

# PPC Operations and Maintenance Manual

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## PARTIAL PRIVATE CIRCUIT (PPC)

### BT WHOLESALE'S OPERATIONS AND MAINTENANCE MANUAL

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# PPC Operations and Maintenance Manual

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## 1. Introduction

This Operations and Maintenance (O&M) manual provides the Communication Providers (CP) with guidance on the processes and procedures for the repair and maintenance of Partial Private Circuit (PPC) products. The BT PPC Contract takes precedence over this document. Partial Private Circuits Contracts.

Other supporting documents provided by BT are the, the Customer Service Plan and the Provisioning Manual PPC Provisioning Manual.

### 1.1 Preamble

A Partial Private Circuit (PPC) is a set of network components that a CP is able to buy to provide a private circuit to a Third Party.

The PPC routes from a Point of Handover (PoH) between the CP's network and BT's network, across the BT network to the Third Party, to supply a transmission path at the appropriate bandwidth. "PPC" is therefore a name for the service that describes the network elements that are used to provide the connectivity between the PoH and the Third Party.

There are three main network elements in a PPC:

**The Point of Handover (A-end):** This is a 'big pipe' connection between the CP's network and the serving SDH node in the BT network. The high-capacity PoH infrastructure is supplied as either **In-Span Handover (ISH)**, **In-Span Handover Extension (ISH Extn)** or **Customer Sited Handover (CSH)**. Multiple circuits can be handed over at a single PoH.

**The Third Party End (B-end):** This is the connection between the Third Party's site and the nearest BT Serving Exchange.

**The Circuit:** The connection across the BT network between the PoH and the Third Party. Circuits are available at the following bandwidths: 64Kbit/s; n x 64Kbit/s; 1Mbit/s; 2Mbit/s; 34Mbit/s; 45Mbit/s; 140Mbit/s and 155Mbit/s.

Partial Private Circuits are only available to CPs with Public Electronic Communications Networks (PECN). Full details available from Ofcom website URL:

<http://www.ofcom.org.uk/>

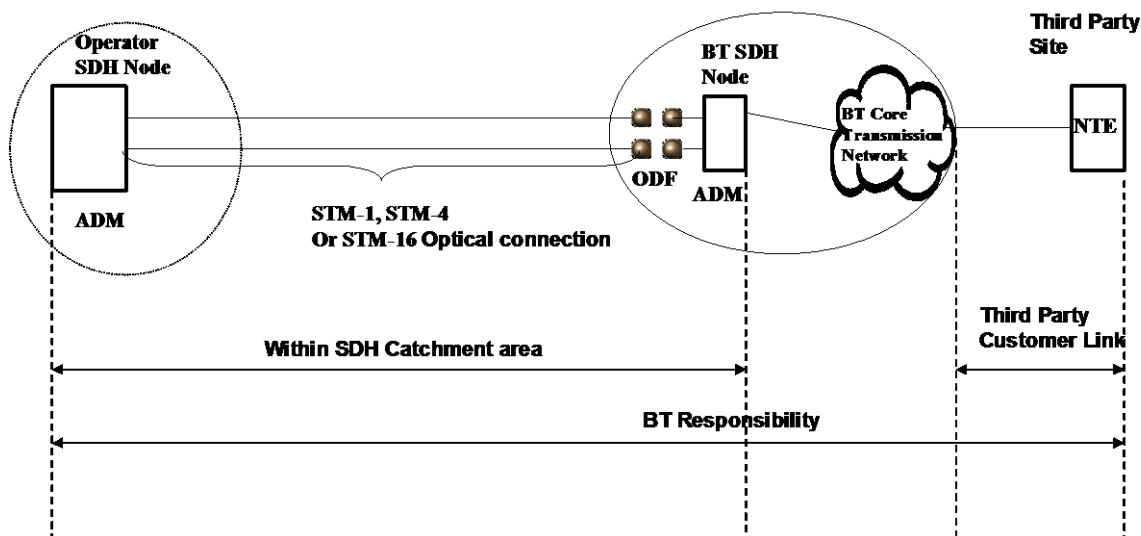
## 2. Simplified Network Diagrams of the PPC Points of Handover (PoH)

There are 3 types of Points of Hand over. They are **Customer Sited Handover (CSH)**, **In-Span handover (ISH)** and **In-Span Extension Handover (ISH Extn)**. The diagrams describe the different types of connection to the Points of Handover (PoH)

The Point of Handover (PoH) can be located at a CP's site, and configured as a Customer Sited Handover (PPC-CSH) or it can be located at a point normally within 100 metres of the serving SDH BT Serving Node, in a footway box, as an In Span Handover (PPC-ISH) or it can be at a point more than 100 metres from a BT SDH serving node, in a footway box as an In-Span Handover Extension (PPC-ISH Extn).

The Partial Private Circuit (PPC) extends from (and includes) the Third Party Customer Link to the respective Point of Handover as shown in the diagrams (1 –3).

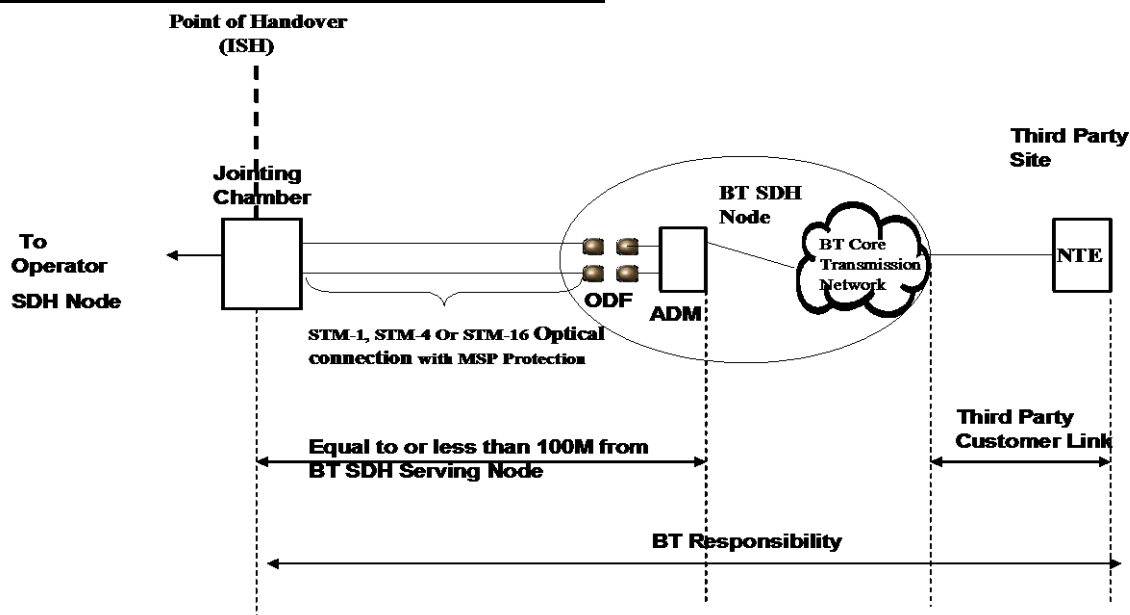
**Diagram1: PPC to a Customer Sited Handover**



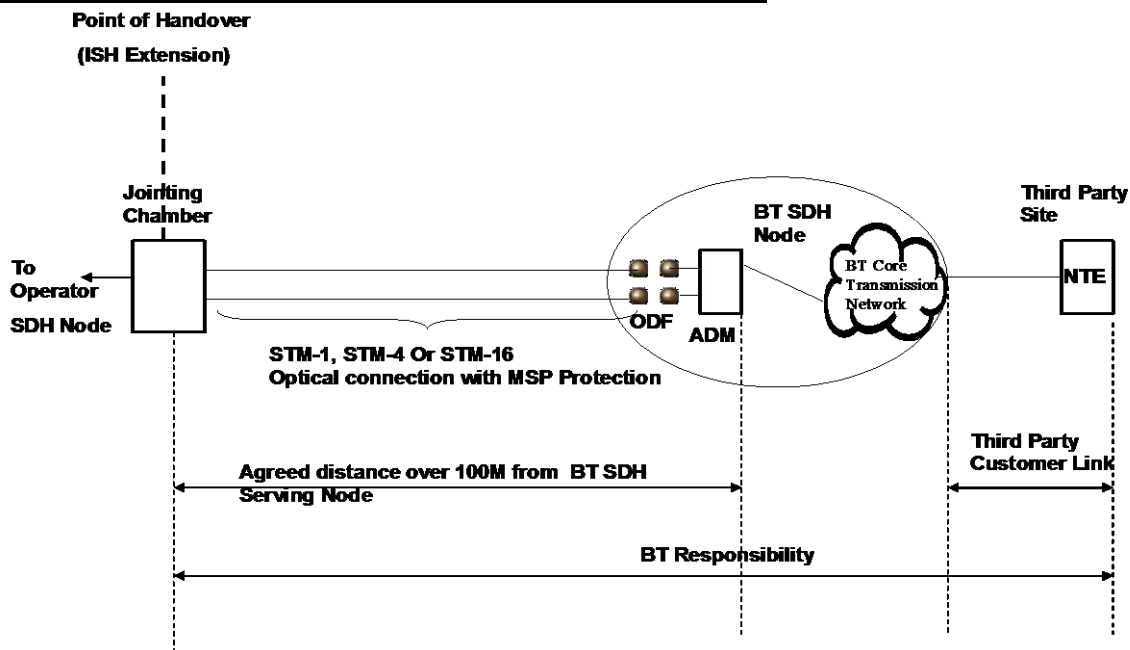
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**Diagram 2. PPC to an In-Span Handover**



**Diagram 3. PPC to an In-Span Handover Extension**



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## 3. PPC Fault Handling Procedures

### 3.1 Definition of Faults

The technical definition of a PPC fault is detailed in the Standard PPC Handover Agreement – Annex E. (Service Level Agreement)

### 3.2 Fault reporting

Faults reported to BT by the CP will be against the individual circuits. The required mode of reporting faults by the CP will be through eCo Repair.

In order for BT to accept faults, the CP must provide BT fault information. BT will employ structured questioning during fault reception as detailed in Appendix 1. It is the CP responsibility to keep the Third Party informed.

The BT Fault Reception Point (FRP) will receive faults proven to BT network from the CP. The BT FRP will be responsible for logging the fault details and handling of faults on the BT network and will be responsible for fault clearance notification.

### 3.3 Repair Contact Points

Both BT and the CP are required to provide a fault report facility relevant to their level of Care.

All BT updates will be via eCo Repair.

All telephone contact details (BT and CP) must be UK mainland numbers, local rate numbers and 0800 numbers only. Telephone contacts will only be managed once the fault has passed its Service Level Agreement (SLA) 5hrs clear point or in the case of an escalation.

## 4. PPC Service Levels, Response Times, Repair and Escalation Targets

### 4.1 Introduction

There are three repair maintenance levels applicable to PPCs. They are Regularcare, EnhancedCare and EnhancedCare Plus. Faults reported to BT will be maintained according to the maintenance agreement on the reported Partial Private Circuit (PPC).

On the receipt of a fault either by eCO Repair, BT issues a unique reference number to acknowledge the fault.

**Table 1. PPC Response Targets**

Maintenance Class	Operational Hours	Response Time
Regularcare	08:00 – 17:00 Hours (Excluding Sunday and Bank Holidays)	Within 1 working Day
Enhancedcare	24/7	Within 4 Hours
EnhancedCare Plus	24/7	Within 2 Hours

**Table 2. PPC Repair Targets**

Maintenance Class	Operational Hours	Target Repair Time
Regularcare	08:00 – 17:00 Hours (Excluding Sunday and Bank Holidays)	Within 2 working Day

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Enhancedcare	24/7	Within 5 Hours
EnhancedCare Plus	24/7	Within 3 Hours

**Table 3: Escalation times**

Maintenance Class	1st Escalation (Hours)	2nd Escalation (Hours)	3rd Escalation (Hours)	4th Escalation (Hours)
Regularcare	5	10	12	15
Enhancedcare	1.25	2.5	3.5	4.5
EnhancedCare Plus	1	1.5	2	2.5

Escalations can be instigated at the following times after target restoration time has elapsed in Table 2.

**Note:** These timescales are to be treated as guidelines only.

## 5. Planned Engineering Works (PEW)

### 5.1 Introduction

Planned Engineering Works is a known programme of network engineering work within the CP or BT's control.

Either party will inform the other of any foreseen work it finds necessary to carry out within its own network which may affect the PPCs or standards of performance between the networks as perceived by the CPs or their customers. The request for deferment of a planned outage by the other CPs will be subject to negotiation and agreement with each case taken on its merits.

### 5.2 Notification

Both CPs' notification contact points are identified in the Customer Service Plan (CSP). The method to be used and target timescales will be discussed, and documented if required between the BT Customer Service Manager (CSM) and the CP.

The CSP lists the contact points in both organisations. Timescales for notifying of an Advice of Interruption to Service are detailed in Section 2.

### 5.3 Timescales

Timescales for notifying each CP of work on transmission line plant, which will have a direct bearing on the perceived performance of the PPC, is a minimum of 10 working days, excepted in cases of emergency.

Contacts points are contained in the Customer Service Plan (CSP).

### 5.4 Planned Works on PPC Transmission Line Plant. (Work carried out by BT or the CP)

Such work may take one of the following forms: -

- Change over from MAIN to STANDBY working by the use of high speed switching equipment.
- Momentary Interruptions (MI's), which may be of maximum duration of 1 minute during "Preferred" hours
- Out of service interruptions. Where it is necessary to carry out work and where a "make good" route does not exist a "Scheduled Outage" will be necessary.

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If the receiving CP is unable to agree to the interruption to service then they must promptly contact the originating CP to discuss and agree an alternative.

If interruption of service cannot be agreed then the originating CP must contact the relevant escalation contact point. The escalation contact points for both CPs will be identical to those identified for resolving PPC escalations (see CSP).

It will be assumed that the work was completed as planned unless the originator advises otherwise; appropriate checks should be made before attempting to resume service.

## 5.5 Preferred Hours for Planned Works

Times when Change-overs, MI's and out of service interruptions may be scheduled by BT or the CP will be discussed, and documented if required, between the BT Customer Service Manager (CSM) and the CP in the CSP.

BT's preferred hours for planned works is after 00:00 hrs and before 06:00 hrs.

## 6. Repair Performance Monitoring

Both BT and the CP will monitor the repair performance of the PPC components to which they have visibility and is pertinent to this Manual.

### 6.1 Performance monitoring

For each service failure, fault reporting and any subsequent performance monitoring will be against the affected Partial Private Circuit(s). This will be against the relevant Regularcare or Enhancedcare service levels.

BT's Quality of Service report (QoS) for individual CPs can be obtained from the Wholesale Customer Reporting (WCR) Tool, which includes reported fault volumes and Out-of service times on PPCs. The following definitions are applied in providing the fault measures:

**Fault Start Time:** The time when a PPC fault is raised by the CP and entered onto the BT Faults Database.

**Fault Response time:** The time it takes BT to complete a primary diagnostics test on a reported fault.

**Fault Restoration/Closure Time:** The time when either CP has notified, or has attempted to notify, the other party of fault restoration or when a restoration time of repaired fault is available. This excludes any "Park Time" and awaiting access/ customer cooperation.



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## 7. Maintenance and Safety Responsibilities

Under the terms of the Interface Specification for connection to the BT System, each CP is responsible for the equipment on its side of the Point of Handover (PoH).

### 7.1 Safe Working Conditions

It is the responsibility of each individual, under the terms of the Health and Safety at Work Act, to ensure the safety of their working environment and to work in a safe manner. The building CPs shall be prepared to accept questions and comments regarding safety from visiting working parties and to take the appropriate action. Also, visitors shall accept directions regarding safety and safe working practices from the building representative.

Should any dispute arise about a practice being unsafe work should cease and the matter escalated immediately to the representatives of each party to their central point for a management decision. The circuit will be "Parked" and the park time will be excluded from measures.

It is noted that Health and Safety matters are covered by legislation to which all organisations and individuals must adhere.

### 7.2 Laser Safety

BT's Inland Optical Network uses an Optical Live Working practise. CP staff working with optical cable and its associated terminal equipment must be both competent and familiar with optical safety instructions using the recommended tools.

Where optical live working is used, CPs must conform to Class/Hazard Level 1M/3A system and locations for "Safe for live working" conditions. Where BT's staff will come into contact with CP equipment and will carry out Optical Live working on equipment (or network), the equipment must conform to BT's standards for Optical Live Working as detailed in the section below.

An Optical Safety Advisor must be consulted to check in line with Health and Safety regulations for all other conditions, before commencing optical live working.

### 7.3 Laser Safety Equipment Conditions

- a) Equipment must be classified to IEC 60825 part 1 and 2
- b) Equipment must not exceed hazard level 1M
- c) Under fault conditions equipment must not exceed hazard level 1M to a confidence level of 500 FITs or better

The International Optical Safety Standards for Laser Safety are:

- i IEC 60825 part 1 (BS EN 60825 part 1) - Basic Standard
- ii IEC 60825 part 2 (BS EN 60825 part 2) - Safety of Optical Fibre Communications Systems

Full details are available in the International Electrotechnical Commission (IEC) published standards. See URL for standards catalogue [www.iec.ch](http://www.iec.ch)

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## 8. Compensation Schemes

There are two types of compensation schemes applicable to PPC faults and they are described below.

### 8.1 Reduced Charge Scheme (RCS)

BT shall be liable to pay compensation payments to the CP for failure to achieve repair time-scales in accordance with Table 4 below. Such compensation shall be payable where BT fails to repair within the time-scales set out below in respect of Partial Private Circuits and shall be calculated in respect of the period commencing on the expiry of the applicable repair time set out herein and expiring at the time the Partial Private Circuit or is repaired. Full details are available in the Standard PPC Handover Agreement (the 'Agreement') at the following URL: [Annex E](#).

**Table 4 Reduced Charge Scheme Targets**

Partial Private Circuit:	Compensation payable by BT
CP ordered RegularCare for Partial Private Circuit	100% of the monthly rental payable for the type of Partial Private Circuit being repaired per Working Day or part of a Working Day, of delay in repair to a maximum of 30 working days
CP ordered EnhancedCare for Partial Private Circuit	15% of the monthly rental payable for the type of Partial Private Circuit being repaired per hour or part of an hour, of delay in repair to a maximum of 200 hours
CP ordered EnhancedCare Plus for 2Mbit/s Partial Private Circuits only	15% of the monthly rental payable for the type of Partial Private Circuit being repaired per hour or part of an hour, of delay in repair to a maximum of 200 hours

Under the RCS compensation for delays in repair of circuits shall automatically be payable after 3 hours for Enhanced Care Plus and 5 hours for Enhanced Care and 2 working day for Regular Care circuits; the amount shall be deducted from the next monthly/quarterly bill as appropriate.

RCS is credited on a monthly/quarterly basis and is payable at a fixed proportion of monthly rental as detailed in Table 4 above. The level of compensation payable per delayed repair is directly related to the outage time.

### 8.2 Availability Compensation Scheme (ACS)

When total loss of service occurs to a Partial Private Circuit occurs more than 3 times in any 12 month period, the Communication Providers shall not be liable to pay monthly rental to BT in any subsequent month where total loss of service occurs until such time as twelve successive months have passed without a fault. ACS is credited on a monthly/quarterly basis.

**Note: The full criteria for qualifying faults are dealt within the Qualification Criteria for ACS section.**

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## 8.3 Qualification Criteria for ACS

To qualify for compensation under the ACS, a fault must be:

- Reported by the customer.
- "Faulty" when reported.
- Suffering total loss of service for greater than 1 minute (not erroring)
- Available for immediate intrusive testing
- A provable fault by BT
- Not subject to RCS compensation
- Not caused by CP/Customer equipment
- Not caused by matters beyond BT's reasonable control (MBORC)

## 8.3 Exception to Repair RCS

Where a circuit is reported faulty within 3 months from installation and is proven to never to have worked, the compensation to the CP will be based on the provision Reduced Compensation Scheme (RCS)

## 8.4 Keeping Customer Informed (KCI) Indexing

Keeping Customer Informed is the mechanism on the eCO Repair tool which provide CPs with an update throughout the life of their fault. To increase efficiencies the KCIs from the Work Manager (WM) system are automated and proactively feeds into the eCO Repair fault management system milestone page.

The overall objective with automated WM KCI updates is to provide proactive updates through the repair journey as key events occurred to enable this; we provide the key status changes on the engineering tasks, as they occur within the constraints of the system using pre agreed logic/dependency flow.

The table below provides an example of the proactive updates given and the numbering sequences:

Time Stamp	Event Type	Details
<b>Date : Today</b>		
<b>Before 11:00   Today</b>		
s 10:57	Proactive Update	<b>WM Updates: KO.6</b> The engineer has completed all tasks for this fault. BT will contact you to confirm the fault has been resolved or if any further work is required to progress this fault
f 10:53	Reactive Update	Please see update at 10.50.
f 10:51	Web Req-Complete	-Please send update via Web- Could you confirm engineer is dealing onsite please?
e 10:51	Web Req-New Request	-Please send update via Web- Could you confirm engineer is dealing onsite please?
f 10:50	Proactive Update	eng has attended customer site -re-attending exchange now to carry out further checks
f 10:49	Work Manager	WM Task Created OK

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**Before 23:00 | Today**

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s	22:36	Proactive Update	<b>WM Updates: KO.4</b> An engineer is now on site at B end exchange localising fault, we will endeavour to provide next update within 4hrs
---	-------	------------------	---

---

**Before 22:00 | Today**

---

s	21:51	Proactive Update	<b>WM Updates: KO.1</b> A fault has been diagnosed on the B end section. A task has been raised for an engineer to the exchange. We will endeavour to provide next update within 4hrs
---	-------	------------------	---

---

The example above does not follow a set pattern but demonstrates how the numbered KCIs will appear in the eCO Repair milestone page.

Not all numbered proactive WM Updates will appear in the milestone journey. This is due to the rapid timescales involved in the repair process. For example a KCI will assume that a fault has been diagnosed at the B-End of the circuit, which would appear as KO.1 and the completion of the engineering task will appear as KO.6. These KCIs are not meant to be sequential or linear and where intermediate codes do not appear, please do not call our Repair Centres to query missing KCI codes. All updates should be taken in the context of the fault and would depend on what precedes and follows these events and what additional manual updates has been given. The expectation is for you to review progress in context with the overall information provided and not just on the numbering sequence.

The proactive WM Updates may not follow sequentially i.e. KO.1; KO.2; KO.3; KO.4 etc. This does not mean the fault repair is not progressing to meet the agreed Service Level Agreement (SLA) and therefore it should not be necessary for you to contact the Repair Centre reporting missing KCIs.

Please also be aware these number sequences may repeat, if alternative resource is required as the fault progresses, or additionally, the sequence may stop at any KCI point and then repeat. Again this does not mean the events of the fault are not fluid within the repair journey.

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## 9. APPENDICES

### 9.1 Appendix 1 Circuit down Mandatory Questions for CP Response

1. What is the circuit number that you wish to report?
2. Confirm company name?
3. Confirm A/End and B/End address?
4. What is the name and contact details for the person reporting the fault?
5. Fault reference number/code to be exchanged?
6. Customer contact details for hand back? (*Only UK mainland number, local rate numbers and 0800 numbers are acceptable)
7. What are the contact details for the person who may assist BT with diagnostics and restoration?
8. 24 hour on site contact name and number/Access details?
9. What is the nature of the fault?
10. Has the customer, checked/reset/plugged in equipment? (What other checks have been made, if any? This may include a description of any fault lights)
11. Has the circuit ever worked?
12. Is it OK for obtrusive testing of the circuit?
13. Is the fault EnhancedCare Plus? Access details are a mandatory requirement when fault is reported and 24 hour access must be available for engineering purposes.

### 9.2 Appendix 2 PPC Fault Detection

PPC faults detected by CP's maintenance staff must be reported to the BT FRP using eCO Repair or eChat. The following procedures must be adopted to assist fault detection: -

- I. Prior to reporting the fault, the CP must ensure that a genuine fault exists and also that every effort has been made to prove away from the originator's network, i.e. to the Point of Handover (PoH). If this is not possible, then a non-live fault must be raised via the BT FRP to request diagnostic assistance, i.e. to check the perception of the alarm status etc.
- II. Where a circuit is intermittently erroring, it must be available for immediate obtrusive testing for eligibility under the appropriate maintenance care level, otherwise BT will work with the CP to arrange suitable down time. In the latter case the circuit will not qualify for (RCS) under the appropriate care maintenance eligibility.

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- III. The originating CP must report the fault to the BT FRP advising of the type of delivery of the link, i.e. In Span Handover, (ISH), IN Span Extension Handover (ISH Extn) or Customer Sited Handover (CSH).
- IV. The BT FRP will distribute the fault to the CP's FRP or the BT control point.
- V. The receiving CP must carry out diagnostics to prove the fault into or out of its own network. If the fault is proven into the receiving CP's network then normal fault clearance procedures are carried out. If fault proven to originator's network by use of BT external engineering i.e. Precision Testing Officer (P.T.O.), Per Occasion Charges could apply.
- VI. The BT FRP must contact the originating CP to request co-operation
- VII. Following co-operation the BT and CP FRP control points must agree ownership of the fault. The fault owner is then responsible for restoration and the eventual report of the clear to the CP.

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## 9.3 Appendix 3 eCo Repair and Loops

### 9.3.1 eCo Repair

eCo Repair is BT Wholesale's method for CPs to report faults, raise issues and view / track any reports on the system. It is an online web based portal which can also display alarm status and aid CP's in proving faults onto BT's or the CP's network using "loops". Recent additions to the diagnostic features include Narrowband 'Quick Test' which enables a CP to check continuity of a circuit.

### 9.3.2 Loop application

Application of loops to a circuit must be made before a fault is passed to BT FRP or after BT has passed the fault back to the CP and the CP has been informed that the circuit is in the retest queue. A loop cannot be placed when BT is working to resolve a fault.

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## 9.4 Appendix 4 Validation Rules

Repair Validation Rule
<p><b>Regular Care:</b></p> <ul style="list-style-type: none"><li>- Qualifies for RCS at the end of the second working day.</li><li>- Fault will only qualify for ACS if not qualified for RCS i.e. OST between 1 min- end of second working day and hard down.</li></ul>
<p><b>Enhanced Care:</b></p> <ul style="list-style-type: none"><li>- ACS /RCS Criteria are as follows</li><li>- If a circuit is hard down with an Out of Service Time from 1 min to 5hrs ACS rules apply</li><li>- If the OST is 5hrs 01min or greater RCS rules apply but ACS rules do not</li></ul>
<p><b>Fault with Clear- codes where no fault identified:</b></p> <ul style="list-style-type: none"><li>- Take the Restore time as either; when automated alarm checks have been carried out and no live alarms are seen, or when a log indicates no live alarms are seen.</li><li>- If there is no log or automated alarm checks, then use the time when the manual test proved the circuit RWT.</li><li>- Exclude from ACS</li></ul>
<p><b>Faults with clear- codes relating to customer equip, mis-operation, or equipment connected to the circuit:</b></p> <p>If fault proves to customer</p> <ul style="list-style-type: none"><li>- Fault should be closed with OST of 1min</li><li>- Exclude from RCS</li><li>- Exclude from ACS</li></ul>
<p><b>Circuits reported in error:</b></p> <ul style="list-style-type: none"><li>- Fault should be closed with OST of 1 min</li><li>- Exclude from RCS</li><li>- If the circuit is a PPC or RBS circuit exclude from ACS</li></ul>
<p><b>Intermittent / Erroring Fault:</b></p> <p>If the circuit was reported as; intermittent, erroring, flapping, bouncing etc.(i.e. not hard down) or was reported as hard down but was clearly intermittent:</p> <ul style="list-style-type: none"><li>- The fault should be closed with an OST of 1min and excluded from the RCS &amp; ACS.</li><li>-</li></ul> <p>If the circuit was reported as hard down and the customer allows downtime/testing but the circuit transitions to an intermittent/ erroring state part way through:</p> <ul style="list-style-type: none"><li>- The OST should be an accumulation of all the time spent hard down (excluding periods agreed with BT) and normal RCS and ACS rules apply.</li><li>-</li></ul> <p>Where a circuit is intermittently erroring, it must be available for immediate obtrusive testing for eligibility under the appropriate maintenance care level, otherwise BT will work with the CP to arrange suitable down time. In the latter case the circuit will not qualify for (RCS) under the appropriate care maintenance eligibility.</p> <p>To qualify for RCS the circuit should be :</p> <p>Suffering total loss of service for greater than a minute (not erroring)</p>

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### **If the customer advises of no test nor no downtime:**

- The fault should be closed with and OST 1min
- This proves that customer has service and will not allow testing.
- Exclude from RCS
- Exclude from ACS

### **Check whether MBORC has been declared :**

- If MBORC has been declared against the fault
- Validate as normal
- Exclude from RCS
- Exclude from ACS

### **Deduct all Third Party Delays:**

For example: council delays for traffic lights, delays in obtaining a license from the council to dig roads, cars parked over manhole covers, delays due to traffic on the road whether the cable repair or diagnosis is to take place, etc. if any engineering visit requires the engineer to travel to collect remotely held keys in order to gain access to the customer site, deduct all travel time associated with the visit (even if the keys are held at A/B end BT exchanges) PPC Repair Validation Rules 3RD Party engineers contracted are deemed to BT employees for the purposes of this paragraph

### **N.B. : THIS IS NOT A DEFINITIVE LIST**

### **Third Party Fault Reports:**

- If a fault is reported by a third party before it is reported by owner
- Deduct all time between the third party reporting the fault and the owner reporting it
- BTW will not accept reports from end users / third parties for PPC faults

If the customer asks for loop to be applied for testing and then confirms that the circuit is faulty.

- Deduct all the time from when they requested the loop to when the customer confirms that the circuit is faulty.
- This does not apply if the circuit is subsequently found to be faulty, all time is included.

### **For Proactively raised faults:**

- The fault commences when the customer reports it
- Please deduct all the time prior to the time the Customer advises the circuit is down
- If there is no mention of fault status on the fault report then the fault should be considered as Hard Down unless the logs confirm differently.
- To qualify for compensation under the ACS, a fault must be reported by the customer

### **All customer delays or arranged delays with the customer should be deducted:**

"Customer delays " may include e.g. customers finding keys/key holders for premises,"

- Arranged delays " includes appointments made by the customer for BT to facilitate repair of the circuit
- BT will try to accommodate 2hours notice for an appointment but this cannot always be guaranteed
- Customer delays are recorded in the system logs with a CAVAL code for audit purposes.

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### **Access & Apportioning:**

If the customer was asked to provide access details when reporting the fault and none were provided:

- If access was later requested to diagnose or fix the fault:
- If the access then provided was considered reasonable (Note: Reasonable access is deemed to be in line with the care level, Enhanced Care)

Deduct all time between the fault was reported and when access was later provided by the customer

- If the access then provided was not considered reasonable

Deduct all the time associated with wasted engineering visits (i.e. all the time from when the DTO tasks the engineer, to when the engineer comm.'s off the task) where the access provided was insufficient for the engineer to complete their job. This does not apply if extraordinary access was arranged with the customer due to not having the correct spares/skillset etc. Only time associated with engineering visits where the cause of stopping work was down to restrictions in access imposed by the customer should be deducted.

- If no access was provided throughout the lifetime of the fault close with 1min OST
- If access was not later requested Validate as normal

If the customer was asked to provide access details when reporting the fault and details were provided

- If the access was considered reasonable Validate as normal
- If the access provided was not considered reasonable Deduct all time associated with wasted engineering visits (as described above)

If the customer was not asked to provide access details when reporting fault:

- If access was later requested to diagnose or fix the fault:
- If the access later provided was considered reasonable Validate as normal
- BT's failure to meet the appointment will be included in the OOS time.

### **Health & Safety:**

Check the logs for health & safety issues

### **Issues on Customer Premises:**

- Deduct all time associated with engineering visits where; the engineer either cannot begin work or has to stop work due to a health & safety issue on the customer premises.
- 

*e.g. if an engineer arrives on site but cannot begin work due to exposed wiring in the customer premises deduct all time from when the DTO tasks that particular field engineer. All time will be deducted as BT cannot guarantee that the same engineer will be available to continue the task, preventing timely restoration of service*

### **Issues in the public domain:**

- These may include: high winds, darkness ...etc.
- 

If the customer has been advised and has no objection deduct all time associated with wasted engineering.

### **If logs state that damage has been done to the circuit on customer premises:**

- This includes: cable being cut, equipment damaged/ removed by the customer or a third party etc, but excludes damage by BT or by BT's customers

The fault should be close with OST = 1m

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## 9.5 Appendix 5 – Work Manager Numbered Updates: Generic Glossary:

- KO.1 – Fault in Diagnostic
- KO.2 – Fault in Allocation to engineer
- KO.3 – Fault allocated to engineer
- KO.4 – Engineer on Site (A or B End)
- KO.5 – Engineer requests further assistance
- KO.6 – Engineer has completed tasks
- KO.7 – Engineer has cancelled task
- KO.8 – Multiple tasks raised to resolve fault. Automated updates suspended

## 9.6 Appendix 5 Fault Location Clear Codes

### 9.6.1 Fault Code (1<sup>st</sup> Character)

<b>A</b>	Digital Switch in a BT Station
<b>C</b>	Customer's Equipment or miss-operation (see Location Codes for Customer Clears)
<b>D</b>	BT Maintained Modems
<b>E</b>	BT Maintained Equip within an Exchange - i.e. Mux, Sig Unit, Equaliser Line Card etc
<b>F</b>	Fault Not Found
<b>G</b>	BT Maintained CPE
<b>H</b>	Higher Order - Core Network
<b>I</b>	Incident due to Extreme Weather (see Location Codes for Incident due to Extreme Weather)
<b>J</b>	Featurenet (see Location Codes for Featurenet)
<b>K</b>	CPE - LTU, (A) NTU & Line-side Wiring
<b>M</b>	Jumpers, MDF, IDF BT Exchanges
<b>O</b>	BTGS/BT Retail - Front End Clear (see Location Codes for Front End Clears)
<b>P</b>	Provision
<b>R</b>	Right When Tested
<b>S</b>	Used for Advanced Services faults (see Location Codes for Advanced Services)
<b>L</b>	Used for Advanced Services Link Fault (see Location Codes for Advanced Services Link Fault)
<b>T</b>	BTO - Front End Clear (see Location Codes for Front End Clears)
<b>U</b>	Intermittent or Erroring fault
<b>V</b>	Plant within Local Section - MDF Line-side to LTU Network-side i.e. Cabinet, Pillar, DP, U/G etc (see Location Codes for local access faults)
<b>W</b>	Temporary code used when a fault is cleared by a field engineer
<b>X</b>	Equip/Plant within External Line Plant of the BT Network – i.e. Amps, Repeaters, Radio, U/G Cable, PCM (see Location Codes external line/plant clears)
<b>Z</b>	Other Licensed Operators (see Location Codes for Other Licensed Operator faults)

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## 9.5.1 Location Codes (2nd Character)

### 9.5.1.1 General

1	Customer's Premises 'A' End
2	Local End 'A' End
3	Junction Section (Exchange) 'A' End
4	Main Section or Higher Order
5	Junction Section (Exchange) 'B' End
6	Local End 'B' End
7	Customer's Premises 'B' End
9	Fault proved but not localised
0	Fault not proved to circuit

## 9.5.2 Location Codes for Customer Clears ( C )

C1	Customers Equipment Error or Misoperation (A End)
C2	Customer Power (A end)
C3	Customer Cancelled Fault Report
C4	Customer Reported Wrong Circuit Number
C5	Customer Ceased In Error
C6	Customer Power (B end)
C7	Customers Equipment Error or Misoperation (B End)
C8	Customer Damaged BT Plant or Equipment
C0	Advice Given

## 9.5.3 Location Codes for Front End Clears (T or O)

T1 or O1	Customers Equipment Error or Misoperation (A End)
T2 or O2	Customer Power (A end)
T3 or O3	Customer Cancelled Fault Report
T4 or O4	Customer Reported Wrong Circuit Number
T5 or O5	Customer Ceased In Error
T6 or O6	Customer Power (B end)
T7 or O7	Customers Equipment Error or Misoperation (B End)
T9 or O9	RWT
T0 or O0	Advice Given

## 9.5.4 Location Codes for Incidents Due to extreme Weather ( I )

I1	Lightning damage between the BT Exchange and the interface at the 'A' end customer.
I2	Lightning damage between the BT Exchange and the interface at the 'B' end customer.
I3	Lightning damage to BT Exchange equipment.
I4	Problems due to heat between the BT Exchange and the interface at the 'A' end customer.
I5	Problems due to heat between the BT Exchange and the interface at the 'B' end customer.
I6	Problems due to heat within a BT Exchange building.
I7	Water/Flood damage between the BT Exchange and the interface at the 'A' end customer.
I8	Water/Flood damage between the BT Exchange and the interface at the 'B' end customer.
I9	Water/Flood damage to BT Exchange equipment.

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### 9.5.5 Location Codes for local access faults ( V )

- V2 Between the line side of the MDF in the serving exchange and the 'A' end customer premises.
- V6 Between the line side of the MDF in the serving exchange and the 'B' end customer premises.
- V8 Malicious damage to local cable or plant caused by theft or attempted theft.
- V9 Malicious damage to local cable or plant caused by means other than theft.
- V0 Damage by a third party (this does not include contractors working for the customer concerned)

### 9.5.6 Location Codes for higher order network faults ( H )

- H4 Fault on the Main Section or Higher Order.

### 9.5.7 Location Codes External Line/Plant ( X )

- X2 Between the serving exchange and the 'A' end customer premises
- X3 In the junction section controlled by the 'A' end.
- X4 In the higher order or main line section.
- X5 In the junction section controlled by the 'B' end.
- X6 Between the serving exchange and the 'B' end customer premises
- X8 Malicious damage to external cable or plant in the BT Network caused by theft or attempted theft.
- X9 Malicious damage to external cable or plant in the BT Network caused by means other than theft.
- X0 Damage by a third party (this does not include contractors working for the customer concerned)

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## 9.5.8 Appeneix 1 – Examples of Fault & Location Clear Codes used

Below are examples of Clear Codes used once a fault is cleared.

C0 - CUST EQUIP ERROR OR MIS OPERATION - FAULT NOT PROVED TO CIRCUIT
C1 - CUST EQUIP ERROR OR MIS OPERATION - CUSTOMER PREMISES A END
C2 - CUST EQUIP ERROR OR MIS OPERATION - LOCAL END A END
C3 - CUST EQUIP ERROR OR MIS OPERATION - JUNCTION SECTION (EXCHANGE) A END
C4 - CUST EQUIP ERROR OR MIS OPERATION - MAIN SECTION OR HIGHER ORDER
C5 - CUST EQUIP ERROR OR MIS OPERATION - JUNCTION SECTION (EXCHANGE) B END
C6 - CUST EQUIP ERROR OR MIS OPERATION - LOCAL END B END
C7 - CUST EQUIP ERROR OR MIS OPERATION - CUSTOMER PREMISES B END
C8 - CUSTOMER DAMAGED BT PLANT OR EQUIPMENT
D1 - BT MAINTAINED DATACOMMS - CUSTOMER PREMISES A END
D7 - BT MAINTAINED DATACOMMS - CUSTOMER PREMISES B END
E2 - BT MAINTAINED EQUIP WITHIN BT - LOCAL END A END
E3 - BT MAINTAINED EQUIP WITHIN BT - JUNCTION SECTION A END
E4 - BT MAINTAINED EQUIP WITHIN BT - MAIN SECTION
E5 - BT MAINTAINED EQUIP WITHIN BT - JUNCTION SECTION B END
E6 - BT MAINTAINED EQUIP WITHIN BT - LOCAL END B END
F0 - FAULT NOT FOUND - NOT LOCATED
F2 - FAULT NOT FOUND - LOCAL END A END
F4 - FAULT NOT FOUND - MAIN SECTION
F5 - FAULT NOT FOUND - JUNCTION SECTION B END
F6 - FAULT NOT FOUND - LOCAL END B END
F9 - FAULT NOT FOUND - PRIVATE CCT NOT LOCALISED
G7 - BT MAINTAINED SWITCH - CUSTOMER PREMISES B END
H4 - HIGHER ORDER SYSTEMS - MAIN SECTION
I2 - EXTREME WEATHER CONDITIONS - B End. (Exch. MDF to Customer) - Lightning Strike
I6 - EXTREME WEATHER CONDITIONS - BT Exch. Equipment - Heat Related
I8 - EXTREME WEATHER CONDITIONS - B End. (Exch. MDF to Customer) - Water Related (Floods)
I9 - EXTREME WEATHER CONDITIONS - BT Exch. Equipment - Water Related
K2 - CUST PREMISES LOCATED EQUIPMENT - LOCAL END A END
K6 - CUST PREMISES LOCATED EQUIPMENT - LOCAL END B END
M2 - JUMPERS - LOCAL END A END
M4 - JUMPERS - MAIN SECTION
M5 - JUMPERS - JUNCTION SECTION B END
M6 - JUMPERS - LOCAL END B END
N7 - MISCELLANEOUS - RESERVED
P2 - PROVISION PROBLEM - LOCAL END A END
P4 - PROVISION PROBLEM - MAIN SECTION
P5 - PROVISION PROBLEM - JUNCTION SECTION B END
P6 - PROVISION PROBLEM - LOCAL END B END
R0 - RIGHT WHEN TESTED - NOT LOCATED
T0 - FRONT END CLEAR - ADVICE GIVEN
T1 - FRONT END CLEAR - CUSTOMERS EQUIPMENT ERROR OR MISOPERATION A END
T3 - FRONT END CLEAR - CUSTOMER CANCELLED FAULT REPORT
T4 - FRONT END CLEAR - CUSTOMER REPORTED WRONG CIRCUIT NUMBER
T5 - FRONT END CLEAR - CUSTOMER CEASED IN ERROR
T6 - FRONT END CLEAR - CUSTOMER POWER B END
T7 - FRONT END CLEAR - CUSTOMERS EQUIPMENT ERROR OR MISOPERATION B END
T9 - FRONT END CLEAR - RWT
U0 - INTERMITTENT/ERRORING - RWT/FNF
U1 - INTERMITTENT/ERRORING - CUST PREMISES A END
U2 - INTERMITTENT/ERRORING - LOCAL END A END
U4 - INTERMITTENT/ERRORING - MAIN SECTION
U5 - INTERMITTENT/ERRORING - JUNCTION SECTION B END
U6 - INTERMITTENT/ERRORING - LOCAL END B END

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U7 - INTERMITTENT/ERRORING - CUST PREMISES B END
V0 - LOCAL END - Damage by a third party (this does not include contractors working for the customer concerned)
V2 - LOCAL END - LOCAL END A END
V6 - LOCAL END - LOCAL END B END
V8 - LOCAL END - Malicious damage (Theft)
V9 - LOCAL END - Malicious damage (other)
X2 - EQUIPMENT WITH EXTERNAL LINE PLANT - LOCAL END A END
X4 - EQUIPMENT WITH EXTERNAL LINE PLANT - MAIN SECTION
X6 - EQUIPMENT WITH EXTERNAL LINE PLANT - LOCAL END B END
X9 - EQUIPMENT WITH EXTERNAL LINE PLANT - Malicious damage (other)

## 10. Abbreviations

Abbreviations	Definition
ACS	Availability Compensation Scheme
ADM	Add Drop Mux
CP	Communication Provider
CSH	Customer Sited Handover
CSP	Customer Service Plan
FRP	Fault reception Point
IEC	International Electrotechnical Commission
ISH	In-Span Handover
ISH Extn	In-Span Handover Extension
MSP	Multiplex Section Protection
NTE	Network Terminating Equipment
ODF	Optical Distribution Frame
RCS	Reduced Charge Scheme
POC	Per Occasion Charges
PECN	Public Electronic Communications Network
PoH	Point of Handover
PPC	Partial Private Circuit
PTO	Precision Testing Officer
QoS	Quality of Service report

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