ND1001:1999/06

PNO-ISC/SPEC/001

Use of SS7 pointcodes for network interconnect in the UK

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PNO-ISC SPECIFICATION NUMBER 001
USE OF SS No.7 POINT CODES FOR NETWORK INTERCONNECT IN THE UK

NETWORK INTEROPERABILITY CONSULTATIVE COMMITTEE

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0.2 Normative Information

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0.4 HISTORY

Revision	Date of Issue	Updated By	Description
Issue 1	June 1999	Rob Spindley, BT Plc	First published issue

0.5 ISSUE CONTROL

SECTION	ISSUE	DATE
All	Issue 1	June 1999

0.6 REFERENCES

[1] PNO-ISC/SPEC/005 C7 INTERCONNECT MESSAGE TRANSFER PART (MTP)

[2] Q.704 (03/93) SS No.7 – SIGNALLING NETWORK FUNCTIONS AND MESSAGES

0.7 GLOSSARY OF TERMS

0.7.1 Abbreviations

DPC Destination Point Code
INPC Interconnect Network Point Code
IPC International Point Code
ITU International Telecommunication Union (replaced CCITT)
MTP Message Transfer Part
ONPC Own Network Point Code
OPC Originating Point Code
PC Point Code
SSF Sub-Service Field
STP Signalling Transfer Point

0.7.2 DEFINITIONS

A term used in this specification which is not an ITU term is:-

Interconnect Node — A node within an operator's network that is connected to other operators' networks and where SS No.7 MTP User Messages are processed e.g. a node which terminates speech circuits to another network.

0.8 SCOPE

The purpose of PNO-ISC/SPEC/001 is to specify the requirements for the use of the MTP Point Codes across a UK national interconnect between Public Network Operators. See ref [1]. Details of international interconnect is outside the scope of this document.

It must also be noted that this specification might only form part of an agreement. Support of a different point code scheme for an interconnect may be agreed as part of a bilateral agreement.

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1. INTRODUCTION

ITU-T SS No.7 defines the use of PCs in a single MTP network. The UK has multiple MTP networks and this specification describes the use of PCs within the UK in order for networks to be interconnected.

2. STRUCTURE OF THE UK POINT CODE SCHEME

The detailed structure of the MTP addressing information is specified in [1] and [2], however the part that is relevant to this specification is reproduced below for convenience:-

14 bits	14 bits	4 bits
Originating Point Code OPC	Destination Point Code DPC	Sub-Service Field SSF

The Sub-Service Field contains a 2 bit network indicator (bits D and C), the other 2 bits (A and B) are marked by ITU as spare (and set to 0). The 4 values of the SSF have been allocated by ITU as follows:-

Bits D C	**Value**	**Use**
0 0	0	International network
0 1	1	Spare (for international use only)
1 0	**2**	**National network**
1 1	3	Reserved for national use

This specification specifies only the use of PCs between networks in the UK. **These are Interconnect PCs and use the network indicator value of 2 (National Network).** Use of the other network indicator values is outside the scope of this specification. Network Indicator value 3 is not used for interconnect in the UK.

In the UK the National Network's 16 384 PCs are grouped into 3 ranges, an "Own Network" range and two "Interconnect Network" ranges.

Range	**No. Of PCs In Range**	**Use**
0 - 1023	**1024**	**Interconnect Network**
1024 - 12287	11264	Own Network
12288 - 16383	**4096**	**Interconnect Network**

The Own Network range is available to each and every operator to use in their network without reference to other operators or networks. PC values from the Own Network range therefore can occur in more than one network.

This scheme leads to the following rules:-

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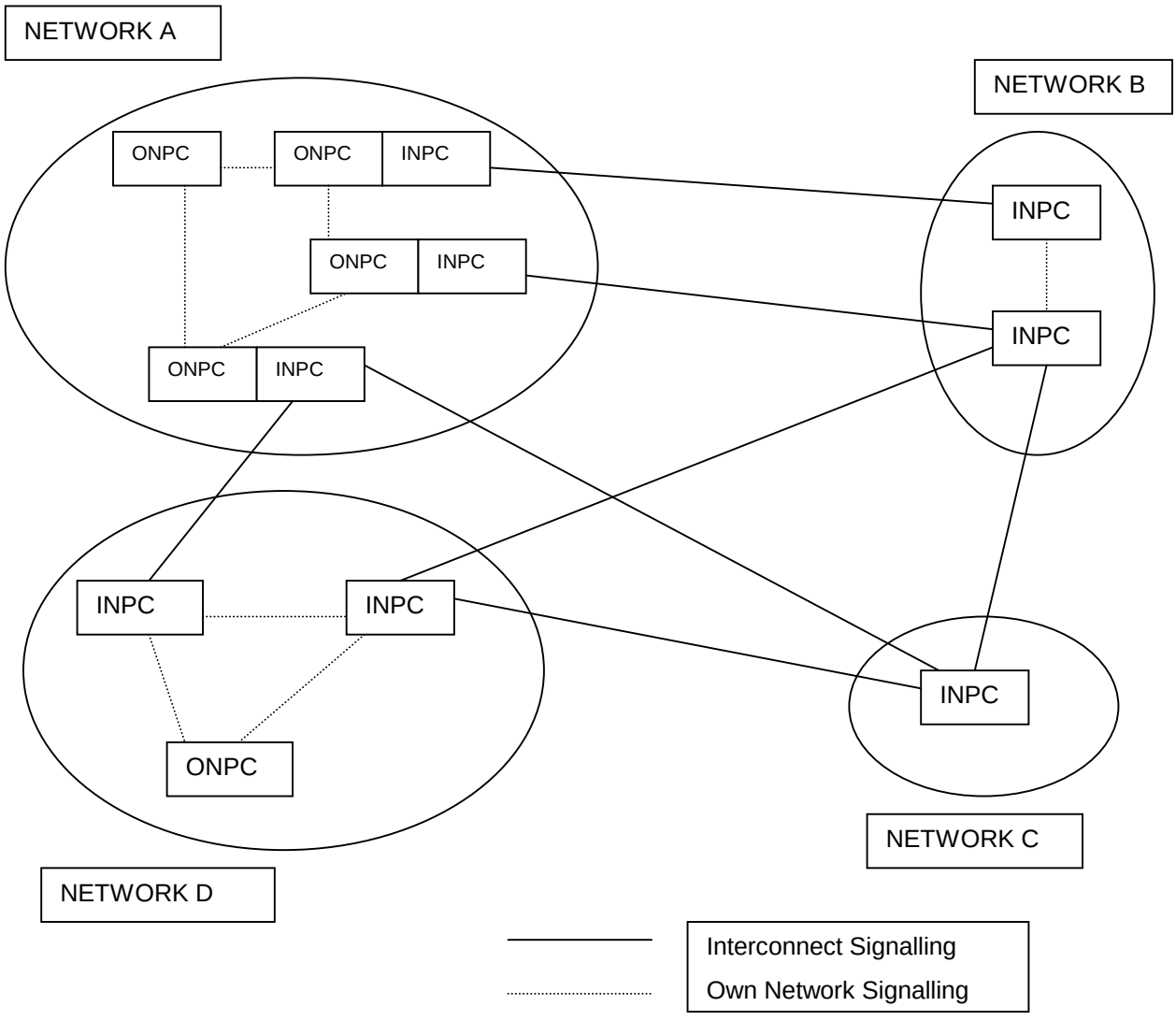
- Rule 1 - The Interconnect ranges shall only be used to identify nodes that are interconnected to other networks.
- Rule 2 - Nodes that are in the UK Interconnect network shall use PCs from within the Interconnect ranges.
- Rule 3 - A PC from the interconnect ranges shall only be allocated to one node in the UK.

In addition to the rules above there is an option for operators:-

- An operator may allocate an Interconnect node a PC from the Own Network range to use for messages to other Own Network nodes i.e. the node would then have 2 PCs, one for Own Network messages and one for Interconnect Network messages

3. UK INTERCONNECT SCENARIOS

The PC scheme described above can lead to various scenarios dependent on the networks that are interconnected and the decisions made by the network operators on the use of the Own Network range within their network. An example is shown on the next page, note that the Network Indicator is always 2 (National):-



In the example above the networks have the following characteristics:-

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Network A	Uses INPCs for Interconnect signalling (rule 2) and always uses ONPCs for Own Network signalling (rule 1and option).
Network B	Uses Interconnect PCs both for Interconnect (rule 1) and Own Network signalling. This is allowed as both nodes are interconnected to other networks.
Network C	Has only one node - it is an interconnect node and it therefore uses an INPC (rule 1).
Network D	Uses INPCs for Interconnect signalling (rule 2). Uses an ONPC for the node not interconnected to other networks (rule 1).

4. USE OF SIGNALLING TRANSFER POINTS

If the interconnect agreement allows for Signalling Transfer Points [1] to be used then each STP shall have a PC from the Interconnect Network range. The Interconnect nodes, i.e. those where the MTP User message is processed shall also have PCs from the Interconnect range. i.e. the use of an STP does not remove the need for the Interconnect Nodes to have INPCs.

5. NATIONAL INTERCONNECT TO INTERNATIONAL GATEWAYS

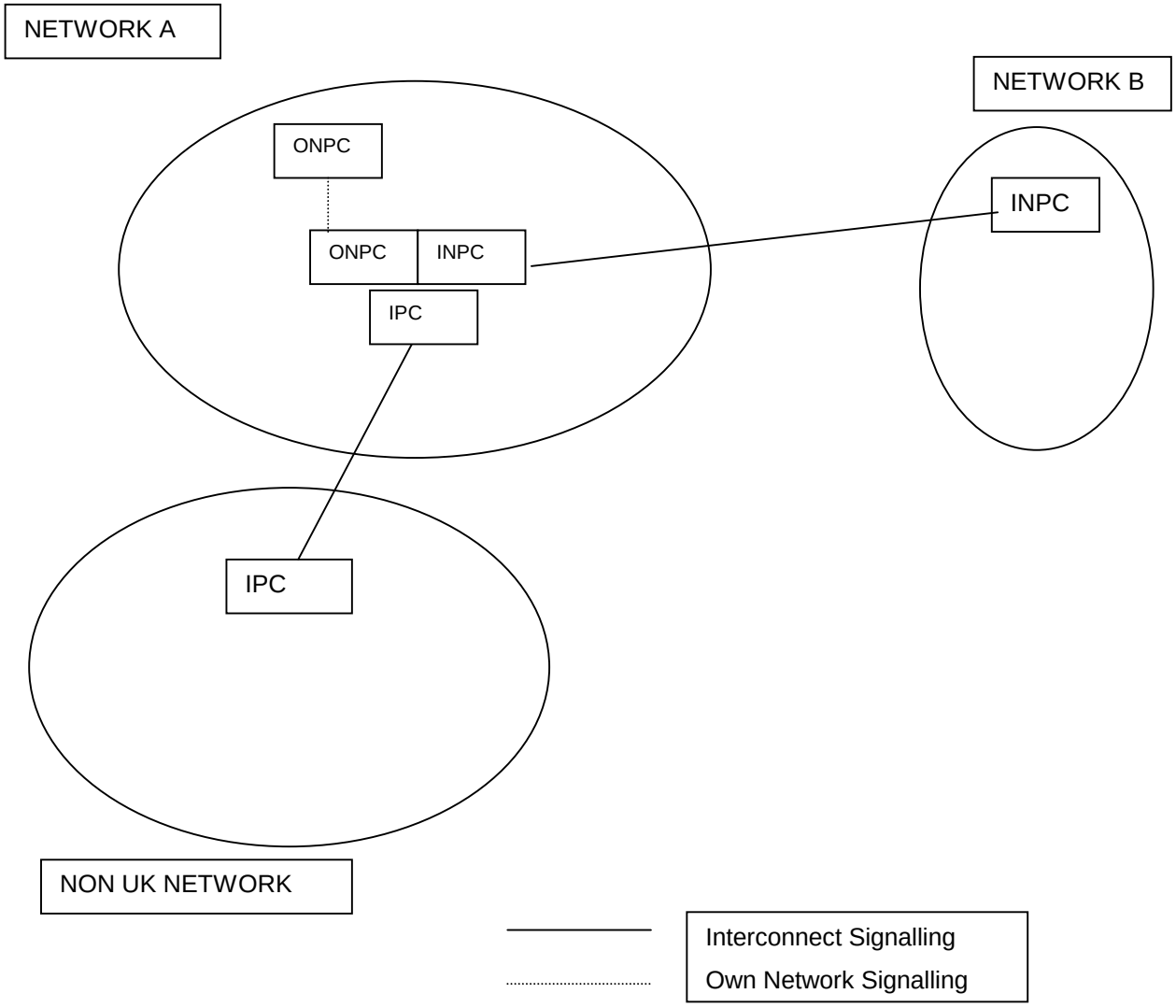
International interconnect is outside the scope of this specification but this information is included to show how an International gateway node fits into the UK PC scheme. The International gateway :-

- shall have a PC with the Network Indicator 0 (International), an International PC, which will be from a range allocated to the UK by the ITU
- shall have a UK PC from the Interconnect range (network indicator 2) **if it is inter-connected to another operator's UK network**
- shall have a UK ONPC **if it is not connected to another operator's UK network.**
- may have a UK ONPC in addition to a UK Interconnect PC

An example is shown on the next page.

The diagram below shows network A having an International Gateway switch with

- An International PC for connection to non-UK networks
- An ONPC for connection to other own network nodes
- An INPC for connection to other networks in the UK e.g. network B



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6. ALLOCATION OF INTERCONNECT POINT CODES

The Interconnect PCs are allocated to eligible parties by OFTEL.

Contact details

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