

openreach

ISIS Practice
For Openreach and Contract Partners

AEI/ACC/N027

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OFN Cabling in the Overhead Network

About this document ...

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Content approval

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by Scott Marshall, Accreditation Professional

Version History

Version No.	Date	Author	Comments
Issue 9	19-Apr-2023	Quality Standards & Accreditation	Document review. Title change from OH to Overhead. Questions updated. Modular Guidance reviewed.
Issue 8	20-Apr-2022	Quality Standards & Accreditation	Document updated in the questionnaire and modular guidance to remove fibre label reference and 36f designated cable
Issue 7	22-Feb-2022	Quality Standards & Accreditation	Document review. Links to external sources validated/updated where appropriate. Format updated. Questionnaire amended to 1 mark per answer. Q10 & Q11 amended to reflect changes in SST clamp manufacturer.
Issue 6	22-Feb-2021	Quality Standards & Accreditation Network Engineering	Questionnaire updated to include LV power crossings, cable slack and fibre length renewal policy. Modular guidance to include Route Stability. Changed to new format.
Issue 6	17-Feb-2021	Quality Standards & Accreditation Network Engineering	Updated
Issue 5	30-Jul-2020	Quality Standards & Accreditation Network Engineering	Questionnaire updated and added to , road crossings now included. New safety guidance added
Issue 4	14-Apr-2020	Quality Standards & Accreditation Network Engineering	Document review. Author/Approver/Publisher details amended. Document lay out edited. Questionnaire updated and new questions added.
Issue 3	29-May-2019	Accreditation Standards Network Engineering	Document review. Links to external sources validated/updated where appropriate. Author/Approver/Publisher details amended. Change of author & approver details. Typo's corrected in section 7.
Issue 2	21-Jan-2019	Accreditation Standards	Document review. Typo's

		Network Engineering	corrected in questionnaire.
Issue 1	28-Dec-2018	Accreditation Standards Network Engineering	New Module

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1 *Introduction*

This ISIS is reviewed and updated annually. Between reviews any changes are communicated using Access Engineering Communications (AEC).

Links to ISIS documents, accreditation modules and all reference material can be found in:

- [Technical Library](#), [Bookstore](#) or Policy & Build App for Openreach.
- CANDID for Contract Partners.

Answers for all modules are available via the Author of this document (see above).

In order to comply with the requirements of this accreditation module the Assessor must follow the procedure below:

- Allow the time shown for the Delegate to complete.
- Explain that reference documentation can be used.
- The criteria for **all** sections **must** be fulfilled in order to meet the requirements for this module.

2 *Scope*

The target audience for this accreditation is anyone working on the Openreach network including Contract Partners.

This module is essential for anyone carrying out Overhead (OH) fibre cabling build activities in the One Fibre Network (OFN). The overall content is covered in the following Description and Method sections, in more detail.

3 *Description*

This module consists of two parts, a questionnaire and a practical assessment.

Content: It will check the Delegates understanding & ability to complete the provision of OH fibre cables and attachment of Connectorised Block Terminal (CBT) using current working practices and quality standards.

Duration: Questionnaire 60 mins **Practical:** Open

4 *Measurement*

Questionnaire: The Delegate must achieve **80%** or greater to be successful. For Openreach people the questionnaire can be found on Learning Home as an online course using the code **ORCHK016**.

Practical: Using the Module Guidance and ISIS documents for reference, the Assessor will check that the Delegate completes the tasks outlined in the Method section.

The Module Guidance outlines where coaching can be provided, highlighted by a Coaching Mark (C) next to each Assessment Pointer. No more than **30%** of the available Coaching Marks can be used.

Assessor Note: The exact score required to pass the questionnaire and the allowed number of Coaching Marks can be found in the Delegates Details section.

Post Assessment: You must enter the results onto the [Skills Passport](#) or Smart Awards for Contract Partners.

5 *Safety*

Caution: If the Delegate displays a disregard for, or lack of knowledge of safety, then STOP THE ASSESSMENT - re-assessment required - refer to –safety module for guidance

Using their mandatory holding of safety and relevant access equipment, the Delegate will demonstrate to the Assessor, the correct safety practices required to successfully complete this accreditation module. This may include a check of:

- Relevant safety modules on National Operative Passport Scheme (NOPS) card (Partners Only).
- Openreach Construction Design Management (CDM) 2015 Regulations Policy followed.
- Relevant New Roads and Street Works Act (NRSWA) qualification.
- Personal Protective Equipment (PPE).
- Check all access equipment and ancillary devices for defects before use
- Check, fit and adjust safety harness.
- Safely handle access equipment.
- Carry out all pre-climb checks for working on a wooden pole.
- Deploy (including Tetra where trained) all required support equipment.
- Safely climb and turn on a pole if required.

- Safely raise and lower equipment to the work position.
- Set up equipment for the correct erection of a dropwire across a road.
- Demonstrate the correct use of PPE for these situations.
- Identify Low Voltage (LV) or High Voltage (HV) power cables and perform a risk assessment if required.

6 *Method*

Questionnaire: Using reference documentation where required, the Delegate will complete the questionnaire. A maximum of **60** minutes is allowed for this exercise.

Practical: Using the correct tools, equipment and working practices, the Delegate will provide 2 OH installs as described below.

The practical assessment can be completed under live or simulated working conditions using one of the below methods:

- On site – During a new Passive Optical Network (PON) build.
- On site – During relevant sections of different PON build.
- At an approved Skills Centre or training environment.

The Assessor will then use the Module Guidance to verify their understanding and ability to carry out the task.

Practical 1:

The Delegate will be required to install a Connectorised Block Terminal (CBT) on a pole in the correct position and span a Cable Optical Fibre (COF) 250 Single Standard Tube (SST) tail overhead to another pole that includes a road crossing. The SST cable will then need to be routed down the pole to jointing position. Note a 2nd person will be required to keep the tension of the cable during installation.

Practical 2:

The Delegate will be required to install a CBT and External Locking Mechanism (ELM) on pole 1 in the correct position and span the COF 215 Ultra Light Weight (ULW) OH for 2 spans that includes a road crossing. On pole 2 the cable pass through on terminating clamps. On pole 3 the ULW cable will be routed down the pole to the jointing position via an ELM.

7 *Delegate Details*

Module No	AEI/ACC/N027
Title	OFN Cabling in the Overhead Network
Date	
Delegate's Name	
Delegate's UIN	
OUC	
Assessor's Name	
Assessor's UIN	
Questionnaire	PASS/FAIL
Practical	PASS/FAIL
Notes	

Questionnaire Scoring:

Total Possible Score	Score Achieved	Required Score to Pass
37		30

Practical Scoring:

Total Coaching Marks Available	Total Coached	Total Coaching Marks Allowed
7		2

8 Questionnaire

No.	Question	Mark(s)
1	What is the minimum climb height where a pole has plant crossing a carriageway? A. 5.2m B. 5.5m C. 5.9m	
2	What height must be achieved when erecting Cable Optical Fibre (COF) 250 Standard Single Tube (SST) or COF 215 Ultra Light Weight (ULW) across a carriageway without the need for an A1024? A. 5.5m B. 5.6m C. 5.9m	
3	What is the minimum bend radius of COF 215 ULW? A. 80mm B. 84mm C. 90mm	
4	What diameter clamp is used on COF 215 ULW and how is it identified? A. 6mm Orange flash. B. 7mm Purple flash. C. 8mm Red flash.	
5	Which clamp should be fitted on COF 215 ULW at straight through intermediate poles with no road or rail crossings and a deviation of less than 15 degrees? A. Hybrid cable clamp. B. Full termination clamp. C. Intermediate overhead cable clamp.	

6	How is an intermediate clamp fixed to a pole? A. Nails bonding and a galvanised washer. B. 1 x 1/2" No10 screw and a galvanised washer. C. 2 x Straps Cable Fixing (SCF) 1A to ring head.	
7	How is fibre movement controlled in a COF 215 ULW? A. External Locking Mechanism (ELM). B. Anti Creepage Device (ACD). C. Cable Clamp Continuous (CCC).	
8	Where in the cable run are ELM'S fitted? A. First and last poles. B. At joint locations only. C. First pole, last pole and where the COF 215 enters and exits pole mounted joints.	
9	What clamp is used on an SST cable? A. Full termination clamp. B. 7mm double helix clamp. C. Telenco Hypoclamp.	
10	What is the correct method of installing an SST clamp? A. Place the cable flat on the bottom of the Hypoclamp body then position shim onto the cable, in the clamp body, with the gripping bumps facing the cable. B. Ensure the smooth side of the shim is facing the cable, ensure the rough holes are not in contact with the sheath as to not damage the cable.	
11	SST cable is considered as an aerial cable so has different rules with regards to wire heights than COF 215 ULW.	



	A. True B. False	
12	What is the minimum number of Anti-Oscillation twists required when installing SST cable overhead? A. 10 every 10m. B. 5 every 10m. C. 1 every 10m.	
13	What is the minimum bend radius of SST? A. 80mm B. 84mm C. 90mm	
14	What is the correct method for fixing COF 250 SST/COF 215 ULW cables to a pole? Select all that apply. A. Strip Aluminium and 2 x Pin Steel No2. B. Strap Vable Fixing 12A. C. Strip Aluminium, 2 x Nails Bonding and Washer Galvanised. D. Cleat Wiring Hybrid. E. Staples Galvanised.	
15	What must be attached to a pole before fitting all Corning CBT's? A. Black plastic mounting bracket. B. Back plate. C. Nothing as CBT screws directly onto pole.	
16	When we have little or no room left in the upper/ top pole envelope, what can we do to increase space, if trained to do so? Select all that apply.	


	<p>A. Install 2 way or 3 way back to back brackets.</p> <p>B. Lower the top bass step so it aligns with the step on the opposite side of the pole.</p> <p>C. Remove all copper equipment.</p> <p>D. Move CBT's into the lower/bottom pole envelope.</p>	
17	<p>To enable the build teams to joint a fibre node away from a pole we have a method for safely & securely storing the resulting coil of cables on the pole. What is that method?</p> <p>A. Coil cable using Straps Cable Fixing 1a and secure to pole using Strips Aluminium.</p> <p>B. Coil cable using Straps Cable Fixing 1a and use yellow tape to secure the coil to pole.</p> <p>C. Install Cable Coiling Bracket in the correct pole envelope, following the instructions</p>	
18	<p>Which piece of equipment allows us to remove a "Crown Ring Head" from a pole, to create more room for CBT's etc?</p> <p>A. Ring Pole Head No2 (Halo Ring).</p> <p>B. Ring Pole Head No1.</p> <p>C. Bracket 22.</p>	
19	<p>Where a pole has no Stay or wires in an opposing arc the maximum number of COF 215 permitted in line of route between two medium poles, across a carriageway is?</p> <p>A. 3</p> <p>B. 4</p> <p>C. 5</p>	

20	Where the pole has a Stay fitted, or wires applying an opposing load, how many SST cables are permitted in line or route between two light poles? A. 8 B. 10 C. 12	
21	Where no ring head exists, when can a single bracket 22 be fitted to a pole? A. When the angle is less than 90 degrees. B. When the angle is greater than 90 degrees. C. When the angle is greater than 120 degrees.	
22	Where the installation of an Underground (UG) cable is not economically viable, due to extensive duct damage / blockages, or where no duct exists and the use of an overhead alternative is required. What is the maximum span length that can be provided for a non-road crossing, if the distance between poles is greater than 68m? A. 75m with Chief Engineer approval. B. 85m with Chief Engineer approval. C. 95m with Chief Engineer approval.	
23	What height above a carriageway must be achieved when providing an over length fibre cable span feeding a CBT of up to 75m? A. 5.9m B. 5.2m C. 6.5m	
24	What A1024 category is a dropwire from 4.8m to below 5.2m?	

	<p>A. 1</p> <p>B. 2</p> <p>C. 3</p> <p>D. 4</p>	
25	<p>Does a low wire (Cat 3) need to have an A1024 label?</p> <p>A. Yes, all A1024 defects need a label.</p> <p>B- No, not required.</p> <p>C- No, if it has already been labelled as defective plant.</p>	
26	<p>You are working on a pole and the copper Distribution Point (DP) lid is not correctly fitted, would you?</p> <p>A. A1024 as defective plant.</p> <p>B. Ring your line manager.</p> <p>C. Re-fit the lid.</p>	
27	<p>A proposed COF 215 ULW overhead route passes under High Voltage (HV) electricity cables, is this permissible?</p> <p>A. Yes, up to 11kv</p> <p>B. Yes, up to 33kv</p> <p>C. No, we cannot install ULW under HV</p>	
28	<p>On a Distribution Network Operator pole (DNO), what does the label J10 mean?</p> <p>A. Joint User Pole with a minimum of 10 category 10 attachments required.</p> <p>B. Joint User Pole which allows cables larger than a category 10 attachment to be installed.</p> <p>C. Joint User Pole with a maximum of 10 category 10 attachments.</p>	

29	<p>When attaching or replacing drop cables to a DNO pole what cable should we use where possible to reduce the number of cables emanating from the Joint User Pole?</p> <p>A. Round Fibre Only Dropwire (RFOD). B. Dual Drop Hybrid Cable. C. ROC drop cable.</p>	
30	<p>HV and Low Voltage (LV) cables carry different voltages, what voltage is identified as LV?</p> <p>A. Less than 11,000 volts (11kV) B. Less than 1000 volts (1kV) C. Less than 10,000 volts (10kV)</p>	
31	<p>When working on a Joint User Pole (JUP) with "Single Wire" LV conductors, what is the minimum clearance required when the lower most wire is the Live?</p> <p>A. 800mm B. 1m C. 500mm</p>	
32	<p>There are 3 types of LV cable, please select all that apply</p> <p>A. Aerial Bundled Conductor (ABC) B. Concentric Neutral service cable C. Triple live Wires D. Single Wires E. Bundled Live and Neutral (BLN)</p>	

33	<p>Please identify the LV cable in the picture</p>  <p>A. Aerial Bundled Conductor (ABC). B. Concentric Neutral service cable. C. Single wires.</p>	
34	<p>Please identify the LV cable in the picture</p>  <p>A. Aerial Bundled Conductor (ABC).</p>	

	<p>B. Concentric Neutral service cable.</p> <p>C. Single wires.</p>	
35	<p>All pole mounted CBT's must be identified by punching the CBT ID on an aluminium strip and attached to the pole. Where on the pole must this be fixed?</p>  <p>A. Next to the pre climb label.</p> <p>B. Under the poles ID label (pole numbers).</p> <p>C. Below the CBT.</p>	
36	<p>If a mid-span O/H fibre cable and clamps becomes damaged, how many new spans should be replaced?</p> <p>A. Three spans with two new Joints On Pole (JOP) created</p> <p>B. Damage must be repaired in situ using in-line OH joint</p> <p>C. One span with two new Joints On Pole (JOP) created</p>	
37	<p>To enable a future pole change out, how much slack, where possible, should be left on a new O/H CBT tail and where should it be stored?</p> <p>A. 2m - 4m - Joint box closest to CBT</p> <p>B. 5m - Cable Coiling Bracket</p> <p>C. 2m – 4m at Joint on pole</p>	

9 ***Modular Guidance (Practical)***

The below table should be used as a guide for the Assessor to accurately assess the Delegates knowledge and ability during the practical assessment.

Coaching Marks 'C' are explained in the Measurement section and the total allowed can be found in Delegate Details.

If an Assessment Pointer is followed by an 'X' then not only is no coaching allowed, but failure to meet the standard on the Assessment Pointer means that the standard has not been met for the accreditation as a whole.

Task Assessment	Assessment Pointers	Coaching	Document Guidance
Questionnaire	Completed at required % or above.	X	
Trained /Skilled	The Delegate is trained, experienced and craft competent in this skill.	X	
Safety	All safety procedures followed, and safe working practices adopted.	X	
Risk Assessment	An on-site risk assessment should be carried out.	X	
	WRAF (Written Risk Assessment Form) prior to any work commencing if working on DNO poles	X	SFY/HSB/D039
Personal Protective Equipment (PPE)	Correct PPE held, in good condition and used where necessary.	X	
Environment	Weather conditions considered before commencing work.	X	
	All rubbish and waste removed from site when the works have been completed.	X	
Equipment	Delegate has the correct tools and they are in good condition to	X	

Available	complete the task to the current work practices and quality standards.		
	Tools used correctly and safely.	X	
Working on a DNO (Distribution Network Operator) Pole	Safe working practices followed when working on a DNO Pole	X	SFY/HSB/D043
CBT Installation	Correct CBT provided. As Planned	X	EPT/ANS/A040
	CBT mounted correctly depending on type and in correct position. (Top pole envelope)	X	
	All CBT port caps checked	X	
	CBT tail fixed to pole correctly	X	
	CBT labelled correctly	X	
Installation of COF 215 ULW Cable	Correct installation practises used including a road crossing.	X	EPT/ANS/A040
	Delegate understands OH cable height requirements and minimum climb height.	X	EPT/ANS/A013
	Delegate understands route stability and Dropwires in Line of Route (DILOR) requirements	X	EPT/ANS/A011
	Full termination clamp fitted correctly	X	
	Intermediate clamp installed and fitted correctly.	C	
	Correct cable heights achieved.	X	
	Cable fixed to pole using correct fixings and methods	C	
	Minimum bend radius not compromised	X	
	ELM sited in correct position.	C	
	ELM secured to pole correctly.	X	
	Cable installed on ELM and secured correctly.	X	
Installation of	Correct OH installation practices used	X	

COF 250 SST	including road crossing		
	Correct Cable dispenser used	C	
	Hybrid cable grip used (Come Along clamp)	X	
	SST clamp fitted correctly	X	
	SST anti galloping twists inserted (minimum of 1 twist per 10 metres)	C	
	Cable fixed to pole using correct fixings	C	
	Delegate understands the new fibre cable slack policy for the OH network	C	AEI/AEC/B348

10 References

All the documents below are available through the sites and systems described in the Introduction section. If you require access to external sources within them, then please contact the Author (see above) of this accreditation module.

Assessors Note: All Openreach people should have access to the Policy & Build app via their work mobile phones. Please make sure that this app is accessed during the accreditation.

- SFY/HSN/A001 - Health & Safety Handbook (Openreach only).
- CPE/NNS/V060 - Guide to Health & Safety Minimum Standards.
- SFY/HSN/C031 - Openreach Construction Design Management (CDM) 2015 Regulations Policy.
- AEI/AEC/B309 - Pole Stepping on Congested Poles
- EPT/ANS/A013 - Minimum Heights and Carriageway Definitions
- AEI/AEC/B329 - Halo Ring (Ring Pole Head No.2) installation procedure
- AEI/AEC/B335 - Dropwires in Line of Route (DILOR)
- AEI/AEC/B337 - Change to the 68m OH span rule
- AEI/AEC/B348 - OH Fibre Cable Slack Policy
- AEI/AEC/B347 - Overhead Fibre Length Renewal Policy

- EPT/ANS/A011 - Specification for Dropwire Work
- EPT/ANS/A040 - One Fibre Network - Build Quality Manual for Engineers
- EPT/COF/D964 - Cable Optical Fibre (COF) 250 Self Rodding Fibre Cable
- EPT/PPS/B026 - Code of Practice
- EPT/PPS/B038 - Joint User Poles - Technical Requirements for Attachment on Joint User Poles
- NWK/NNS/V080 - A1024 Advice of Plant Requiring Attention
- SFY/HSH/A001 - Health & Safety Handbook (Openreach Only)
- SFY/HSH/D043 - Working in Vicinity of O/H Power (LV & HV) and Joint User

END OF DOCUMENT
