



Specification PTC 331: 2001- Part A |

Network Interconnection

Using ITU-T No. 7 Signalling

Access Standards
Telecom Corporation of New Zealand Limited
Wellington
New Zealand

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Reference Documents

- PTC 300: 2001 Network Interconnection: General Technical Requirements
- PTC 301: 2001 Network Interconnection using ITU-T R2 (MFC) Signalling
- PTC 331: 2001 – Part B Network Interconnection using ITU-T No. 7 Signalling
Message Transfer Part (MTP)
- PTC 331: 2001 – Part C Network Interconnection using ITU-T No. 7 Signalling
ISDN User Part (ISUP)

FOREWORD

PTC 331: 2001 – Part A has been prepared in conjunction with the re-issue of Parts B and C of this specification, which have been revised to align with the current ITU-T Recommendations. PTC 331: 2001 is intended to align with the current template Interconnect Agreement, which now forms the basis of all new and replacement interconnection arrangements between Telecom and other network operators.

This edition has also offered the opportunity to completely re-structure our network interconnection PTC specifications. Many of the general technical requirements of PTC 331: 1992 are common to both ITU-T No. 7 signalling and to the earlier ITU-T R2 (Multi-Frequency Compelled) signalling system, originally covered in specification PTC 301: 1989. These general technical requirements are now to be re-published as PTC 300: 2001, along with any parts of PTC 300: 1989, which are still applicable.

PTC 300: 1989 and PTC 331: 1992 have met our requirements adequately, but numerous new services and features have been introduced since their publication. Most of these have not impacted directly on the actual signalling protocols or other technical requirements and, for this reason, it has been necessary to publish relatively few amendments. However, the new template Interconnection Agreement provides the opportunity to make a full revision of our PTC Specifications.

Unlike most Telecom PTC and TNA Specifications, this 2001 edition will not result in the supersession of the earlier edition. The 1992 edition forms the basis of several existing Interconnection Agreements, each of which is based on the original Issue 1 document, together with whatever amendments were in force at the time the Agreement was signed. Until all these existing Agreements have been up-dated, PTC 331: 1992 will remain in force for the network operators concerned.

Although this new edition will apply only to new and replacement Interconnection Agreements, the additional commentary information provided in this edition is likely to be of interest to all network operators and to many other parties indirectly involved with network interconnection.

TELECOM DISCLAIMER

While every care has been taken, Telecom nevertheless makes no representation or warranty, express or implied, with respect to the sufficiency, accuracy, or utility of any information or opinion contained in this draft Specification. Telecom expressly advises that the use of or reliance on such information is at the risk of the person concerned.

Telecom shall not be liable for any loss (including consequential loss) damage or injury incurred by any person or organisation arising out of the sufficiency, accuracy, or utility of any such information or opinion.

1 SCOPE

1.1 Application

(1) The three parts of this Specification shall be read in conjunction with specification PTC 300: 2001, which describes general technical interface requirements for the circuit-switched interconnection of other network operators' networks and related services with the Telecom network.

(2) This Specification covers the Telecom implementation of ITU-T No. 7 common channel signalling as it is used for network interconnection. This Specification applies to all such interconnections at the inter-exchange level, whether the other network provides bridging (by-pass) facilities for calls originating and terminating within the Telecom network, originating and terminating network services, international by-pass, value-added services, or combinations of any or all of these services. While interconnection with Telecom's PSTN was the original sole aim of PTC 331: 1992, it has since been applied to interconnection between networks other than fixed line telephone networks. This new edition recognises that it also has application for direct connection between mobile radio networks, for cellular service re-sale, and connection with internet services.

1.2 Format

(1) This 2001 edition adopts a totally different format for Part A, which is now specific to No. 7 signalling issues. Part A of the 1992 edition is now incorporated into PTC 300: 2001. Parts B and C continue to follow the layout and format used in the original 1992 edition, but these have been revised to align with the current versions of the ITU-T recommendations, to incorporate the four amendments made to the 1992 edition and to cover additional features and some optional signalling features introduced since that time.

(2) Text which forms part of this Specification is printed in plain type, with each paragraph formally numbered. Comments and explanations, which are added only as explanations of requirements, or indications of the means of compliance with this Specification, are shown in *Italics*. Smaller type is used, each paragraph being preceded with a ". " symbol, but without numbering. Paragraphs indicated with this symbol do not form part of this Specification.

. Notes, such as this, are widely used to provide background information on requirements and matters that may be covered formally in an Interconnection Agreement. Because these notes do not form part of this specification, they are automatically excluded from all Interconnect Agreements which make reference to PTC 331.

1.3 Structure of this Specification

(1) This Specification has been set out in three distinct parts. Part A is a brief introductory section, with references to PTC 300: 2001, which covers general aspects of interconnection in addition to the more technical aspects of transmission, numbering and traffic engineering.

(2) Part B covers specific issues relating to the Message Transfer Part (MTP) of ITU-T No. 7 signalling as it is used for network interconnection purposes by Telecom. It is structured as a "clause by clause" statement against ITU-T Q-Series Recommendations Q.701-Q.707, inclusive.

. Access to the current ITU-T Recommendations is essential for a complete understanding of this Specification.

(3) Part C covers specific issues relating to the Integrated Services Digital Network User Part (ISUP) of ITU-T No. 7 signalling as it is used for network interconnection purposes by Telecom. Part C comprises details of the application of ITU-T Recommendation Q.763 in a form consistent with the current published ITU-T document, and a comments/exceptions statement against the current published ITU-T Recommendations Q.764 and Q.73x.

2. GENERAL

2.1 General technical requirements

(1) This specification now relies on PTC 300: 2001 to cover technical requirements for interconnection which are common to both ITU-T No. 7 signalling and to R2 (MFC) signalling. PTC 300 covers such matters as:

2048 Kbit/s interface

Network transmission performance

Traffic matters, such as forecasting

Network numbering issues

(2) PTC 300: 2001 also provides background information on more general matters associated with network interconnection, as a complement to the specific signalling matters dealt with in this specification.

2.2 Application

(1) Since network compliance with PTC 331 had to be set-up for interconnection with the Telecom network, the technical conditions of this specification have been fairly widely adopted in New Zealand by other network and service operators, even when connecting between their own networks. Telecom recognises that this is a practical approach, as it avoids the need to provide a range of different network interfaces.

(2) Telecom has no objection to the use of this specification by parties other than Telecom for their own interconnection purposes. However, Telecom does not undertake to amend this specification to cover any special features that may be required by other parties. Any such features are to be negotiated between those parties independent of Telecom. In view of this, it is recommended that all such changes be covered by supplementary specifications prepared by the operators concerned, but based around this document as a common reference.

2.3 Network compliance

Compliance with this specification is assessed by means of a three-stage process, as explained in Section 5 of PTC 300: 2001. This process is specific to a particular equipment type, to the software systems used, and to the particular network and its associated functions. As a result, whether or not a particular make and model of equipment has been shown to comply with the requirements of this specification, it will still be necessary to retest that equipment should it be used in another network configuration.

2.4 Related Specifications

This Specification covers the detailed signalling, transmission and other technical requirements which must be complied with for interconnection, but references are also made to other PTC Specifications covering related issues, such as electrical safety. These PTC Specifications are listed in the contents pages of this Specification.

3 GENERAL

3.1 Commercial issues

(1) This Specification is intended to deal primarily with the technical aspects of interconnection. However, many issues have relevance to matters which are dealt with in the commercial terms of the Interconnection Agreement between Telecom and the other network operator. These commercial terms are negotiated on behalf of Telecom by the Interconnection Group of Access and Transport, part of Telecom's Network division.

(2) All enquiries of a commercial nature should be addressed to the Manager, Interconnect, Telecom NZ.

. An organisation, other than a prospective network operator proposing the resale or re-lease of Telecom services, may wish to make enquiries relating to commercial issues. Telecom is generally willing to discuss matters with such organisations.

3.2 Precedence of Interconnection Agreements

(1) Where there is any conflict between terms used or requirements defined in this Specification and the Interconnection Agreement between Telecom and another network operator, the Interconnection Agreement takes precedence.

(2) To minimise the risk of such conflicts, matters of a commercial or operational nature, and which are dealt with in an Interconnection Agreement, are generally incorporated as notes and are not a formal part of this Specification, as explained below.

(3) Where Amendments made to this Specification involve re-issued pages, the Amendment number will be shown in addition to the year of issue in each page header. In addition, minor or editorial changes and additions may be published as "numbered amendments" formatted for inclusion in the current issue of the Specification.

(4) This specification will be published on the internet, using the Access Standards website. The on-line version will be kept up-to-date without separate "amendment pages", such that interested parties can simply download the latest version of the document. However, a "change history" will be provided as a ready-reference for those parties needing to keep track of changes and their implementation dates.

3.3 Standards Policy

Telecom policy is to comply as far as possible with ITU-T (International Telecommunications Union) Recommendations and Telecom's PTC and TNA Specifications are primarily based on these.

. The use of technical standards markedly different from those of the Telecom network will lead to interworking difficulties with such items as customer premises equipment (CPE) designed to the

Telecom PTC Specifications. There is considerable advantage in customers of other networks being able to use the same terminal equipment as that intended for use with the Telecom network. This is also of benefit to CPE suppliers, as the New Zealand market is small in world terms and there is added difficulty for suppliers and customers if multiple versions of the same product are needed. Even more significant to a competing network operator is the difficulty likely to arise in interconnecting two or more non-Telecom networks should the standards used all vary, but in different ways, from those recommended by Telecom.

. It is recommended that any parties introducing CPE designed to standards or offering features not supported by the Telecom network should clearly indicate the proprietary nature of the products to prospective purchasers. Nevertheless, any network operator has the right to determine its own CPE standards and Telecom has no wish to restrict this right in any way.

3.4 Compliance with Telecom standards within networks

(1) Other network operators are not required to comply with all of Telecom's own network design practices within their networks. However, to ensure the maintenance of end-to-end call quality standards and minimise any risk of interference between networks, it is necessary for all operators interconnecting with the Telecom network to meet the interface requirements of these PTC Specifications. This requirement will impact on internal design criteria and associated Customer Premises Equipment (CPE) to at least some extent.

. The development of competing local networks has placed more emphasis on the desirability of transferring customers between networks without unnecessary constraints being caused by their existing CPE and premises wiring. This implies that all local network operators should be aware of the technical standards set by Telecom for CPE connected to its network. Information on these matters is published on the Access Standards website "<http://www.telepermit.co.nz>".

(2) Other network operators are not constrained in the manner in which they will deal with the various options allowed by the ITU-T Recommendations within their own networks.

. However, in the event of any problems, another network operator interconnecting with the Telecom network by means of ITU-T No. 7 signalling is expected to provide details of the signalling implementation used within the network concerned. Receipt of this information will give Telecom an opportunity to discuss any likely potential sources of confusion or difficulty with the other network operator concerned.

(3) Efficient signalling, switching and transmission performance throughout the country is a matter of commercial and strategic importance, as well as an obligation to the ITU-T for all calls connected to the international network.

3.5 Technical enquiries

(1) This Specification is published by Access Standards and initial technical enquiries may be addressed to this section of Telecom. However, signalling specialists in another part of Telecom's Network division, provide the specialised knowledge of No. 7 signalling and manage formal compliance testing.

4 DEFINITIONS

4.1 Approach used

(1) In general, definitions set by the International Telecommunications Union (ITU) apply throughout this Specification. This especially applies to the many technical terms and message titles used in ITU-T No. 7 signalling.

(2) Some of the terms used in this Specification are also used in Telecom's Interconnection Agreements, the details of which are published shortly after each is signed. Wherever practicable, the same usage and meaning of terms have been aligned between Telecom's PTC specifications and the various Interconnection Agreements.

4.2 ITU-T No. 7 related definitions

(1) The various specialised terms and abbreviations used in the MTP and ISUP are listed in the Tables associated with Parts B and C of this Specification, respectively.

(2) Many terms are not defined by ITU-T and other terms may be used in different ways in different countries. To avoid potential confusion, the ITU-T definitions are supplemented by definitions and by explanatory paragraphs which elaborate on the formal wording. The majority of these terms are defined in PTC 300:2001. Those that are more specific to ITU-T No. 7 signalling are given below.

ISUP (ISDN User Part): the ITU-T No. 7 signalling level 4 protocol which provides the signalling functions required to support basic bearer service and supplementary services for voice and non-voice applications in the ISDN and PSTN.

Levels, ITU-T No. 7: ITU-T has defined four levels in the functional structure of No. 7 signalling:-

Level 1 defines the physical, electrical and functional characteristics of the signalling link.

Level 2 defines the functions and procedures for and relating to the transfer of signalling messages over one individual signalling data link.

Level 3 defines those transport functions that are common to and independent of the operation of individual signalling links.

Level 4 consists of the different User Parts.

· Further detail is provided in ITU-T Rec. Q.700, para. 3.2.2.

Message Transfer Part (MTP): the ITU-T No. 7 signalling functions within levels 1 to 3, which are required to handle messages between two points.

Network Provided Calling Party Number: The Calling Party Number provided by the network used for billing and other purposes.

- *The Network Provided Calling Party Number provided by Telecom is the number used for billing purposes. This is usually the national number of the calling party in those cases where the line concerned provides individual or two-party service. This facility does not provide identification of the actual calling party in those few remaining cases where the line has three or more parties connected. The Network Provided Calling Party Number will generally be the pilot number where the calling line is part of a PABX group. Again, the identity of the actual calling extension is not provided.*

Operator calling party category: is the term used to describe the calling party category of Telecom assistance operators.

- *This category will generally be passed from the Telecom network only in those cases where it has been agreed that operator assistance will be provided for specific classes of call.*

Ordinary calling party category: is the term used to describe the calling party category of individual and PABX lines with normal telephone service having access to local, trunk and international networks.

- *No priority of service is given to customers in this category during congestion or failure of the network.*

Originating Point Code (OPC): see Signalling Point Code.

Payphone calling party category: is the term used to describe the calling party category of individual customers with telephones having facilities for some form of call payment by the user to compensate the lessee of the line for Telecom's charges.

- *This category will generally be passed from the Telecom network only in those cases where it has been agreed that operator assistance will be provided for specific classes of call.*

Point of Interconnection (POI): the term originally used to define an area around a Telecom-designated telephone exchange to which a link or network operated by another network operator is connected at inter-exchange level for the standard interconnection access charge.

- *Now termed "Handover Point".*

- *POI's are listed in Schedules associated with each Interconnection Agreement.*

Point of Local Interconnection (POLI): a Telecom-designated telephone exchange to which a local network operated by another network operator is connected at inter-exchange level

- *POLI's are listed in Schedules associated with each Interconnection Agreement. POLI's are further sub-divided into "Major" and "Minor" POLI's, generally dependent on the size of the community*

concerned and its relationship to the hierarchy of telephone exchanges in the telephone area concerned.

Service Delivery Exchange (SDX): the telephone exchange in the Telecom network to which another network is actually connected.

- *POI's are defined largely for tariffing reasons. For practical purposes, such as the provision of added security or improved traffic distribution, it may be more effective to connect another network to exchange(s) other than that designated as a POI in the area concerned. Such arrangements are made at Telecom's discretion following negotiation with the other network operator.*

Service Delivery Point (SDP): the defined electrical interface point provided at an agreed physical location to which Telecom will deliver or accept a service from another network operator or customer.

- *For network interconnection at inter-exchange level, the most usual form of SDP will be the sockets on the PCM terminal equipment provided at the network operator's end of an interconnect link.*

Signalling Link: any 64 kbit/s channel within a 2 Mbit/s interconnect link which is specifically used to carry ITU-T No. 7 signalling messages.

- *To avoid any confusion of terms, either the word "interconnection" or the word "signalling" will be used to qualify the term "link" throughout this Specification.*

Signalling Point (SP): a node in a signalling network which originates and receives signalling messages, but does not transfer such messages from one signalling link to another.

- *This definition varies from that given by ITU-T in the Glossary of Terms published in Blue Book fascicles VI.7, VI.8 and VI.9. However, the Telecom definition is in accord with the usage of the term in ITU-T Rec. Q.704.*

Signalling Point Code: A 14-bit binary code uniquely identifying a signalling point in a signalling network. This code is used, according to its position in the label, either as Destination Point Code (DPC) or Originating Point Code (OPC).

Signalling Transfer Point (STP): a node in a signalling network with the function of transferring signalling messages from one signalling link to another.

- *This definition varies from that given by ITU-T in the Glossary of Terms published in Blue Book fascicles VI.7, VI.8 and VI.9. However, the Telecom definition is in accord with the usage of the term in ITU-T Rec. Q.704.*

- *A node may provide both SP and STP functions and such nodes can be referred to as an SP/STP where necessary.*

User Provided Calling Party Number: The Calling Party Number provided by an ISDN user.

5. COMPLIANCE AND TESTING ISSUES

5.1 Compliance process

(1) A general overview and description of the three-stage compliance assessment process is given in Section 5 of PTC 300: 2001, as the overall process is common to both ITU-T R2 and ITU-T No. 7 signalling interconnection. The following summarises the arrangements.

(2) Testing requirements vary according to the type of networks being interconnected, and the nature of the services to be carried across the network interface, as well as variations directly related to the type of equipment and software versions used. As a result, testing needs to be carried out for each individual case, based on information provided by the interconnecting party.

(3) Prior to interconnecting any other network with the Telecom network it will be necessary for signalling aspects to be fully negotiated between the parties concerned. The technical details are covered by Parts B and C of this Specification. The details of any agreement reached will form part of the basis of the contract established between the parties, and may vary at different interconnect locations.

5.2 Testing

(1) Actual compliance testing is now undertaken on behalf of Telecom by those equipment vendors, who have management contracts for their particular part of the overall network.

(2) Once detailed testing is under way with the appropriate contractor, Telecom's signalling group staff may be involved in assisting in this work or providing technical advice on matters not directly covered by Telecom's PTC specifications.

Where a supplier seeks Telecom approval for particular equipment or network configurations independent of a commercial organisation entering into interconnect negotiations, any "technical approval" will, of necessity, be limited to basic operational capability.

6. ITU-T No. 7 SIGNALLING

6.1 Development

(1) The standard digital line signalling system used throughout the Telecom network is the ITU-T No. 7 common channel Signalling System. All Telecom- designated interconnection locations are now capable of supporting ITU-T No. 7 signalling for interconnection.

(2) The ITU-T No. 7 system is an inter-exchange common channel signalling system interconnecting two or more switching nodes. It uses a system of labelled messages containing information pertaining to functions within the switching nodes.

(3) The part of the ITU-T No. 7 signalling system used by Telecom for call control is the Integrated Services Digital Network User Part (ISUP) based on ITU-T Recommendations Q.761-764.

- *The Telephone User Part (TUP) is not implemented by Telecom.*
- *The Message Transfer Part is based on ITU-T Recommendations Q.701-707.*

6.2 Principles of Telecom inter-network No 7 signalling

(1) The basic principle behind the design of Telecom's inter-network No 7 signalling is that the system should provide basic call control for speech and 64 kbit/s data calls using messages, parameters and procedures specifically defined by ITU-T. In general, Telecom specific protocol is not sent to other networks and protocol specific to other networks is not expected to be received by Telecom.

(2) Telecom will not make provision to offer only certain call types to interconnected networks. In the case where another network does not support certain call types (such as ISDN), the network must release such calls with an appropriate release cause.

(3) Telecom, in common with any other network operator, is concerned that there be no risk to network integrity or disruption of normal services due to either accidental or fraudulent inter-network signals. ITU-T No. 7 signalling is capable of providing greatly extended network control and message transfer capability and this can potentially have an adverse impact on network operation. To avoid such risk and ensure network protection to both Telecom and any other network operator, Telecom originally made no provision for other network operators to access Telecom Signalling Transfer Points (STP's).

- *Experience in several countries had demonstrated the possibility of serious network failures due to software incompatibilities where signalling messages from one network affected the correct operation of another network.*

(4) One of the new features of PTC 331: 2001 is that Telecom is making provision for direct connection to Telecom's Signalling Transfer Points.

6.3 Signalling links

(1) Signalling links will be 64 kbit/s circuits allocated from one or more of the 2 Mbit/s interconnect links provided by Telecom.

- *Any available channel time-slot can be used to carry the No 7 signalling link*

(2) Telecom bases its individual signalling link dimensioning on an assessed 10% occupancy under normal network operating conditions.

- *For a typical mix of ISUP messages, each signalling link is capable of handling about 12 calls per second across the interface for a 10% occupancy rate.*

(3) It is recommended practice to either provide at least two links in a link set, using one of the duplicated links as a back-up to cover possible failure of a working link, or to also use quasi-associated signalling via an STP as the backup.

- *Thus, in the event of failure of a working link, the loading of a duplicated link would not exceed 20%.*

(4) It is the responsibility of the network operator to determine the number of signalling links and their allocations from within the interconnect links provided by Telecom. Whether or not STP operation is to be used, is a matter for agreement between Telecom and the network operator concerned.

- *The dimensioning and allocation of signalling links for each POI will be determined during the initial interconnect agreement negotiation and as part of any subsequent operational rearrangements.*

- *Physical diversity may possibly be provided for the two or more signalling links. Where such facilities are required by a network operator, a formal request should be made during the interconnect negotiations.*

(5) Where STP functionality is not chosen, it will be necessary to provide signalling links between the network operator's network and each Telecom POI to which traffic circuits are connected.

6.4 Signalling Transfer Point and network management procedures.

(1) Telecom switches which provide POI functions no longer act as STPs within the Telecom network. The sending of Transfer Prohibited (TFP) or Transfer Allowed (TFA) messages should therefore never occur. If a Telecom switch, which is not a STP, receives such messages from another network which may have STPs, they will be acted upon appropriately.

- *See Part B; Q.704, clauses 13.2 and 13.3.*

(2) Where signalling transfer functions are not being provided the Telecom POI exchange:-

- (a) will accept only those signalling messages bearing the DPC of that particular POI.
- (b) will forward to the other network operator those signals addressed to any DPC within that network operator's network. The OPC corresponding to the Telecom POI exchange will be shown in such messages.

6.5 Information transfer, called party number

(1) Telecom will always pass the full called party number to another network operator within the Initial Address Message (IAM).

(2) As required by the operator concerned, Telecom can set the format of the called party number parameter to:

- (a) the full access code followed by the called directory number, or
- (b) a defined part of the access code followed by the called directory number, or
- (c) only those digits received after the access code.

· These requirements will usually be defined as part of the contract negotiations and in the network operator's responses to Forms A & B.

· Overlap operation and the use of Subsequent Address messages (SAM) is allowed for by ITU-T, but this arrangement is not used within the Telecom network and, in any case, is less efficient of signalling processor time and involves considerably more signalling traffic.

(2) For calls delivered to another network from the Telecom network Telecom will not generally provide any translation of the called party numbers which follow that network operator's access code. Exceptions exist in the case of "0800" numbers, which may be translated into directory numbers for the network concerned or be handed across to another network prefixed with a suitable handover code.

· See PTC 300: 2001, Section xx, for further details.

(3) The Initial Address Message (IAM) for all calls delivered to the Telecom network from another network is to include either the full national number of the called party in New Zealand, the full international number of an overseas called party, or the full code of a service number.

· The "full national number" includes the toll access digit "0", the access code or area code, and the directory number.

· The "full international number" includes the international access code "00", the country code, area code and directory number of the called party.

- *Service numbers are short codes of the form "01X", "01XY", "1XY", "08XXX", etc.*

(3) The original called number and redirecting number will be accepted from another network for calls which are redirected within the other network.

6.6 Information transfer, calling party number

(1) For calls delivered to another network from the Telecom network, the network operator is required to state which of the following two options are to apply for the provision of the calling party number:-

- (a) Calling party number always within the Initial Address Message, or
- (b) Calling party number included only within an Information Message sent in response to an Information request from the other operator's network.

- *The method used will be incorporated into the formal Interconnect Contract.*
- *In case (a), if the calling party number is "user provided, verified and passed", a network operator may obtain the "network provided" number by returning an Information request message to the Telecom POI.*
- *In case (b), the calling party number provided in the Information Message will always be in the form of a "network provided" number.*

(2) Calls from the international network which are delivered to another network at the Telecom POI may or may not carry an International Calling Party Number. Where no International Calling Party Number is available, such calls may have the Calling Party Number encoded as "0000".

(3) The terms of the Calling Line Identity Presentation service used by Telecom and other New Zealand network operators are subject to the Privacy Act. As such, should a calling party number transferred between networks be coded "Calling Line Identity Presentation Restricted", the receiving network shall not permit the number to be made available to Calling Line Identity Presentation service subscribers.

(4) For calls delivered to the Telecom network no Calling Party Number is usually required. However, if it is included in the IAM it may be presented to the called party if that party subscribes to any Calling Line Identity Presentation (CLIP) service that may be introduced later by Telecom.

(5) Telecom will make available further information on number formats and information transfer for various classes of call to those network operators entering into interconnect contract negotiations.

- *Some classes of call introduce special circumstances which may involve negotiation to determine the best way to deal with them.*

- *Examples of these call classes are emergency "111" calls and calls to customers with "Malicious" called party category.*

6.7 Redirection procedures

(1) Where redirection has occurred in the Telecom network before a call is presented to another network, the original called number and last redirecting number will also be delivered to the other network.

(2) Where redirection occurs in the Telecom network on a call originated in another network, the redirection number may be sent back to the originating network.

- *0800 calls which undergo a number translation in the Telecom network are by default not treated as redirected calls in the Telecom network. However, an 0800 customer can request that this option be set by Telecom.*

6.8 Calling party categories

The calling party categories passed forward to another operator's network are generally restricted to "Ordinary". However, facilities exist to pass forward such additional categories as "payphone", "operator", etc, where these are needed.

- *Any need for additional calling party categories should be raised during interconnection negotiations and set out when completing Forms A and B.*

6.9 All circuits busy

The transmission of an IAM to another network implicitly reserves a circuit and the call is considered to be delivered to the other network at that instant. Where no circuits are available at the time, the caller will receive an announcement only if a "speech" or "3.1 kHz audio bearer" capability has been selected. If a 64 kbit/s clear channel has been selected, the call will be released with an appropriate cause value.

6.10 Compliance with ITU-T Recommendations

(1) Parts B and C of this Specification are based on the relevant ITU-T Recommendations. They have been drawn up in the form of a series of summaries denoting the degree of compliance with the actual ITU-T Recommendations.

(2) It is essential that Parts B and C be read in conjunction with the full texts of the following specific ITU-T Recommendations:-

Part B:

- (a) Q.701: Functional description of the MTP
- (b) Q.702: Signalling Data Link
- (c) Q.703: Signalling Link

- (d) Q.704: Signalling Network Functions and Messages
- (e) Q.705: Signalling Network Structure
- (f) Q.706: MTP Signalling Performance
- (g) Q.707: Testing and Maintenance

Part C:

- (h) Q.763: Formats and Codes
- (i) Q.764: Signalling Procedures
- (j) Appendix Q.73x: Supplementary Services

(3) For ease of reference, Parts B and C are sub-divided in accordance with these specific Recommendations.

END OF TEXT OF SPECIFICATION PTC 331: 2001 - PART A