

Issue 4
Duct and Pole Sharing:
Engineering Principles

1 SCOPE

This document describes the practical engineering aspects of the Openreach physical infrastructure access (PIA) product for consuming Communications Providers (CP's). It sets boundaries on the physical characteristics of the plant you should deploy and describes the quality of workmanship approach you should apply.

Other PIA documents set out the product description, contract terms and conditions, space reservation principles and the processes involved.

This issue is intended as part of the final PIA product reference offer. It is therefore uncontrolled and only current at the time of publication.

2 ISSUE HISTORY

Issue 1: 12/01/11	
Issue 2: 07/11/11:	Item 5.2 – CP8 Overhead Plant Spec; revised to clarify D pole working, shallow climbable poles and labelling of cable and poles. Ice and wind data revised. Item 6.1 – Accreditation process document re-worded but the process is unchanged. Item 6.1.1 – Survey accreditation added Item 7 – The A1024 process and contact number now referred to the PIA process documentation
Issue 3: 26/03/12:	Item 5.7 – Overhead Network item added Item 6.2 – quality process document revised to show new owner General - Specifications updated to PDF format
Issue 4: 10/03/16:	Embedded documents removed and filed in PIA document repository. Table of contents revised. Item 6.2 – text revised to clarify that Openreach reserves the right to carry out audit checks.

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4 SAFETY

4.1 Generic Risks

The following document is a summary of generic risk assessments (used by Openreach) for operations relevant to you. These depict safety issues which you must ensure you manage appropriately for the safety of all our staff and the general public as well as the integrity of our various networks.

This is not an exhaustive list of all safety aspects which you (and your suppliers) should comply with. This list concentrates on aspects affecting other parties. We have assumed you will be taking full responsibility for all aspects of the safety of your own people.

Accompanying document:

“Access network Risks V4B”

4.2 Optical Safety

Requirements for Optical Transmission Equipment using Lasers/LEDs for connection to (or to share duct space with) BT's Inland Optical Network are that:

- all optical equipment must be classified to the appropriate International or British Standard – the current editions of IEC or BS/EN 60825 parts 1 and 2.
- all optical equipment must be classified as Class/Hazard level 1 or 1M / (2 or 2M in the visible light range). This specifies the light power output of the equipment which has to be safe for accidental naked eye viewing.
- the equipment has to remain within this classification (power level) to a high degree of confidence – thus the probability of hazardous failure must be less than 500 FITs (i.e. the chance of dangerous failure – emission of high light levels - must be very low.)

If APR/APSR (Automatic Power Reduction / Shutdown) is used to achieve the required class/hazard level:

- the reliability of the APR/APSD must meet the 500 FITs (or better) confidence level
- the possibility of accidental disabling of the APR/APSD system must be very low and the conditions in IEC 60825-2 regarding 'Disabling the APR/APSD' must be met

Applicable Standards

- BS EN 60825 part 1:1994 with amendments A2:2001 and A1:2002 – Equipment classification, requirements and user's guide
- BS EN 60825 part 2:2004 with amendment A1:2007 – Safety of Optical Fibre Communications Systems
- IEC 60825-2 (2010-12) Ed. 3.2 - Safety of laser products - Part 2: Safety of optical fibre communication systems (OFCS)

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5 PLANT SPECIFICATIONS

The following documents are intended to set boundaries on the physical characteristics of the plant installed in our network. We have tried to avoid unreasonably restricting your choice of plant. However, we do seek to ensure that different parties operating in the network do not present an unnecessary risk to each other. The following attached documents cover particular plant elements in the network:

5.1 SUB-DUCT

Accompanying document:
“CP07.pdf”

5.2 OVERHEAD

Accompanying document:
“CP08.pdf”

5.3 UNDERGROUND BLOWN FIBRE TUBING

Accompanying document:
“CP09.pdf”

5.4 CABLE INSTALLATION, SUPPORT AND PROTECTION

Accompanying document:
“CP10.pdf”

5.5 OPTICAL CABLE, BLOWN FIBRE BUNDLES AND OVERHEAD TUBING

Accompanying document:
“CP11.pdf”

5.6 BREAKING INTO OPENREACH MANHOLES/BOXES

The following sections of this civil engineering document apply to PIA.

LN550 – 5 Jointing Chambers

LN550 – 7 Safety Precautions

Accompanying document:
“LN550.pdf”

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5.7 OVERHEAD NETWORK

The attached file is intended to give an appreciation of the factors we (Openreach) take account of when building and maintaining our overhead infrastructure. Our purpose is to ensure that CPs understand these factors when using our overhead infrastructure. It is not intended as an instruction to CPs on how they should run their own overhead infrastructure.

Accompanying document:

“Overhead Network Policy.pdf”

If CPs propose to erect dropwire only on an overhead route, then there's no need for a route stability survey, providing they comply with the wires in line (DILOR) rule in document CP8 (within the PIA Engineering Principles). For aerial cable, a route stability survey must be made. This includes single span situations where both poles will be in terminal positions which support the full load. There is a standing requirement to provide stays on terminal poles. But, where there is insufficient room for a stay, stronger poles can sometimes be used to provide stability.

6 QUALITY OF WORKMANSHIP

6.1 ACCREDITATION

The following attached document summarises the accreditation process for our suppliers and this will be applied to your operatives. The principle is that people working on the network are properly accredited and licensed to carry out your work. The license is held by individuals, not organisations.

Accompanying document:

“Installation Industry training Accreditation Process Issue 3”

The relevant accreditation modules are:

6.1.1 Accreditation: Survey

Accompanying document:

“PIA survey acc mod.pdf”

6.1.2 Accreditation: Overhead Cabling

- **Drop Wires:**

Accompanying documents:

“AEI-ACC-E001.pdf”

“AEI-ACC-E001-acce001a.pdf”

“AEI-ACC-E001-acce001b.pdf”

- **Overhead:**
Accompanying document:
“AEI-ACC-E002.pdf”

- **Drop Wires (UG Terminations):**
Accompanying document:
“AEI-ACC-E003.pdf”

- **Lightweight Aerial Cabling:**
Accompanying document:
“AEI-ACC-K003.pdf”

- **Telenco Cabling:**
Accompanying document:
“AEI-ACC-K007.pdf”

6.1.3 Accreditation: UG Cabling – Heavy (Copper)

Accompanying document:
“AEI-ACC-K005.pdf”

6.1.4 Accreditation: UG Fibre Cabling

Accompanying document:
“AEI-ACC-K006.pdf”

6.1.5 Accreditation: UG Cabling – Heavy

Accompanying document:
“AEI-ACC-K004.pdf”

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6.2 QUALITY AUDIT

Your operatives are expected to be subject to sample quality checks by your organisation. Openreach reserve the right to carry out checks at our discretion.

The accompanying document outlines a sample audit process:

Accompanying document: "OQP Quality Check Process.pdf"

The relevant check sheets are:

6.2.1 Underground cabling (in progress):

Accompanying document:

"SS641.pdf"

6.2.2 Underground cabling (retrospective):

Accompanying document:

"SS642.pdf"

6.2.3 Overhead cabling (in progress):

Accompanying document:

"SS517.pdf"

6.2.4 Overhead cabling (retrospective):

Accompanying document:

"SS518.pdf"

6.2.5 Underground copper cabling (retrospective)

Accompanying document:

"SS530.pdf"

6.2.6 Underground copper cabling (in progress)

Accompanying document:

"SS641.pdf"

6.2.7 Civils (in progress)

Accompanying document:

"SS581.pdf"

6.2.8 Civils (retrospective)

Accompanying document:

"SS582.pdf"

7 Reporting Defective Plant

If your operatives find a damaged plant, they will need to report it via the A1024 process used by us and our own contractors. The details can be found in the PIA process documentation:

This process not only helps us to maintain our plant, it also helps avoid you being wrongly accused of leaving a plant in a damaged state.

End of document