working towards an independent assessor qualification e.g. A1
  - had training from their EPAO in terms of good assessment practice, operating the assessment tools and grading
  - have the capability to assess the apprentice at this level i.e. meet the occupational requirements as set out in the IQA section of this assessment plan
- Provide training for independent assessors in terms of good assessment practice, operating the assessment tools and grading
- Have robust quality assurance systems and procedures that support fair, reliable and consistent assessment across the organisation and over time.
- Operate induction training and standardisation events for independent assessors when they begin working for the EPAO on this standard and before they deliver an updated assessment method for the first time
- Ensure independent assessors attend regular standardisation events for this occupational standard at least once a year

Re-sits and retakes

Apprentices who fail one or more assessment method will be offered the opportunity to take a re-sit or are-take. A re-sit does not require further learning, whereas a re-take does.

Apprentices should have a supportive action plan to prepare for the re-sit or a re-take. The apprentice'semployer will need to agree that either a re-sit or re-take is an appropriate course of action.

An apprentice who fails an assessment method, and therefore the EPA in the first instance, will berequired to re-sit or re-take any failed assessment methods only.

Any assessment method re-sit or re-take must be taken during the maximum EPA period, otherwise theentire EPA must be taken again, unless in the opinion of the EPAO exceptional circumstances apply outside the control of the apprentice or their employer.

Re-sits and re-takes are not offered to apprentices wishing to move from pass to distinction.

Where any assessment method has to be re-sat or re-taken, the apprentice will be awarded a maximum EPA grade of pass, unless the EPAO determines there are exceptional circumstancesrequiring a re-sit or re-take.

Affordability

Affordability of the EPA will be ensured by using at least some of the following practice:

- use of simulation and video conferencing

Professional body recognition

This apprenticeship is designed to prepare successful apprentices to meet the requirements forregistration as Network Cable Installer with the Institute of Telecommunications Professionals.

Reasonable adjustments

The EPAO must have in place clear and fair arrangements for making Reasonable Adjustments for thisstandard. This should include how an apprentice qualifies for Reasonable Adjustment and what Reasonable Adjustments will be made. The adjustments must maintain the validity, reliability and integrity of the assessment methods outlined in this assessment plan.

Mapping of KSBs

KSB code	KSB statement	Methods mapped against
Knowledge		
K1	Design specifications and documentation including floorplans, patch lists, bills of materials, rack face layout plans etc. Has an appreciation of literacy and numeracy skills required in order to select and quantify tools and equipment required for tasks, calculate timeframes for work activities and plan work schedules	Practical Demonstration and Questions
K2	The principles associated with the transmission of digital information over copper cable networks and the impact poor-quality workmanship has on the communication link. Has a fundamental knowledge of Ohm's Law and can recognise the changes in the electrical characteristics of copper cable caused through handling and installation irregularities	Professional Discussion
K3	The principles associated with the transmission of digital information over fibre cable networks and the impact poor-quality workmanship has on the communication link. Understands the principles of light propagation and has a fundamental knowledge of attenuation within the fibre channel. Recognises where losses can occur through poor handling and installation techniques	Professional Discussion
K4	The key components of a structured cabling infrastructure and the relationship between campus, building and floor distributors, with relevance to the cable installation plan. Understands the basic elements of IT network architecture, including the range of cable types and networking equipment including routers and switches	Practical Demonstration and Questions
K5	The test parameters for copper and fibre cable certification in accordance with appropriate industry standards e.g. BSEN 50346 – Information Technology-Testing of Installed Cables, the routine for test equipment service and calibration	Practical Demonstration and Questions
K6	Own responsibilities under the Health and Safety at Work Act 1974, in particular the need to take care of their own health and safety in the workplace whilst also being responsible for those that might be affected by his/her actions	Practical Demonstration and Questions

KSB code	KSB statement	Methods mapped against
Knowledge *(continued)*		
K7	The types of health and safety risk that could be incurred whilst carrying out cable installation tasks, who might be affected by the risk, and what actions can be taken to mitigate the risk	Professional Discussion
K8	The requirements to comply with National and International standards e.g. British Standards Institute BSEN 50173- Series, and the importance of following manufacturers' best-practice guidelines	Professional Discussion
K9	The criteria against which the network components will be inspected and the consequence of failing to meet the required quality standards as described above	Professional Discussion
K10	The customer's organisation, structure and the roles of personnel involved in the project, who they need to communicate with and for what reasons	Professional Discussion
K11	Asbestos Containing Materials (ACMs) and is conversantwith the actions to be taken if ACMs are identified whist installation work is being carried out	Professional Discussion
K12	The status and scope of the Electricity at Work Act and how work carried out during network cable installation tasks are governed by supporting standards i.e. BS7671	Professional Discussion
K13	The legislative requirements under the Working at Height regulations, including personal competence and inspection regimes, with particular relevance to the need for PASMA training and certification	Professional Discussion
K14	The concept of the 'internet of things' and the effects of emerging technologies on media selection, installation practices and additional testing requirements	Professional Discussion
K15	The structural components of equipment racks/cabinets and how to assemble them to meet the requirements on the infrastructure design	Practical Demonstration and Questions
K16	The requirement for the segregation of data cables from electrical cables in accordance with BSEN 50174. Can also identify media supporting other data services e.g. telephone, security, alarms and AV systems and the precautions to be taken to prevent interference or damage to the systems	Professional Discussion

KSB code	KSB statement	Methods mapped against
Knowledge *(continued)*		
K17	The need to maintain accurate documentation and the depth of information required for successful completion and handover to the customer	Professional Discussion
K18	The fundamental principles involved in the maintenance of cyber security, in particular workplace processes implemented by the organisation for the protection of data	Professional Discussion
K19	Workforce management systems and the workflow functionality	Professional Discussion
K20	The fundamental requirements of the New Roads and Street Works Act and associated codes of practice. Knows when legislation applies and the levels of authorisation required to perform works	Professional Discussion

KSB code	KSB statement	Methods mapped against
Skills		
S1	Install copper cabling components for Local Area Networking (LAN). Carry out maintenance tasks on copper cable networks. Can identify, locate and repair common faults	Practical Demonstration and Questions
S2	Install fibre optic cabling components for Local Area Networking (LAN) and Wide Area Network (WAN) infrastructure. Can identify, locate and repair common faults	Practical Demonstration and Questions
S3	Carry out testing on copper cabling in accordance with equipment manufacturer's procedures, and compliant to industry standards, interpret results and rectify failures	Practical Demonstration and Questions
S4	Carry out testing of fibre optic cabling using an optical loss test set (Tier 1), an optical time domain reflectometer (Tier 2) and fibre inspection tool in accordance with equipment manufacturer's procedures, and compliant to industry standards	Practical Demonstration and Questions
S5	Analyse copper and fibre test results and providescertification to the customer	Practical Demonstration and Questions
S6	Prepare, constructs and installs telecommunications equipment cabinets, either pre-built or from flat-pack. Arrange and install fixtures and fittings appropriate for theintended use. Correctly selects network equipment components for installation into cabinets, differentiating between switches and routers	Practical Demonstration and Questions
S7	Work at height in a safe manner and is competent in the useof Mobile Equipment Work Platforms (MEWPs) and can assemble, dismantle, use and inspect prefabricated low-level access towers	Practical Demonstration and Questions
S8	Reduce the danger of working in confined spaces by implementing appropriate health and safety procedures,using and maintaining personal protective equipment	Practical Demonstration and Questions
S9	Carry out network cable installation within the public highway to the standards required by the New Roads and Street Works Act 1991	Practical Demonstration and Questions

KSB code	KSB statement	Methods mapped against
Skills *(continued)*		
S10	Analyse plans, make decisions about equipment types and quantity, and accurately predict timeframes	Practical Demonstration and Questions
S11	Assess the requirements for cable containment by type and size to build a pathway suitable for routing data cables. Install containment systems in a safe manner, using the correct tools and methods for cutting, shaping and mounting tray, basket trunking and conduit	Practical Demonstration and Questions
S12	Install end-point equipment i.e. CCTV camera, Wireless Access Point, Access Control etc using appropriate fixingsand media	Practical Demonstration and Questions
S13	Interpret the customer statement of requirements to determine the correct quality of components to be used in the cable network	Practical Demonstration and Questions
S14	Use literacy and numeracy skills to quantify equipment requirements and timelines for tasks to be carried out	Practical Demonstration and Questions
S15	Communicate effectively with key stakeholders in the customer's organisation including the customer, the Construction Design and Management (CDM) co-ordinator,the project manager and the Information Technology (IT) security officer	Practical Demonstration and Questions
S16	Work diligently to maintain cyber security by applying processes and procedures aimed at protecting data confidentiality	Practical Demonstration and Questions
Behaviours		
B1	Highly self-motivated and driven when carrying out workalone	Practical Demonstration and Questions
B2	Assumes responsibility for the accuracy and quality of own work	Practical Demonstration and Questions
B3	Team focused and makes an effective contribution	Professional Discussion

KSB code	KSB statement	Methods mapped against
Behaviours *(continued)*		
B4	Disciplined, applies effective time management and meets deadlines	Practical Demonstration and Questions
B5	Applies initiative to overcome any obstacles encountered in the workplace	Professional Discussion
B6	Anticipates security issues and demonstrates a commitmentto safeguarding data integrity	Professional Discussion
B7	Focused and thorough, working to consistently highstandards	Practical Demonstration and Questions

Pearson