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| OpenreachLogo_Purple | |  | | --- | | ISIS practice  For Openreach people | | NWK/NNS/V047 | | Issue 6, 27-Aug-2019  Use until 27-Aug-2020 | | Published by Chief Engineer Network Engineering | | Privacy- Internal | | |
| Guidance Notes for Fibre Quality Checks | |  |
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Content approval

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| --- |
| This is the Issue 6 of this document. |
| The information contained in this document was approved on 27-Aug-2019 by Sarah Hogan-Berrow, National Quality & Audit Standards Manager - Chief Engineers |

**Version History**

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| --- | --- | --- | --- |
| Version No. | Date | Author | Comments |
| Issue 6 | 27-Aug-2019 | Quality & Audit Standards Network Engineering | Document review. Links to external sources validated/updated where appropriate. Author/Approver/Publisher details amended. Change of author & approver details. Document re-branded to openreach. |
| Issue 5 | 23-Apr-2018 | Quality standards & Accreditation . | Change of approver |
| Issue 4 | 07-Dec-2015 | Quality standards & Accreditation . | Document review. Links to external sources validated/updated. Author/Approver/Publisher details amended. Section 8.1 bullet points updated to reflect new colleting requirements. |
| Issue 3 | 04-Mar-2015 | Document Manager T | Document migrated onto new platform with no content change |
| Issue 3 | 4-Dec-2013 | Quality standards & Accreditation . | Updated to reflect change of fibre SS item codes as per AEC B154. Sect1 updated with new CANDID OQP guidance link. Points of product references updated including new fibre quality spec EPT/ANS/A025. Sect 21 added to replace NRI182. |
| Issue Draft 2a | 14-Mar-2013 | Quality standards & Accreditation . | Section 5 updated. Section 21 added. Equivalent contractor items added where applicable. Other items added/amended/deleted as applicable. |
| Issue 2 | 5-Dec-2011 | Allan Lupton | section 6.1 - item A2518 new guidance added to clarify that external fibre joints must not be provided in an internal environment. |
| Issue 1 | 31-Mar-2011 | Allan Lupton | Initial issue to merge 3 x livelink documents (OF fibre guidance notes for QC-Iss1,Fibre frames & cable chamber checksheet guidance - Draft Iss6, Fibre customer terminations CL guidance - Draft Iss2 plus update missing items from SS621 - 672 |
| Issue Draft 0b | 31-Mar-2011 | Allan Lupton | typo errors |
| Issue Draft 0a | 31-Mar-2011 | Allan Lupton | initial merge |

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# Introduction

This document is intended as a guide for those people carrying out Quality Checks in the access network, enabling the person doing the quality check to more clearly describe the quality of the finished task. The document layout is designed to give quick and easy referencing by product area e.g. Optic Fibre closures, cabling & labelling etc.

Each section is broken down using the checks item number. Direct labour items identified by (DL) and contract items by (C). Each item will have a Scope: statement provided as required.

All check items are described fully in script below the Item Code title with specific information where required in bullet point format.

1. The CANDID item codes for Contractors are currently being developed to match the current FPQ checklist content and this ISIS will be updated when they are available.

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

Users should refer to the current AEC listings for latest information and change to this ISIS. AEC’s can be found at the [Technical Library](https://intra.bt.com/bt/openreach/chief-engineer/network-evolution/interface-team/organisation-network_reliability_home_page/aei_library/Pages/index.aspx)

# Status

This instruction is for Guidance only

# Scope

The content of the document is derived from the FPQ check sheets, product information and other sources such as Field Quality ISIS.

# Objectives

The objective is to provide clear guidance on the elemental part of each Quality Check, as defined by the Quality of Personal Workmanship programme.

# Generic & Miscellaneous items

Fibre checklists contain Generic, Miscellaneous and some copper check items that are common to all types of checklists and the guidance for these items are contained in Guidance Notes for Access Network Quality Checks which can be accessed from the ISIS link below

ISIS NWK/NNS/V046

The table below lists these common items:

| Item Code (DL) | Item Code (C) | Score | Item Description |
| --- | --- | --- | --- |
| A2126 | N4204 | 5 | All records prints and A154 legible, clean, updated, certified and forwarded |
| A2128 | N4205 | 5 | Booking practices correct. |
| A2131 | N4207 | 5 | Defects on site reported via A1024. |
| A2151 | N4212 | 5 | Joint/cable/cabinet marked or labelled correctly |
| A2230 | N3206 | 5 | Cable provided as per WI's. Any departure from estimate correctly agreed and recorded at planning |
| A2422 | N3308 | 5 | Cable feeds correctly run and fixed. Capping correctly sited and fastened. |
| A2424 | N3309 | 5 | Maximum span distance not exceeded |
| A2426 | N3408 | 5 | Pole loadings not exceeded |
| A2630 | N1102 | 10 | Ducts / cable holes worked on sealed correctly to standard. |
| E6253  P6253 | N3328  N3325 | 10  10 | Overhead carriageway heights correct for the existing cable/dropwire on the circuit/site worked on.  Overhead carriageway heights correct for the newly erected/replaced cable/dropwire on the circuit/site worked on. |
| G1001 | G0001 | 10 | The POI / work location information supplied is correct |
| G1002 | G0002 | 10 | Any observed open Joints in worksite closed / reported |
| G1003 | G0003 | 5 | Worksite left tidy. BT / Contractor rubbish removed |
| G1005 | G0007 | 10 | Observed open fibre joints in work site closed or reported to the FRAC |
| G9001 | G9001 | 10 | Product item not covered elsewhere in product checks |

| Item Code (DL) | Item Code (C) | Score | Item Description |
| --- | --- | --- | --- |
| I6018 | N2226 | 5 | Desiccant packs replaced, where appropriate, clearly labelled with CSS ID or signature, dated and correctly positioned as appropriate. |
| I6090 | N2242 | 10 | External cable within building conforms to fire regulations |
| I6234 | N3104 | 5 | Dropwire/CAD has Sleeve 2A correctly fitted where required |
| I6246 | N3320 | 5 | Cable entry through wall agreed with customer |
| I6248 | N3321 | 5 | Dropwire entry to premises sealed with approved sealant. External drip loop provided. |
| I6270 | N3327 | 10 | Overhead power separation correct for cable/dropwire. |
| I6272 | N3326 | 10 | Non-carriageway heights and clearances correct for cable/dropwire on the circuit/site worked upon in association with the work site identified for checking. |
| I6902 | N3212 | 0 | Wire/cable across carriageway above 5.2m minimum climb height |
| I6904 | G0011 | 10 | Engineer has reported wire/cable across carriageway less than 5.2m via A1024 |
| I6906 | N3241 | 0 | If pole worked on is pre 2000 and the test date is pre 2000 or it is a 1990/1991 pole from Supplier 1 with a test date before September 2011- mark Bel Std, for other poles worked on mark Chk OK or if no pole was worked on mark NC |
| I6907 | N3243 | 5 | Pre climb check label fixed to the pole correctly |
| I6908 | N3242 | 0 | If item code I6906 was below standard and job was not completed by the use of Hoist - mark Bel Std, if Hoist was used mark Chk OK or if I6906 was not Bel Std mark NC. |
| I6992 | N4414 | 5 | Correct replacement of high security equipment provided on UG frames and covers to protect the network - or A1024 submitted if replacement equipment is not held. |
| F0414 | N1151 | 10 | On newly installed cable/sub duct/BFT (blown fibre tube). All ends sealed correctly |

# Optic Fibre Closures

## A2518 (DL) N2413 (C) Score 10

Item Description: Approved joint closure applied correctly

Scope: All fibre joints worked on

Points of product reference: EPT/ANS/A009

Specific guidance:

* No external fibre joint must be provided in an internal environment – if this has been done mark item as below standard

1. When an “In progress” check is being performed then the following checks should also be observed.

* Is/are the ‘O’ ring/s present, in good condition and clean
* Are all ‘meeting faces’ clean
* Are ports sealed using resin 9B where required (As per closure instructions)

### Blown Fibre Closure No 1A

* Are all clamps present and in good condition (there is NO requirement for these clamps to have the faces meet as this will damage the clamps. The thumbscrews should be finger tight only)
* Are all spare ports correctly sealed
* Is there evidence of heat being applied to all of the shrinkdown
* Are the shrinkdown materials free from bubbles, splits or cracks
* Foils correctly fitted and visible
* If Kits repair 11 used to repair a port, has a scop been fitted as required e.g. 5mm BFT 1 tube and 5mm BFT 2 tube
* Pressure relief valve present (Refer to Cat Code A2500)

### Kits Joint Closure 2 Series (Blown fibre)

* Is there evidence of the glue flowing at each cable position
* Is there evidence of required heat being applied to all of the Shrinkdown
* Foils correctly fitted and visible
* SCOPS correctly fitted as required e.g. BFT1/5mm or BFT2/5mm
* Cables circumference abraded
* If there are two or more cables per end, cable branch clips present and branch clip glue has melted
* Max. of 3 cables at each end (maximum cable diameters not exceeded)
* Rail positioned correctly and aligned alongside largest cable
* Has a pressure relief valve been fitted (Kit 817B) (Refer to Cat Code A2500)

### Blown Fibre Closure No 3A

* No Visible gaps between mating surfaces of the half shells at the position of the bolts
* Check that indicator posts are flush with the surface
* Ensure grip tape is visible in all cabled ports
* All bolts and washers present
* All clips (snap fits) are locked in position
* Has a pressure relief valve been fitted (Kit 817B) (Refer to Cat Code 2500)

### Blown Fibre Closure 4A/4B

* No Visible gaps between mating surfaces of the half shells at the position of the bolts
* Check that indicator posts are flush with the surface
* Ensure grip tape is visible in all cabled ports
* All bolts and washers present
* All clips (snap fits) are locked in position
* Has a pressure relief valve been fitted (Kit 817B) (Refer to Cat Code 2500)

### Otian Generic Joint 2A

* Clamp in sound condition and fitted
* All ports correctly sealed
* Evidence of heat applied to all of shrinkdown material worked on
* Branch clip fitted to oval port
* Shrinkdown material free from splits, cracks, bubbles
* Foils fitted correctly
* If ‘COF 200/201/202’ installed are SCOPs fitted
* If Blown fibre present has a pressure relief valve been fitted (Refer to Cat Code 2500)

### Otian Generic Joint 3A

* Clamp in sound condition and fitted correctly
* All ports correctly sealed
* Foils fitted correctly
* If ‘COF 200/201/202’ installed are SCOPs fitted
* Branch clip fitted to oval port
* Port shrinkdown fitted correctly i.e. Arrow towards base of closure
* Evidence of heat applied to all of shrinkdown material worked on
* Shrinkdown material free from splits, cracks, bubbles.

### Kit Joint Closure No 7 (Pedcap R6)

* Maximum number of 3 cables (Excluding Valve) not exceeded
* Shrinkdown material free from splits, cracks, bubbles
* Is there evidence of required heat being applied to whole of the Shrinkdown part
* Smooth profile of heatshrink has been obtained

1. The end of the shrinkdown has been designed so that it will remain “flared” on recovery. Therefore this will not constitute any defect.

* If closure pressurised, e.g. as part of CJ network, has a valve been fitted?

### Joint Closure No 11 D, E, F

* Clamps in sound condition (11D Only)
* Thumb screws tightened to close the gap only (Further tightening will damage the clamp)
* All ports correctly sealed
* Foils fitted correctly
* Evidence of heat applied to all of shrinkdown material worked on
* Shrinkdown material free from splits, cracks, bubbles
* If ‘COF 200/201/202’ installed are SCOPs fitted
* If Blown fibre present has a pressure relief valve been fitted (Refer to Cat Code 2500).

### Joint Closure No 12A

* Clamp in sound condition
* All ports correctly sealed
* Foils fitted correctly
* Evidence of heat applied to all of shrinkdown material worked on
* Shrinkdown material free from splits,cracks,bubbles
* If ‘COF 200/201/202’ installed are SCOPs fitted
* If closure pressurised, e.g. as part of CJ network, has a valve been fitted?
* If Blown fibre present has a pressure relief valve been fitted (Refer to Cat Code A2500)

### Joint Closure 13A

* All ports correctly sealed
* Foils fitted correctly
* Evidence of heat applied to all of shrinkdown material worked on
* Shrinkdown material free from splits,cracks,bubbles
* If closure pressurised, e.g. as part of CJ network, has a valve been fitted?
* If ‘COF 200/201/202’ installed are SCOPs fitted

### 144F Small Element Joint

* Clamp in sound condition
* All ports correctly sealed
* Foils fitted correctly
* Evidence of heat applied to all of shrinkdown material worked on
* Shrinkdown material free from splits,cracks,bubbles
* If ‘COF 200/201/202’ installed are SCOPs fitted
* If Blown fibre present has a pressure relief valve been fitted (Refer to Cat Code 2500)

# Bending Diameter

## F0214 (DL) N1158 (C) Score 10

Item Description: Minimum bending diameter of cable/fibres/sub duct/BFT not compromised.

Scope: All cable/fibres/sub duct/BFT worked on

Points of product reference: EPT/ANS/A004

Specific guidance:

* COF 200 cables should have a bend diameter of no less than 400mm
* COF 201 12 to 72 fibre cables should have a bend diameter of no less than 200mm
* COF 201 96 and 144 cables should have a bend diameter of no less than 350mm
* COF 202 (Hot Site) cables should have a bend diameter of no less that 400mm
* 1 Tube sheathed PVC,PE and RFH 230mm
* 2 Tube sheathed PVC,PE and RFH 230mm
* 4 Tube sheathed PVC,PE and RFH 400mm
* 7 Tube sheathed PVC,PE and RFH 450mm
* Fibres correctly routed using correct transport/management tubes from cable butts to splice tray using appropriate bend managers.

# Labelling

## F0105 (DL) N2414 (C) Score 5

(Replaces F0102 F0202 F0206 F0209 F0213 F0301 F0306 & F0510)

Item Description: Joint (inside & outside) cable / sub duct / BFT / tray / shelf / termination unit / jumper marked or labelled correctly.

Scope: All plant worked on

Points of product reference: EPT/COF/D525

Specific guidance:

* If new or replacement cables are installed are they fitted with correct label with all information fields filled in as required
* UBB warning label attached where required
* Optical cables have yellow stripe identifier, if not, are marked with yellow tape
* Shrinkdown materials signed, dated and Est. No written using gold pen
* If a Node has been newly created then the Node Identity should be clearly visible on the dome of the closure
* “Starburst” Laser warning label attached (**new work only**)
* Cables provided correctly marked/labelled close to cable butts
* All Element/Fibre/Circuit details entered on to splice tray covers
* All trays clearly numbered
* Details entered on to local record sheet
* Tubes/Elements colleted (not required where tubes have their own unique tube number and/or colour stripe name printed at 50mm intervals).
* Spare or Dark fibres clearly identified in separate trays where applicable
* Blown Fibre joints/gas seals - have all tubes been colleted correctly (not required where tubes have their own unique tube number and/or colour stripe name printed at 50mm intervals).
* Tray identity provided
* Local records updated (i.e. Cabinet Door or Local recording sheet)
* Safety labels provided (i.e. Starburst laser label)
* UBB markings provided on trays/cabinet where applicable
* Circuit details recorded on tray covers/lids
* If circuit live, has it been correctly identified prior to work commencing
* Circuits checked for UBB circuits prior to work commencing
* Laser warning label fitted to front cover where applicable (some covers come with labels pre-fitted)
* All Element/Fibre/Circuit details entered on to splice tray covers
* Information entered onto Identification Flag (where applicable)
* “Pig Tails” labelled
* Elements/tubes colleted (not required where tubes have their own unique tube number and/or colour stripe name printed at 50mm intervals).
* Jumpers/Tails correctly marked and labelled
* Cables / subducts correctly marked/labelled
* If new or replacement cables are installed are they fitted with correct label with all information fields filled in as required
* Optical cables, including blown fibre tubing and subduct monobore have yellow stripe identifier, if not, are marked with yellow tape at all workpoints.

1. Subduct monobore 5 does not require marking with yellow tape as it is already marked with a yellow stripe.

* Optical cables, including blown fibre tubing and subduct monobore, labelled at all workpoints

## A2151 (DL) N4212 (C) Score 5

Item Description: Joint/Cable/Cabinet marked or labelled correctly.

Scope: All cabinets replaced or joints & cables worked upon in association with the work site identified for checking

Points of product reference: NWK/NNS/V046

Specific guidance:

* All cabinets replaced or joints & cables worked upon in association with the work site identified for checking
* See NWK/NNS/V046

# Support and Restraint

The following detail the requirements for supporting and restraining joints for both Otian and Pre-Otian plant, these checks are those required to meet the standard on a retrospective audit. In addition to these, while performing an “In Progress” check then the joint should be firmly secured while any work is taking place. Failure to do this would constitute as a defect and should be acted upon immediately to save any loss of service to circuits associated with the plant being worked on.

## A2522 (DL) N2214 (C) Score 10

Item Description: All fibre joints worked on correctly supported and restrained.

Scope: All joints & cables in association with the work site identified for checking. Applies to all cables worked on including any moved during cabling and jointing activities.

Points of product reference: EPT/ANS/A025

Specific guidance:

### Pre-Otian (Legacy)

* Is the Joint adequately supported using Cable supports No1 (Flat Bars) and restrained using straps cable fixings.

1. Joint to Flat Bar: Straps cable fixing 10A or equivalent; Flat Bar to bearers: Straps cable fixing 1A

* Are cables supported using Cable supports No 1 (Cables to Flat Bar and Flat Bar to bearers? As detailed in ISIS EPT/COF/D525).

### Otian

* Is the joint restrained using a Mobra
* Is the Mobra secure
* Are the Joint anchor bolts/pins in place
* Is the Support strap fitted (Nylon strap or metal band at top of mobra to support the top of the joint).
* If no Mobra has been fitted are the joint and cables adequately supported using Cable supports No1

1. Joint to Flat Bar: Straps cable fixing 10A or equivalent Flat Bar to bearers: Straps cable fixing 1A

## F0201 (DL) N4413 (C) Score 5

Item Description: Observed fibre joints/cables supported and restrained.

Scope: All fibre joints / cables in the work point being checked

Points of product reference: EPT/ANS/A025

Specific guidance:

The following details the requirements for all fibre closures and cables which can be observed as being unsupported or restrained where approved methods of restraint are available. Observed meaning clearly visible without the movement of any other joints or cables which may be present in the same work point(s)

The definition of an observed unrestrained joint is when it can be seen that:

* A joint is not supported in any way, where support is possible e.g. Channels and bearers, Mobras etc.

## F0103 (DL) N4410 (C) Score 5

Item Description: Copper joints/cables (worked on) correctly supported and restrained.

Scope: All joints & cables in association with the work site identified for checking. Applies to all cables worked on including any moved during cabling and jointing activities (copper).

Points of product reference: EPT/ANS/A003

Specific guidance:

* See item I6019 in ISIS NWK/NNS/V046

# Blown Fibre Tube Jointing

## F0101 (DL) N2107 (C) Score 10

Item Description: B.F tubing jointed/sealed correctly and pressure valve fitted at blown fibre tubing joint where appropriate.

Scope: All joint closures containing BFT with the exception of the In-line Mechanical Joint Closures Small and Large fitted with Port Reducers Blown Fibre 4 Tube (Grey) and 7 Tube (Grey).

Points of product reference: EPT/ANS/A009

Specific guidance:

* Has the pressure relief valve been fitted
* All BFT closures fitted must have a pressure relief valve fitted. If a closure has been re-entered/closed it is still a requirement for a pressure relief valve to have been fitted. If it is not possible to fit a valve, then the joint **must** be reported to the FRAC.

In progress checks on joint

* Tubes undamaged when sheathing removed
* Have all tubes been joined correctly
* Have all spare/stumped tubes been sealed correctly

# Blown Fibre Tube Sealing

## A2510 (DL) N/A (C) Score 5

Item Description: Gas seals applied to tubing - individual and main.

Scope: All tubing worked on.

Points of product reference: EPT/ANS/A009

Specific guidance:

### BFT Joint Positions

* Tubes fitted with water block connections (Resin type or connector type)
* Spare tubes capped
* Cable blocked in port using resin 9A, where applicable (Resin must cover the cable but). This also applies to COF cables.

### Customer End Applications

#### Otian Blown Fibre Gas Seal Boxes

* Gas seal box constructed correctly
* Used tubes fitted with gas block connections
* Used tube/s gas block connectors tightened
* Spare tubes capped
* Incoming cable blocked using resin 9A (Resin must cover cable butt)

#### Other Otian termination units where Blown Fibre cable has been introduced with no seals being fitted before the termination units.

* Blocking cone fitted correctly
* Incoming cable/s blocked using resin 9A (Resin must cover cable butt)
* Used tube/s fitted with gas block connectors
* Used tube/s gas block connectors tightened
* Spare tubes capped

# Cable Preparation

## A2512 (DL) N2110 (C) Score 10

Item Description: Cable preparation prior to jointing, including degreasing fibres, fitting of continuity wire/s, routing of fibres & fitting of trays

Scope: All cable / joint / CTU’s worked on.

Points of product reference: EPT/ANS/A009

Specific guidance:

* Continuity wires terminated to cables and joint termination point as per instructions (Where COF 200 has been installed then the copper conductor should be terminated along with the continuity wires)
* Fibres degreased before laying into trays
* Correct ‘breakout manifolds’/transport tubes used
* Trays correctly attached to Joint/Customer terminating unit

# Fibre Identity

## A2514 (DL) N2111 (C) Score 5

Item Description: Fibres identified prior to splicing

Scope: Node / Joint being worked on

Points of product reference: EPT/COF/B011

Specific guidance:

* Fibre/s correctly identified using visual light source
* Fibre/s correctly identified by tray/element/colour

# Fibre Splicing

## A2516 (DL) N2112 (C) Score 10

Item Description: Fibres spliced as per works instructions

Scope: Node / Joint being worked on

Points of product reference: EPT/ANS/A025

Specific guidance:

* Spare/ Dark fibres stored correctly as per work/joint instructions
* Correct splice protector used
* Splice correctly stored in splice tray

# Customer terminations

This section includes cable, fibre, rack, shelf, tray and Jumper management

## A2504 (DL) N2108 (C) Score 10

Item Description: Customer Termination unit installed correctly and as per customer requirement

Scope: Intnl & extnl customer terminations worked on

Points of product reference: EPT/ANS/A025

Specific guidance:

* Termination unit/s fitted in agreed position with customer
* Termination unit/s fitted in accordance with the manufacturers instructions

## F0411 (DL) N2153 (C) Score 10

(Replaces F0309 F0208 F0203)

Item Description: Construction & Integrity of Joint / Termination unit / rack / tray / shelf worked upon maintained/reported as appropriate

Scope: All plant worked on.

Points of product reference: EPT/ANS/A025

Specific guidance:

* If other plant moved to allow access has it been correctly re-installed
* If UBB present has Oswestry control been contacted prior to work commencing
* If termination unit damaged or defective has it been reported to the FRAC if BT/Openreach plant or to the customer if customer owned.
* Correct support and restraint of shelf/tray/rack maintained, assuring security of other circuits
* Shelf correctly mounted within rack/cabinet
* Trays correctly mounted within shelf as appropriate
* Tray bend managers present and correctly installed
* Tray segregation unit installed correctly

## F0308 (DL) N2311 (C) Score 10

Item Description: Gas Seals applied correctly where applicable.

Scope: Intnl & extnl customer terminations worked on

Points of product reference: EPT/ANS/A025

Specific guidance:

Gas seals applied correctly where applicable

## F0204 (DL) N1154 (C) Score 5

Item Description: Cables provided correctly routed

Scope: Racks / Cabinets worked on

Points of product reference: EPT/ANS/A025

Specific guidance:

* Cable(s) provided and correctly routed
* All cables provided must be introduced into racks/cabinets at correct entry points
* Cables correctly routed from rack/cabinet entry to point of termination

## F0509 (DL) N1152 (C) Score 10

(Replaces F0205)

Item Description: All fibre Cables/ Sub ducts / BFT worked on correctly supported and restrained.

Scope: All joints & cables in association with the work site identified for checking. Applies to all cables worked on including any moved during cabling and jointing activities.

Points of product reference: EPT/ANS/A025

Specific guidance:

* Cable(s) provided/worked on restrained correctly
* Cables provided correctly restrained prior to entering cabinet/rack/termination unit i.e. trunking provided where required
* Cables correctly restrained withincabinet/rackalong vertical length
* Minimum of 1 x SCF at each vertical cable anchor point
* Cables correctly restrained at provided anchorage points as appropriate
* Minimum of 2 x SCF at cable termination assembly
* Central strength members cut to correct length and correctly restrained
* Central strength members correctly protected as appropriate

## F0207 (DL) N2144 (C) Score 10

Item Description: Fibres provided/worked on correctly contained/protected from cable butt to splicing tray

Scope: Termination unit / rack / tray / shelf worked on

Points of product reference: EPT/ANS/A025

Specific guidance:

* Fibres correctly contained from cable butt to segregation unit
* Fibres protected from cable butt to tray/shelf (pre otian type racks)
* Fibres correctly protected and contained between trays
* Transport tubing connected correctly

## F0211 (DL) N2148 (C) Score 10

(Now includes F0210 & F0406)

Item Description: Fibres worked on correctly routed within tray/shelf

Scope: Termination unit / rack / tray / shelf worked on

Points of product reference: EPT/ANS/A025

Specific guidance:

* All fibres following correct routing for tray type
* Appropriate amount of slack left to allow for subsequent re-splicing
* Spare fibres correctly contained/located within tray as appropriate
* Fibres correctly routed/transported between trays/shelves
* All fibres within trays/shelves worked on must be located and contained as appropriate for the tray/shelf type. Fibres must not be allowed to become trapped or exposed to potential damage

## F0212 (DL) N/A (C) Score 5

Item Description: Tray/fibre worked on prepared correctly

Scope: Termination unit / rack / tray / shelf worked on

Points of product reference: EPT/ANS/A025

Specific guidance:

* Fibres degreased prior to introduction to tray/shelf
* Fibre splices correctly located as per tray/shelf type
* Correct splice protector used for tray type
* Fibres correctly cleaned prior to cleaving

## F0302 (DL) N/A (C) Score 10

Item Description: Jumpers provided correctly routed

Scope: Termination unit / rack / tray / shelf worked on

Points of product reference: EPT/ANS/A025

Specific guidance:

* Jumper enters rack/cabinet at correct point of entry
* Jumper correctly routed from access point to termination point
* Jumper managed onto tray via bend manager
* Jumper slack formed over “hedgehog” (pre Otian bend manager)
* Jumper slack correctly formed round mandrill
* Jumper correctly managed between racks/cabinets

## F0303 (DL) N2511 (C) Score 10

Item Description: Correct jumper type provided

Scope: Termination unit / rack / tray / shelf worked on

Points of product reference: EPT/ANS/A025

Specific guidance:

* Fire resistant type/non-fire resistant type
* Correct jumper/ tail type installed

## F0304 (DL) N/A (C) Score 10

Item Description: Jumpers provided in continuous length

Scope: Termination unit / rack / tray / shelf worked on

Points of product reference: EPT/ANS/A025

Specific guidance:

* New jumper to be provided in continuous length
* Where existing splices are not and cannot be housed in tray. (i.e. splices in vertical rises of rack already installed) Has inline splice kit been applied and managed correctly

## F0305 (DL) N/A (C) Score 10

Item Description: Restraint of fibre jumpers/tails provided

Scope: Termination unit / rack / tray / shelf worked on

Points of product reference: EPT/ANS/A025

Specific guidance:

* Jumper/tail restrained within cabinet/rack/tray
* Jumper strength member restrained using correct method for termination type
* Aramid restraint fixing installed when required

## F0307 (DL) N/A (C) Score 5

Item Description: Replaced jumpers recovered where appropriate

Scope: Termination unit / rack / tray / shelf worked on

Points of product reference: EPT/ANS/A007

Specific guidance:

ONLY applies to jumpers being replaced or removed from trays to allow for new or additional jumpers to be installed

* If jumper cannot be safely recovered the cut jumper end must be correctly protected

## F0402 (DL) N2152 Score 10

Item Description: Fibre Cables/Jumpers provided or worked upon correctly restrained within closure / termination unit

Scope: Termination unit / rack / tray / shelf worked on

Points of product reference: EPT/ANS/A025

Specific guidance:

* All introduced cables (including Tails) correctly restrained.
* Cable clamps correctly fitted
* Central strength members correctly restrained.

## F0401 (DL) N2151 (C) Score 5

Item Description: Customer lead in unit fitted as required.

Scope: Customer lead in unit

Points of product reference: EPT/ANS/A025

Specific guidance:

* Customer lead in unit fitted as per instructions

## F0404 (DL) N2246 (C) Score 10

Item Description: Fibres other than those provided/worked upon correctly contained/protected from cable butt (worked on) to splicing tray

Scope: Termination unit / rack / tray / shelf worked on

Points of product reference: EPT/ANS/A025

Specific guidance:

* Existing fibres protected when working and replaced if not contained

## F0407 (DL) N2247 (C) Score 5

Item Description: Other observed Fibres correctly routed within shelf as appropriate or reported.

Scope: Termination unit / rack / tray / shelf worked on

Points of product reference: EPT/ANS/A025

Specific guidance:

* Other observed Fibres correctly routed within shelf as appropriate or reported.

# Waste materials

## A2526 (DL) N2215 (C) Score 5

Item Description: Scrap cable/fibre removed and disposed of correctly.

Scope: In progress check only

Points of product reference: EPT/COF/D050

Specific guidance:

Scrap cable/fibre removed & disposed of correctly

* Scrap fibre cable been removed from work site
* Fibre off cuts/ends removed from work site
* Fibre off cuts/ends disposed of correctly e.g. Are Cin Bins used?.

# Booking Practices

## F0110 (DL) N4215 (C) Score 5

Item Description: Routing verification

Scope: All work included in the job/estimate in association with the work site identified for check.

Points of product reference: EPT/ANS/A025

Specific guidance:

* All changes to planned routings must be formally recorded on completion of fibre provision

# Defect Reporting

## G1002 (DL) G0002 (C) Score 10

Item Description: Observed open joints in work site closed or reported using the A1024 process for Copper

Scope: All non-fibre closures within worksite.

Points of product reference: NWK/NNS/V095

Specific guidance:.

1. Observed open joints are those not being worked on, but are present in the same Worksite as the work in hand; they should be closed on the day or reported using an A1024 with a defect code of 461 for copper.

Definition of an Open Copper Joint is, where it can be seen that:

* Wires/conductors are visible.
* Plastic bag or other unapproved method has been used as a closure.
* A pedcap or heat-shrink closure that has been re-closed using adhesive tape.
* An expanding plug joint with defective collars, missing or broken plugs or bolts.
* 30, 31 or 32 series closures that have missing domes or clamps, broken clamps or unsealed entry ports, including resin closures without resin.
* 34 series closures that have missing bolts closure faces that do not meet as per instructions or unsealed entry ports.
* Any non–standard strap between joints, e.g. jumper wire, dropwire or internal cable
* Closures with damage to the external fabric that allows the ingress of moisture.
* Denso tape or tape sealing, except where it is provided as a protective wrap on some lead sheathed cables and joints.
* Adhesive tape closures, without tape.
* Sheet Rubber Adhesive closures with plastic straps and no evidence of orange “Tape Temporary Closure” having been used.
* Sheet Rubber Adhesive closures with no clips, strips or tape fitted.
* Sheet Rubber Adhesive which is open allowing ingress of moisture.
* Stumped cable ends that have not been sealed using caps sealing.

Copper Items NOT classed as – Obviously Open:

* A correctly sealed, but obsolete closure.
* Closure with incorrectly positioned/or no SCOPs visible.
* Excess cable diameters on closures.
* Excess cables in port or joint end.
* Missing branch clips.
* Cables in joints that can only be deemed loose by pulling them.

## G1005 (DL) G0007 (C) Score 10

Item Description: Observed open Fibre joints in worksite, closed or reported to the FRAC

Scope: Worksites where there is more than 1 fibre joint present.

Points of product reference: NWK/NNS/V095

Specific guidance:

1. Observed open joints are those not being worked on, but are present in the same Worksite as the work in hand. When in Exchange cable chambers the work area is described as directly above or below and immediate to the left and right of the plant being worked on. Defects found on joints within this area should be closed on the day or reported to the FRAC

Definition of an Observed Open Fibre Joint is, where it can be seen that:

* An unapproved or no closure has been fitted
* A heatshrink type closure which has been closed using tape or other unapproved means
* Burst or excessively damaged shrinkdown materials
* A closure which has broken or missing clamps
* Closures with damage to the external fabric that allows the ingress of moisture.
* Stumped cable ends that have not been sealed using caps sealing.
* Blown fibre closures that have missing bolts, closure faces that do not meet as per instructions or unsealed entry ports.

Fibre items not classed as obviously open:

* 11D, Blown Fibre closure 1A with clamps which do not have the faces of the clamps meeting
* Closure with incorrectly positioned/or no SCOPs visible.
* Missing or incorrect branch clips.
* Missing or damaged heat protection foils

## F0109 (DL) G0012 (C) Score 5

Item Description: Observed fibre defects reported to the FRAC

Scope: Internal check

Points of product reference: NWK/NNS/V095

Specific guidance:

* All observed fibre defects/damage identified on site reported to FRAC

## F0404 (DL) N2246 (C) Score 10

Item Description: Fibres other than those provide/worked on correctly contained/protected from cable butt to splicing tray

Scope: Internal check

Points of product reference: EPT/ANS/A025

Specific guidance:

* Observed unprotected fibre (those Not worked on within same work point) reported to the FRAC when judged impractical to repair on site

## F0407 (DL) N2247 (C) Score 5

Item Description: Other observed fibres correctly routed within tray/shelf as appropriate or reported

Scope: Internal check

Points of product reference: EPT/ANS/A025

Specific guidance:

* Other fibres within tray/shelf worked on reported to FRAC or remedied where observed as being routed incorrectly and presenting potential fault liability

# Fibre Cabling

## F0509 (DL) N1152 (C) Score 10

Item Description: All fibre Cables/ Subducts / BFT worked on correctly supported and restrained.

Scope: All fibre Cables / Sub ducts / BFT worked on includes any moved to facilitate work.

Points of product reference: EPT/ANS/A025

Specific guidance:

* Any plant moved to allow for cabling to be restrained on completion
* Newly installed cables correctly restrained at all work points
* Newly installed Subduct restrained at all work points where practically possible.

## F0414 (DL) N1151 (C) Score 10

(Replaces F0511 F0521)

Item Description: Provided / worked upon cables / sub duct / BFT ends correctly sealed

Scope: All fibre Cables / Sub ducts / BFT worked on.

Points of product reference: EPT/ANS/A025

Specific guidance:

* Ends of Sub Duct have been correctly sealed, during and after cabling operations have taken place.
* Sub Duct Joints have been correctly applied with all seals present at ends (Where cable leaves Sub Duct).
* Cable/sub duct / BFT correctly sealed

## F0512 (DL) N1153 (C) Score 10

(Includes F0522)

Item Description: Fibre Cables/Subducts/BFT provided correctly when routed through structure.

Scope: All fibre Cables / Sub ducts / BFT worked on.

Points of product reference: EPT/ANS/A025

Specific guidance:

* Cables, sub ducts and BFT correctly provided and routed through structure
* All newly installed fibre cables/BFT must be correctly routed utilising all racking and support as appropriate and as required. At no time must a cable/BFT be situated in a manner which compromises the cable chamber access/exit points

## A2922 (DL) N1115 (C) Score 5

Item Description: Sufficient cable left for jointing & ends properly sealed

Scope: Cables worked on.

Points of product reference: EPT/ANS/A004

Specific guidance:

* Cable correctly sealed using the appropriate caps sealing.
* Clear visible signs of circumferential abrasions below the caps sealing
* If Blown Fibre Tubing Sealing Kit used, the mastic tape must be clearly visible below the cap.
* Sufficient length of cable left, as per jointing requirements.

## A2948 (DL) N1118 (C) Score 5

Item Description: Excess lubricant removed after cabling/sub duct /BFT installation

Scope: All cabling / sub duct / BFT operations.

Points of product reference: EPT/UGP/E041

Specific guidance:

* Excess lubricant cleaned from cable(s) and duct mouth(s)

## A2630 (DL) N1102 (C) Score 10

Item Description: Ducts / Cable holes worked on sealed to correct standard

Scope: All work points identified for checking.

Points of product reference: EPT/ANS/A003

Specific guidance:

* Ducts and cables holes sealed correctly

# Cable Chambers

## F0520 (DL) N/A (C) Score 5

Item Description: Correct seal provided at cable riser points.

Scope: All work points identified for checking.

Points of product reference: EPT/ANS/A003

Specific guidance:

* Seal provided correctly at cable riser points

## F0413 (DL) N/A (C) Score 10

Item Description: No sub-duct provided into cable chamber

Scope: Newly installed Fibre cables

Points of product reference: EPT/ANS/A025

Specific guidance:

* Sub-duct mono bore does not enter cable chamber

## F0414 (DL) N1151 (C) Score 10

Item Description: Provided/worked on cables correctly sealed

Scope: All fibre Cables worked on.

Points of product reference: EPT/ANS/A025

Specific guidance:

* All cables/BFT provided/worked on have correct method of seal applied
* Caps sealing applied with circumferential abrasions visible below seal
* Blown fibre caps seal applied with correct type and amount of sealant tape applied below cap

## F0415 (DL) N/A (C) Score 10

Item Description: Correct Optic fibre cable types provided to joint worked on

Scope: All fibre Cables worked on.

Points of product reference: EPT/ANS/A025

Specific guidance:

* No non-standard cable types provided to joint worked on
* If no-standard cable types exist, remedy while onsite. If onsite remedy is not possible then report to FRAC

## F0416 (DL) N/A (C) Score 5

Item Description: Cable/joint support racking constructed/maintained correctly

Scope: All work points identified for checking.

Points of product reference: EPT/ANS/A025

Specific guidance:

* Structure support/racking in serviceable condition
* If new racking has been provided has it been constructed correctly
* If defective support racking observed has it been reported to A1024 duty

## F0509 (DL) N1152 (C) Score 10

Item Description: All fibre cables/BFT worked on correctly supported and restrained

Scope: All joints & cables in association with the work site identified for checking. Applies to all cables worked on including any moved during cabling and jointing activities.

Points of product reference: EPT/ANS/A025

Specific guidance:

* Cables/BFT provided correctly supported and restrained
* If other cables moved to allow access to cable/joint being worked on have they been re-restrained

# Fibre Drop Cable (FDC)

Score Sheets 355 & 655 only

## A2420 (DL) N/A(C) Score 10

Item Description: FDC correctly attached and routed on pole(s) / EU premises.

Scope: All work points identified for checking.

Points of product reference: EPT/COF/D879

Specific guidance:

* FDC Bend radius not compromised
* FDC not damaged, crushed or kinked
* Correct clamp used and fitted correctly (straight edge at bottom [pole and EU])
* FDC routed on pole away from ladderplacement area
* FDC routed under ring head
* Collar hollow pole 2 used on hollow pole (carrier pole in line of route only)
* Correct cleats used at EU premises

## A2422 (DL) N3308 (C) Score 5

Item Description: Cable feeds correctly run and cleated. Capping correctly sited and fastened.

Scope: All cable feeds provided on the Job/Estimate No. in association with the work site identified for check.

Points of reference: EPT/ANS/A012

Specific guidance:

* FDC subduct secure and covered.
* FDC secured to pole correctly (aluminium strips & nails bonding/washers)
* FDC & subduct behind capping.
* FDC subduct 500-700mm on pole.

## A2502 (DL) N4211(C) Score 10

Item Description: Minimum bending radius of fibre cable/BFT not compromised.

Scope: Cables, BFT & Fibres Installed /Jointed on the Job / Order No identified for check must be inspected.

Points of reference: EPT/COF/D019 & EPT/COF/D841

Specific guidance:

* FDC all bend radii minimum 30mm in all situations e.g. EU/poles/boxes & cables awaiting jointing/terminating.

## A2922 (DL) N1115 (C) Score 5

Item Description: Sufficient cable left for jointing

Scope: All cable(s) installed for the Job/Estimate No. in association with the work site identified for checking

Points of reference: EPT/ANS/A004

* FDC end sealed, e.g. PVC tape, sleeve 2A
* FDC coiled and secured with cableties to protect bend radii
* FDC minimum 2.5m in joint box
* FDC minimum 4.5m at EU premises left for cabling to termination box

## A2954 (DL) N/A(C) Score 10

Item Description: Correct use of Anti Creepage Device (ACD).

Scope: All work points identified for checking.

Points of product reference: EPT/COF/D879

Specific guidance:

* ACD fitted where required at customer and/or pole(s) with FDC termination or joints.
* Fitted within 20m of EU fixing.
* Correctly fitted to pole(s) and EU premises.
* Cover secure and not warped.
* Minimum of 6 turns.

## A2712(DL) N1103(C) Score 10

Item Description**:** On newly installed cable/sub duct/BFT, all ends sealed correctly.

Scope: All cable(s)/sub duct/BFT installed for the Job/Estimate Number in association with the work site identified for checking.

Points of reference: EPT/ANS/A003

Specific guidance:

* FDC must be provided from OH to UG in subduct.

## F0414(DL) N1151(C) Score 10

Item Description: Provided/worked upon cables/Sub-duct/BFT ends correctly sealed.

Scope: All fibre Cables / Sub ducts / BFT worked on.

Points of reference: EPT/ANS/A025

Specific Guidance:

* FDC subduct sealed at pole e.g. compound 16.

## A2518(DL) N2413(C) Score 10

Item Description: Approved joint closure applied correctly.

Scope: All fibre joints worked on.

Points of Reference: EPT/ANS/A009

Specific guidance:

* FDC provided in node joint 4A or generic joint 3A or other existint OTIAN joints only.
* FDC subduct protrudes into port.
* FDC scops and aluminium foil fitted to subduct
* FDC sleeve dropwire 2A end not visible
* FDC resin 9B provided in subduct port

## I6234(DL) N3104(C) Score 5

Item Description: Dropwire/CAD has Sleeve 2A correctly fitted to all ends.

Scope: All FDC Provided, Renewed, worked upon, that are included on the Job/Order No in association with the work site identified for checking.

Points of reference: EPT/ANS/A006.

Specific guidance:

* Sleeve dropwire 2A fitted over FDC – EU and joint (IP).

## A2151(DL) N4212(C) Score 5

Item Description: Joint/Cable/Cabinet marked or labelled correctly.

Scope: All cabinets replaced or joints & cables worked upon in association with the work site identified for checking.

Points of reference: NWK/NNS/V046.

Specific guidance:

* FDC identification label provided on all poles above pole test label.
* FDC PVC board label on wooden poles
* FDC self adhesive label on hollow poles.

# Line management checks only

## F0501 (DL) Score 5

Item Description: Correct communications available and used effectively.

Scope: Work points identified for checking.

Points of product reference: EPT/COF/D889

Specific guidance:

* BT approved radios available
* Radios used effectively

## F0504 (DL) Score 5

Item Description: Care taken when other fragile cables are present (Fibre and Coax).

Scope: Work points identified for checking.

Points of product reference: EPT/ANS/A024

Specific guidance:

* Other fragile cables such as fibre or coax cables supported if moved

## F0505 (DL) Score 10

Item Description: Cable/sub-duct/BFT ends correctly sealed during cabling operations.

Scope: All Cable/sub-duct/BFT worked on

Points of product reference: EPT/UGP/E041

Specific guidance:

* Cable sealed correctly, using correct caps sealing during cabling operations

1. The Blown Fibre Tubing Sealing Kit must not be used to seal ends during cabling operations.

## F0517 (DL) Score 10

(Includes F0516)

Item Description: Safe working and Fibre/sub duct/BFT cabling practices observed.

Scope: All work points

Points of product reference: EPT/COF/B025

Specific guidance:

* On site risk assessment performed
* Safety of self and others assured at all times (i.e. site safely guarded)
* Safe management of trailing cables (i.e. extension power cables etc.)
* Safe working practices observed if working at heights
* Personal protective equipment utilised as required
* Safe working practices applied when handling and working with optical fibre cables
* Safe working practices applied when working with Safe blown fibre installation techniques applied

## F0518 (DL) Score 10

Item Description: Cable chamber permit to work obtained and validated

Scope: Staff engaged in cable chamber work.

Points of product reference: SFY/HSH/D065

Specific guidance:

In progress check only.

Cable Chamber permits to work must be obtained using the appropriate process. The engineers present should demonstrate that they have the sound knowledge or reference material available to assure that the correct permit process is adhered to.

Any associated reference numbers given must be available for validation purposes.

## F0408 (DL) Score 5

Item Description: Calibration

Scope: All equipment requiring calibration.

Points of product reference:

Specific guidance: As per calibration proceedures

* Has equipment used been calibrated (for some items local calibration practices prior to use apply)
* Is equipment used within calibration date
* Are calibration labels present and legible

## A2008 (DL) N4203 (C) Score 1

Item Description: Site specific

Scope: All stores, tools and equipment.

Points of product reference:

Specific guidance: As per relevant ISIS

* All stores, tools and equipment required to complete work position available on site

## Additional Line Manager checks - under development

The following Line Manager check items are in the Fibre checklist range but no check guidance was originally produced when the checklists were introduced as they are outside the scope of Independent Audit.

No Guidance currently available:

The relevant items are in the table below:

|  |  |  |  |
| --- | --- | --- | --- |
| Item Code (DL) | Item Code (C) | Score | Item Description |
| A2004 | N4201 | 5 | Work site, cable and joint support set up ready to start work. |
| A2010 | N/A | 5 | Ductmotor used to rod in ducts containing fibre or lead cables - if not possible to use ductmotor has every effort been made to protect existing network cables. |
| A2950 | N1119 | 5 | Anti creepage devices replaced correctly after cabling. |
| H7008 | N/A | 5 | Purpose of visit and details confirmed with customer estimating how long job will take. Explained to the End User that Openreach are working on behalf of their Communications Provider. |
| F0112 | N/A | 0 | Optical Fibre Connector protection, inspection and cleaning activities carried out correctly. |
| F0405 | N/A | 5 | Other observed Fibres correctly contained/protected/reported from cable butt to splicing tray. |
| F0211 | N2148 | 10 | Fibres worked upon correctly routed within tray/shelf. |
| F0402 | N2152 | 10 | Cables/jumpers provided or worked on, correctly restrained at anchor/restraint points within closure/termination unit. |
| F0410 | N/A | 5 | Observed cables within closure, correctly restrained at anchor/restraint points as appropriate or reported |
| F0411 | N2153 | 10 | Construction & Integrity of Joint/Termination unit/rack/tray/shelf worked upon maintained/reported as appropriate. |
| F0502 | N/A | 5 | Drawrope spliced correctly and loose ends taped to the pulling side of splice. |
| F0503 | N/A | 5 | Drawrope free from broken strands and knots. |
| F0506 | N/A | 10 | Cable/ Subduct connected correctly to rope. |
| F0507 | N/A | 5 | Cable adequately lubricated. |
| F0508 | N/A | 5 | Correct cabling guides used where required. |
| F0513 | N/A | 10 | Cable/sub-duct/BFT installation fuses correctly applied where required |
| F0514 | N/A | 5 | Cable/sub-duct/BFT provided in correct duct/bore as appropriate. |

# References

A wider range of information on Access Network, Quality of Personal Workmanship can be found at the [Technical Library](https://intra.bt.com/bt/openreach/chief-engineer/network-evolution/interface-team/organisation-network_reliability_home_page/aei_library/Pages/index.aspx)

All craft practises are contained in the appropriate ISIS documents that are available from your Manager or BT representative.

# Enquiries

Enquiries and document change request should be made with, or sent to the author of this document. Details on page 2

END OF DOCUMENT