

**DRAFT**

**Technical Document  
TNA 137**

**Telecom ISDN  
User-Network Interface:  
Layers 1/2/3:  
Basic Rate Access  
("AXE BRA")**

Access Standards  
Telecom Corporation of New Zealand Limited  
PO Box 570  
Wellington  
New Zealand

October 2007



**TELECOM ISDN USER-NETWORK INTERFACE  
LAYERS 1/2/3  
BASIC RATE ACCESS (“AXE BRA”)**

**CONTENTS**

<b>FOREWORD .....</b>	<b>IV</b>
<b>1. SCOPE.....</b>	<b>1</b>
<b>2. DEFINITIONS.....</b>	<b>2</b>
<b>3. ABBREVIATIONS.....</b>	<b>2</b>
<b>4. REFERENCES .....</b>	<b>3</b>
<b>5. SPECIFICATION (TNA 137) .....</b>	<b>3</b>
5.1 COMPLIANCE/EXCEPTIONS TO SPECIFICATION PTC 131.....	3
5.2 COMPLIANCE/EXCEPTIONS TO SPECIFICATION TNA 133.....	4
5.3 COMPLIANCE/EXCEPTIONS TO SPECIFICATION TNA 134.....	4
5.3.1 PART A - General Matters .....	4
5.3.2 PART B - Basic Call Control Procedures.....	5
5.3.3 PART C - Generic Procedures for the Control of ISDN Supplementary Services.....	8
5.3.4 PART D - Procedures For Specific Supplementary Services .....	8
<b>6. COMPLIANCE WITH ETSI STANDARDS.....</b>	<b>10</b>
6.1 LAYER 1 COMPLIANCE .....	10
6.2 LAYER 2 COMPLIANCE .....	10
6.3 LAYER 3 COMPLIANCE .....	10
6.4 TEST COMPLIANCE .....	10
6.4.1 TBR 3 Compliance .....	10
6.4.2 ISDN Layer 3 Supplementary Testing.....	10

## FOREWORD

This Specification is issued by Telecom in compliance with its undertakings to advise the New Zealand telecommunications industry on forthcoming changes in the Telecom telecommunication networks.

This Specification is one of a series which defines the Telecom implementation of ISDN. It covers the technical requirements for the various hardware items used as the network terminations and customer premises terminal equipment interfaces, but leaves the design details and facilities of such hardware to individual manufacturers to decide.

The success of ISDN in New Zealand depends on the cooperation and support given by local hardware and software suppliers in providing the specialised equipment and systems for the various new services that this network will make possible.

This Specification describes the Layer 1/2/3 requirements for the control of ISDN services between a particular implementation of Telecom's Integrated Services Digital Network (ISDN), known as "AXE BRA", and a single unit of user's equipment, e.g. a terminal or small business system on a Basic rate access. The Specification is prepared in a format showing compliance/exceptions to Technical Documents PTC 131 [1], TNA 133 [3] and TNA 134 [4].

"AXE BRA" is an ISDN Basic rate access implementation by Telecom with a small number of significant changes in the feature set compared with that described in Technical Documents PTC 131 [1], TNA 133 [3] and TNA 134 [4].

**TELECOM ISDN USER-NETWORK INTERFACE  
LAYERS 1/2/3  
BASIC RATE ACCESS (“AXE BRA”)**

## 1. Scope

The ISDN is defined in the I-series Recommendations of the Standardization Bureau of the International Telecommunication Union (ITU-T), formerly the International Telegraph and Telephone Consultative Committee (CCITT). It is a plan for organizing digital technology to provide advanced services to sophisticated digital terminals over an end-to-end digital network.

ISDN services are offered by the network to a user via an interface that provides either Basic access, consisting of one 16 kbit/s D-channel and up to two 64 kbit/s B-channels, or Primary rate access, consisting of one 64 kbit/s D-channel and up to 30 64 kbit/s B-channels.

This Specification describes the Layer 1/2/3 requirements for the access protocol for the Basic Rate Access user-network interface between a particular implementation of Telecom's Integrated Services Digital Network (ISDN), known as “AXE BRA”, and a single unit of user's equipment, e.g. a terminal or small business system. This protocol applies at the T reference point or the coincident S/T reference point.

“AXE BRA” is an ISDN Basic rate access that generally conforms to the ETSI (European Telecommunications Standards Institute) standards.

As the PTC 131 [1], TNA 133 [3] and TNA 134 [4] technical documents generally conform to the ITU-T standards, there are additional differences and changes in the feature set described in the “AXE BRA” implementation.

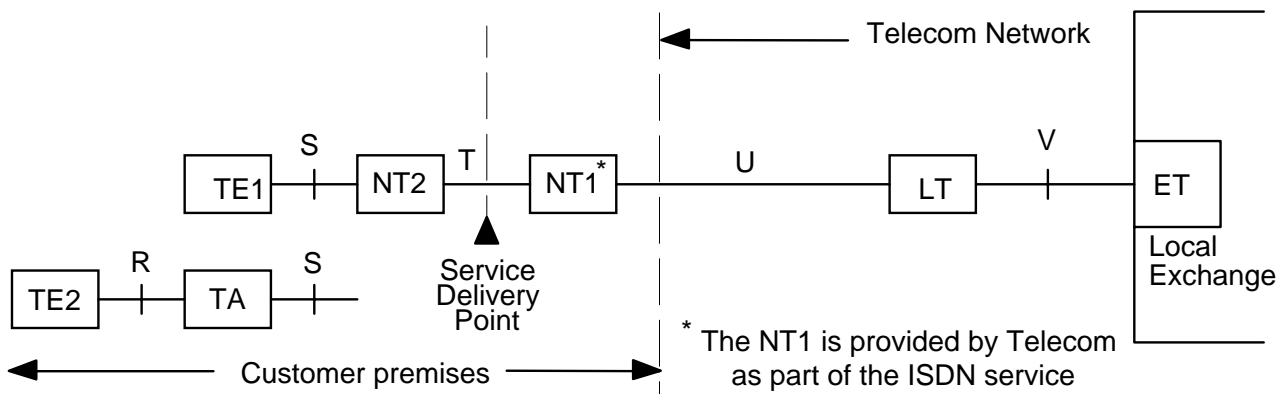


FIGURE 1

### ISDN Access Reference Model

ET	Exchange terminal	TA	Terminal Adaptor
LT	Line Terminal	TE1	ISDN Terminal
NT1	Network Termination 1	TE2	Non-ISDN Terminal
NT2	Network Termination 2	S,T,U,V	Reference points

The NT1, LT and ET will be provided by Telecom as an inherent part of the ISDN service  
The TA may also be provided with some service offerings.

The interface is functionally organised into the first three layers of the ISO Open Systems Interconnection 7-layer model, consisting of the physical layer (Layer 1), the data link layer (Layer 2) and the network layer (Layer 3). Layers 1/2/3 for the Basic rate access implementation known as “AXE BRA” is the focus of this Specification.

The following Specifications together specify the requirements for ISDN connections:

	<b>Basic Access</b>	<b>Primary Rate Access</b>	<b>“AXE BRA”</b>
Layer 1	PTC 131 [1]	PTC 132 [2]	TNA 137
Layer 2	TNA 133 [3]		TNA 137
Layer 3	TNA 134 [4]		TNA 137

TNA 137 defines the layer 1/2/3 aspects of the user-network interface for the attachment of terminals. It is intended for terminal vendors and users.

## 2. Definitions

D-Channel-	A 16 kbit/s or 64 kbit/s channel carrying signalling, low speed packet switched data, and user-to-user information. (See ITU-T Recommendation I.412 [7]).
B-Channel-	A 64 kbit/s channel that carries customer information such as voice, circuit switched or packet switched data. (See ITU-T Recommendation I.412 [7]).
PORT	An interface on a piece of equipment for the purpose of supplying an output signal or accepting an input signal.
USER	User's equipment e.g. terminal.

Note. The definitions of ITU-T Recommendations G.701 [5] and I.112 [6] also apply.

## 3. Abbreviations

ETSI	European Telecommunications Standards Institute
IEC	International Electrotechnical Commission
ISDN	Integrated Services Digital Network
ISO	International Standards Organization
ITU	International Telecommunications Union
ITU-T	International Telecommunications Union - Telecommunications Standard
NT1	Network Termination Type one (see ITU-T Recommendation I.411)
NT2	Network Termination Type Two (see ITU-T Recommendation I.411)
TA	Terminal Adaptor (see ITU-T Recommendation I.411)
TE1	Terminal Equipment of type 1 - ISDN terminal (see ITU-T Recommendation I.411)
TE2	Terminal Equipment of type 2 - non-ISDN terminal (see ITU-T Recommendation I.411)
TEI	Terminal Endpoint Identifier (see ITU-T Recommendations Q.920 and Q.921)
Telecom	Telecom New Zealand Limited

## 4. References

- [1] PTC 131, "Telecom ISDN user-network interface: Layer 1: Basic access", 1997
- [2] PTC 132, "Telecom ISDN user-network interface: Layer 1: Primary Rate Access", 1997
- [3] TNA 133, "Telecom ISDN user-network interface: Layer 2", 1997
- [4] TNA 134, "Telecom ISDN user-network interface: Layer 3", 1997 (Amendment 2)
- [5] ITU-T Recommendation G.701, "Vocabulary of digital transmission and multiplexing, and pulse code modulation (PCM) terms."
- [6] ITU-T Recommendation I.112, "Vocabulary of terms for ISDNs."
- [7] ITU-T Recommendation I.412, "ISDN user-network interfaces - interface structures and access capabilities."
- [8] ITU-T Recommendation I.430, "ISDN Basic user-network interface - Layer 1 specification", 1995
- [9] ITU-T Recommendation I.431, "ISDN Primary rate user-network interface - Layer 1 specification", 1993
- [10] ITU-T Recommendation I.440 (Q.920), "ISDN user-network interface data link layer - general aspects", 1993
- [11] ITU-T Recommendation I.441 (Q.921), "ISDN user-network interface data link layer - specification", 1993
- [12] ITU-T Recommendation I.451 (Q.931), "ISDN user-network interface layer 3 specification", 1993
- [13] ITU-T Recommendation Q.932, "Generic procedures for the control of ISDN supplementary services."
- [14] ETS 300 012, "Basic user-network interface Layer 1 specification and test principles", 1992
- [15] ETS 300 402-1, "Digital Subscriber Signalling System No. one (DSS1) protocol; Data link layer: Part 1: General aspects [ITU-T Recommendation Q.920 (1993), modified]", 1995
- [16] ETS 300 402-2, "Digital Subscriber Signalling System No. one (DSS1) protocol; Data link layer: Part 2: General protocol specification [ITU-T Recommendation Q.921 (1993), modified]", 1995
- [17] ETS 300 102-1, Integrated Services Digital Network (ISDN); User-network interface layer 3 Specification for basic call control, December 1990
- [18] ETS 300 102-1A2, Integrated Services Digital Network (ISDN); User-network interface layer 3 Specification for basic call control, October 1993
- [19] ETSI TBR 3, Integrated Services Digital Network (ISDN); Attachment Requirements for terminal equipment to connect to an ISDN using ISDN Basic rate access, November 1995.

(Note: further references are included in Specification TNA 134 [4] Part A.7.2.)

## 5. Specification (TNA 137)

### 5.1 Compliance/Exceptions to Specification PTC 131

The requirements for this layer 1 part of the Specification are defined in ITU-T Recommendation I.430 [8]. Layer 1 requirements are generally unchanged from those in Specification TNA 131 [1], except for the additional "AXE BRA" requirements and information shown below.

- Feeding voltage from LT (line terminal). The "AXE BRA" power feeding is covered by range 3, 91-99 V.
- Operation & Maintenance:
  - Continuity test: "AXE BRA" "routine test of unused lines" has been turned off
  - Power switch on/off to the line: (PL 12.2) in failure condition, line current is limited to > 10mA for one line per 64 group.

(PL 12.3) dependent of the used line card, either PL 12.2 or the power is switched off. Line current = 0 mA if manually blocked.

## 5.2 Compliance/Exceptions to Specification TNA 133

The requirements for this layer 2 part of the Specification are defined in ITU-T Recommendations I.440 (Q.920) [10] and I.441 (Q.921) [11]. The options which apply are identified below. References are to clauses in Recommendation Q.921.

Clause	Modification
1	Delete the last sentence referring to abstract test suites.
2.3	LAPB data link connections are not supported.
3.3.3	SAPI value 12, defined by ETS 300 402-2 [16], is not supported.
3.6.7	The optional procedure for the retransmission of a REJ response frame is supported.
5.8.1	The optional procedures for the retransmission of a REJ response frame are supported.
5.10	The data link layer monitor function is implemented on the network side. It is optional on the user side.
Annex A	As a subscription option, Basic rate interfaces may use a single point-to-point signalling connection.  The following shall apply to a Point-to-point signalling connection: <ul style="list-style-type: none"> <li>• Layer 2 management procedures according to subclause 5.3 shall not be used;</li> <li>• the value 0 shall be used for the TEI;</li> <li>• two peer-to-peer layer 3 signalling entities shall communicate over a single point-to-point data link connection within the SAP identified by SAPI value 0, making use of the acknowledged information transfer service provided by layer 2;</li> <li>• any message associated with TEI administration procedures, if received, shall be discarded and no action shall be taken as a result of the receipt of that message.</li> </ul>
Appendix I	The optional procedure for automatic negotiation of data link parameters is supported by the network. Initialization based on the values supplied by the user is not supported on “AXE BRA”.

(These Layer 2 requirements are generally unchanged from those in Specification TNA 133 [3], except for the clauses 3.6.7 & 5.8.1.)

## 5.3 Compliance/Exceptions to Specification TNA 134

This layer 3 part of the Specification should be read in conjunction with Specification TNA 134 [4]. Due to the large size of Specification TNA 134 [4], only exceptions and differences to its requirements in relation to the “AXE BRA” implementation have been shown in this layer 3 part of the Specification.

### 5.3.1 PART A - General Matters

#### 5.3.1.1 Summary of Differences between this Specification, ITU-T Recommendations and ETSI Standards

The significant differences between this Specification and those shown in Specification TNA 134 [4] Part A-6 are summarized below.

	“AXE BRA” (ETSI based)	TNA-134 [4] (ITU-T based)	Notes
<b>Message Functional Definition and Content</b>			
Congestion Control	Only applicable in the network-to-user direction.	Not implemented	



	“AXE BRA” (ETSI based)	TNA-134 [4] (ITU-T based)	Notes
Facility message	ETSI requirement	Not implemented	
User information message	Implemented	Not implemented	
<b>Message Format and Information Elements Coding</b>			
Congestion level	Implemented	Not implemented	
More data	Implemented	Not implemented	
Segmented message	Implemented	Not implemented	
Signal	Not implemented	Supports an option where all tones, except ring-back tone for user-originated calls, may be provided by the user	
Transit network selection	Not implemented	Implemented. Max Length 6 octets	
Facility	Implemented	Not implemented	
Feature activation	Not implemented	Supports feature activation for switch-hook flash (ref TNA 134 [4] Part B.4.7.3)	
Information request	Not implemented	Implemented	
Switchhook	Not implemented	Implemented	
<b>Procedures</b>			
Transit network selection	Not implemented	Implemented	
Incoming call	Implemented (network option)	Overlap receiving is not used.	
Setup message delivered by point-to-point data link	The alternative "any channel is acceptable" is not supported.	Implemented	
Overlap receiving	Implemented	Not implemented	
Packet communications procedures	Not implemented	No longer supported	
Annex C Transit network selection	Not implemented	Implemented	
Message segmentation procedures	Implemented.	Not implemented.	

### 5.3.2 PART B - Basic Call Control Procedures

#### 5.3.2.1 PART B.1 - General

No change from Specification TNA 134 [4], Part B.1.

#### 5.3.2.2 PART B.2 - Overview of call control

The following are exceptions from Specification TNA 134 [4], Part B.2 in relation to “AXE BRA”:

B.2.1.1.16 Overlap receiving (user side) – Noted as user side requirement in “AXE BRA”.

B.2.1.2.17 Overlap receiving (network side) – Supported in “AXE BRA”.

B.2.2 Packet-mode access connections – Not supported in “AXE BRA”.

#### 5.3.2.3 PART B.3 - Message functional definitions and content

The following are exceptions from Specification TNA 134 [4], Part B.3 in relation to “AXE BRA”:

B.3.1.1 Alerting – The maximum length of “Channel Identification” is 3 octets for BRA. May also include “Facility” information element.

B.3.1.2 Call Proceeding – The maximum length of “Channel Identification” is 3 octets for BRA.

(Note) Congestion Control – Only applicable in the network-to-user direction.

(Note that this is an ETSI requirement not included in TNA 134 [4].)

B.3.1.3 Connect – The maximum length of “Channel Identification” is 3 octets. May also include “Facility” information element.

B.3.1.4 Connect Acknowledge – May also include “Channel Identification” information element.

B.3.1.5 Disconnect – May also include “Facility” information element.

(Note) Facility – ETSI requirement: this message is defined in ETSI T/S 46-32B.

(Note that this is an ETSI requirement not included in TNA 134 [4].)

B.3.1.6 Information – May also include “Cause” information element.

B.3.1.9 Release – May also include “Facility” information element.

B.3.1.10 Release Complete – May also include “Facility” information element.

B.3.1.11 Resume – Only applicable on a point-to-multipoint configuration in the user-to-network direction.

B.3.1.12 Resume Acknowledge – Only applicable on a point-to-multipoint configuration in the network-to-user direction. The maximum length of “Channel Identification” is 3 octets.

B.3.1.13 Resume Reject – Only applicable on a point-to-multipoint configuration in the network-to-user direction.

B.3.1.14 Setup – May also include “Facility” information element. Network Specific Facilities and Transit Network Selection are not supported

B.3.1.18 Suspend – Only applicable on a point-to-multipoint configuration in the user-to-network direction.

B.3.1.19 Suspend Acknowledge – Only applicable on a point-to-multipoint configuration in the network-to-user direction.

B.3.1.20 Suspend Reject – Only applicable on a point-to-multipoint configuration in the network-to-user direction.

(Note) User Information – Fully supported on “AXE BRA”

(Note that this is an ETSI requirement not included in TNA 134 [4].)

B.3.2 Message for Packet-mode access connection control – Not supported in “AXE BRA”.

### 5.3.2.4 PART B.4 - General message format and information elements coding

The following are exceptions from Specification TNA 134 [4], Part B.4 in relation to “AXE BRA”:

B.4.5.1 Coding Rules – The following information elements are not supported on “AXE BRA”: Network specific facilities, Transit network selection and Escape for extension.

B.4.5.8 Called Party Number – The maximum length is 23 octets. The following codepoints are not supported on “AXE BRA”: Type of number "abbreviated number", and Numbering plan “telex numbering plan”.

B.4.5.10 Calling Party Number – The maximum length is 24 octets. The following codepoints are not supported on “AXE BRA”: Type of number "abbreviated number", and Numbering plan “telex numbering plan”.

B.4.5.12 Cause – Only one "Cause" information element is transferred to the remote user. In the direction user-to-network only the first one is handled.

B.4.5.14 Congestion Level – Fully supported on “AXE BRA”

B.4.5.20 More Data – Fully supported on “AXE BRA”

B.4.5.23 Progress Indicator – The following codepoints are not supported on “AXE BRA”:

- Coding standard “other international standard”, "national standard" and “standard specific to identified location”.
- Progress description 1, 4 and 8 in user-to-network direction.

- B.4.5.26 Segmented Message – Fully supported on “AXE BRA”
- B.4.5.26 Sending Complete – Fully supported on “AXE BRA”
- B.4.5.28 Signal – Not supported on “AXE BRA”
- B.4.5.29 Transit Network Selection – Not supported on “AXE BRA”
- B.4.6 Information Elements for Packet Communication - Not supported on “AXE BRA”
- B.4.7.3 Feature Activation - Not supported on “AXE BRA”.

#### **5.3.2.5 PART B.5 - Circuit-switched call control procedures**

The following are exceptions from Specification TNA 134 [4], Part B.5 in relation to “AXE BRA”:

- B.5.1.4 Invalid Call Information – Causes #3 "no route to destination" and #22 "number changed" are not supported on “AXE BRA”.
- B.5.1.5.1 Call proceeding, en-bloc sending – Cause code #58 "bearer capability not presently available" is not generated on “AXE BRA”.
- B.5.1.5.2 Call proceeding, overlap sending – Cause code #58 "bearer capability not presently available" is not generated on “AXE BRA”.
- B.5.1.10 Transit Network Selection – Not supported on “AXE BRA”
- B.5.2.1 Incoming Call – Fully supported on “AXE BRA”
- B.5.2.3.1 Setup message delivered by point-to-point data link – The alternative "any channel is acceptable" is not supported.
- B.5.2.4 Overlap receiving – Fully supported on “AXE BRA”

#### **5.3.2.6 PART B.6 - Packet communication procedures**

Packet communications is not supported on “AXE BRA”.

#### **5.3.2.7 PART B.7 - User signalling bearer service call control procedures**

Not currently used by Telecom (no change from Specification TNA 134 [4], Part B.7).

#### **5.3.2.8 PART B.8 - Circuit-mode multirate (64 kbit/s base rate) procedures**

Not currently used by Telecom (no change from Specification TNA 134 [4], Part B.8).

#### **5.3.2.9 PART B.9 - List of system parameters**

B.9.1 Timers in the network side – T320 and T321 not supported in “AXE BRA”

#### **5.3.2.10 PART B. Annex A User side and network side SDL diagrams**

No change from Specification TNA 134 [4], Part B. Annex A.

#### **5.3.2.11 PART B. Annex B Compatibility and address checking**

No change from Specification TNA 134 [4], Part B. Annex B.

#### **5.3.2.12 PART B. Annex C Transit network selection**

Transit network selection is not supported on “AXE BRA”.

#### **5.3.2.13 PART B. Annex D Extensions for symmetric call operation**

Not currently used by Telecom (no change from Specification TNA 134 [4], Part B. Annex D).

#### **5.3.2.14 PART B. Annex E Network specific facility selection**

Network specific facility selection is not supported on “AXE BRA” and not currently used by Telecom (no change from Specification TNA 134 [4], Part B. Annex E).

#### **5.3.2.15 PART B. Annex F D-channel backup procedures**

D-channel backup is not supported on “AXE BRA”.

**5.3.2.16 PART B. Annex G Use of progress indicators**

Use of progress indicators is supported on “AXE BRA”. No change from Specification TNA 134 [4], Part B. Annex G.

**5.3.2.17 PART B. Annex H Message segmentation procedures**

Message segmentation procedures is supported on “AXE BRA” but not used by Telecom (Specification TNA 134 [4], Part B. Annex H).

**5.3.2.18 PART B. Annex I Low layer information coding principles**

No change from Specification TNA 134 [4], Part B. Annex I.

**5.3.2.19 PART B. Annex J Low layer compatibility negotiation**

No change from Specification TNA 134 [4], Part B. Annex J.

**5.3.2.20 PART B. Annex K Procedures for establishment of bearer connection prior to call acceptance**

No change from Specification TNA 134 [4], Part B. Annex K.

**5.3.2.21 PART B. Annex L Optional procedures for bearer service change**

Optional procedures for bearer service change is not supported on “AXE BRA” and not currently used by Telecom (no change from Specification TNA 134 [4], Part B. Annex L).

**5.3.2.22 PART B. Appendix I Definition of causes values**

No change from Specification TNA 134 [4], Part B. Appendix I.

**5.3.2.23 PART B. Appendix II Example message flow diagrams and example conditions for cause mapping**

No change from Specification TNA 134 [4], Part B. Appendix II.

**5.3.3 PART C - Generic Procedures for the Control of ISDN Supplementary Services**

The following are exceptions from Specification TNA 134 [4], Part C in relation to “AXE BRA”:

**5.3.3.1 PART C.2.1.1.2 - Feature Key Management protocol**

Feature key management is not supported on “AXE BRA”.

**5.3.3.2 PART C.2.1.1.3 - Information Request Procedure**

Information request procedure is not supported on “AXE BRA”.

**5.3.3.3 PART C.5 - Feature Key Management protocol**

Feature key management protocol is not supported on “AXE BRA”

**5.3.4 PART D - Procedures for Specific Supplementary Services****5.3.4.1 PART D.1 - General**

“AXE BRA” has a small number of changes in feature set compared with that described in Specification TNA 134 [4], Part D, as noted in the following paragraphs.

**5.3.4.2 PART D.2 - Direct Dialling In**

No change from Specification TNA 134 [4], Part D.2.

**5.3.4.3 PART D.3 - Multiple Subscriber Number**

No change from Specification TNA 134 [4], Part D.3.

**5.3.4.4 PART D.4 - Calling line identification Presentation**

No change from Specification TNA 134 [4], Part D.4.

**5.3.4.5 PART D.5 - Calling line identification Restriction**

No change from Specification TNA 134 [4], Part D.5.

**5.3.4.6 PART D.6 - Connected line identification Presentation**

Connected line identification Presentation is not currently used on “AXE BRA”.

**5.3.4.7 PART D.7 - Connected line identification Restriction**

No change from Specification TNA 134 [4], Part D.7.

**5.3.4.8 PART D.8 - Malicious Call Identification**

No change from Specification TNA 134 [4], Part D.8.

**5.3.4.9 PART D.9 - Sub-addressing**

No change from Specification TNA 134 [4], Part D.9.

**5.3.4.10 PART D.10 - Call Transfer**

Call Transfer is not supported on “AXE BRA”.

**5.3.4.11 PART D.11 - Call Forwarding Busy**

No change from Specification TNA 134 [4], Part D.11.

**5.3.4.12 PART D.12 - Call Forwarding No Reply**

No change from Specification TNA 134 [4], Part D.12.

**5.3.4.13 PART D.13 - Call Forwarding Unconditional**

No change from Specification TNA 134 [4], Part D.13.

**5.3.4.14 PART D.14 - Call Deflection**

Call deflection is not currently used on “AXE BRA”.

**5.3.4.15 PART D.15 - Line Hunting**

No change from Specification TNA 134 [4], Part D.15.

**5.3.4.16 PART D.16 - Call Waiting**

Call Waiting is not currently used on “AXE BRA”.

**5.3.4.17 PART D.17 - Completion of Calls to Busy Subscriber**

Completion of Calls to Busy Subscriber is not currently used on “AXE BRA”.

**5.3.4.18 PART D.18 - Terminal Portability**

No change from Specification TNA 134 [4], Part D.18.

**5.3.4.19 PART D.19 - Conference Calling**

No change from Specification TNA 134 [4], Part D.19.

**5.3.4.20 PART D.20 - Three Party Service**

No change from Specification TNA 134 [4], Part D.20.

**5.3.4.21 PART D.21 - Outgoing Call Barring**

No change from Specification TNA 134 [4], Part D.21.

**5.3.4.22 PART D.22 - Credit Card Calling**

No change from Specification TNA 134 [4], Part D.22.

#### **5.3.4.23 PART D.23 - Advice of Charge**

No change from Specification TNA 134 [4], Part D.23.

#### **5.3.4.24 PART D.24 - Reverse Charging**

No change from Specification TNA 134 [4], Part D.24.

#### **5.3.4.25 PART D.25 - User-to-User Signalling**

Only UUS service 1 and 3 are supported on "AXE BRA".

#### **5.3.4.26 PART D.26 - Dialed Number Information Service**

Dialed Number Information Service is not supported on "AXE BRA".

#### **5.3.4.27 PART D.27 - Dialed Number Information Restriction**

Dialed Number Information Restriction is not supported on "AXE BRA".

#### **5.3.4.28 PART D.28 - Date and Time**

No change from Specification TNA 134 [4], Part D.28.

## **6. Compliance with ETSI Standards**

### **6.1 Layer 1 Compliance**

ETS 300 012 [14] is based on the 1988 version of ITU-T Recommendation I.430 [8] with modifications and additions. These changes were essentially included in the latest version of ITU-T Recommendation I.430 [8] on which this layer 1 part of the Specification is based.

Compliance with ETS 300 012 [14] will be accepted as compliance with this layer 1 part of the Specification.

(Note that this layer 1 compliance is unchanged from that in Specification PTC 131 [1].)

### **6.2 Layer 2 Compliance**

Compliance with ETS 300 402-2, "Digital Subscriber Signalling System No. one (DSS1) protocol; Data link layer: Part 2: General protocol specification [ITU-T Recommendation Q.921 (1993), modified]", 1995 [16] will be considered as compliance with this layer 2 part of the Specification.

(Note that this layer 2 compliance is unchanged from that in Specification TNA 133 [3].)

### **6.3 Layer 3 Compliance**

Please refer to sections 5.3.1.1 and 6.4.2 of this Specification.

### **6.4 Test Compliance**

#### **6.4.1 TBR 3 Compliance**

For "AXE BRA", a test report is required showing compliance with ETSI TBR 3, "ISDN Attachment Requirements for terminal equipment to connect to an ISDN using ISDN Basic rate access", Nov 1995 [19], together with supplementary testing outlined in section 6.4.2 following.

#### **6.4.2 ISDN Layer 3 Supplementary Testing**

The following tests, related to Telecom's ISDN and likely to affect NZ users, are not covered in a standard ETSI ISDN test report. In view of this, applicants for "AXE BRA" ISDN Telepermits are required to carry out these additional tests and to verify that the requirements are complied with.

"EUT" signifies "Equipment Under Test":-

I. Applicable to all ISDN CPE

1. Redirecting Number IE (Information Element). Ref. Amendment 2, TNA 134 [4] Part B.4.7.5. The purpose of the Redirecting number information element is to identify the redirecting party of a call.

The test checks that calls with the Redirecting number information element in the SETUP message are accepted by the EUT. The extraction and processing of the redirecting information element is left to the equipment supplier. This is a subscription option.

EUT shall accept calls with Redirecting Number IE PASS/FAIL

2. Date and Time IE. Ref. Amendment 2, TNA 134 [4] Part B.4.5.15. The Purpose of the Date/Time information element is to provide the date and time to the user. It indicates the point in time when the message has been generated by the network.

The tests check that calls with the Date/Time information element in the SETUP or CONNECT messages are accepted by the EUT. The extraction and processing/display of the date and time information element is left to the equipment supplier.

EUT accepts call Setup with date and time PASS/FAIL

EUT accepts Connect with date and time PASS/FAIL

## II. Only for EUTs intended to support Telecom CENTREX

Not required for "AXE BRA", as Telecom CENTREX is not supported.

## III. Only for EUTs with Analogue ports (Terminal adapters)

Analogue port Setup message including Progress Indicator.

An analogue port coded as "Speech or 3.1kHz audio", but without a "Call is not end-to end ISDN" Progress Indicator, cannot be used by both Voice and Data devices when calling ISDN terminals that adhere to all compatibility checks.

As examples, an ISDN Fax may not answer calls from a Fax originating from a "Speech" port; or a PABX or ISDN phone may not accept voice calls originating from a 3.1kHz Audio (VF Data) port.

NOTE: A 3.1kHz audio call without the Progress Indicator IE "Call is not end to end ISDN" is regarded by some terminals as a data call.

[EUT->NT] SETUP, Analogue port includes Prog Ind IE YES/NO

Terminal adapters are to be tested by a Telecom-accredited laboratory to ensure that the analogue port complies with PTC 200.

END