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Suppliers' Information Note

For The BT Network

BT FeatureNet™* Service:
Technical Characteristics Of The Interfaces

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1 Scope

This Suppliers' Information Note (SIN) specifies the technical characteristics at the Network Termination Point (NTP) of the interfaces for BT's FeatureNet service.

In cases where the Network Termination Equipment (NTE) is mains powered, the conditions quoted in this SIN apply when mains power is being applied to the NTE. The conditions applicable when mains power is removed from the NTE may be different to those quoted in this SIN.

Much of the information contained in this SIN has been published previously in documents such as BT Network Requirements (BTNRs) and European Telecommunications Standards Institute (ETSI) Standards. This SIN was originally published as Technical Interface Guide (TIG) 11 and 12.

Changes to the network that affect the correct working of terminal equipment will be published in BT SINs. If the changes impact on the content of this document then it will be updated.

2 Introduction

BT's FeatureNet service is a family of virtual networking services provided through the use of the shared resources of BT's Public Switched Network. FeatureNet 1000 interconnects customer's PBXs to create virtual private networks. FeatureNet 5000 provides facilities similar to those of a Private Branch Exchange (PBX) whilst FeatureNet 5000 ACD offers an Automatic Call Distribution (ACD) capability. FeatureNet Call Centre Digital Access supports customer's Interactive Voice Response (IVR) and dialler equipment.

3 FeatureNet 1000 Interfaces

3.1 Signalling System AC15-A Interface

The characteristics of the interface are as described by BTNR 181[1] for Signalling System AC15-A, BTNR 185[2] and SIN 355[7] for 4-wire analogue private circuits.

3.2 2048kbit/s Digital Private Network Signalling System No 1 Interface

The characteristics of the interface are as described by BTNR 188[3], with the exceptions detailed in Annex A, and SIN 223[4] for MegaStream 2 digital leased lines. Note the customer's PBX to be configured for PBX B for the circuit to come into service when their equipment is connected. BTNR188 Section 3 2.3 Address Field states "The two PBX's at each end of the transmission link shall be designated A and B by arrangement at configuration".

4 FeatureNet 5000 and FeatureNet 5000 ACD Interfaces

4.1 Loop Calling Unguarded Clearing Signalling Interface

The Loop Calling Unguarded Clearing Signalling interface is a two wire analogue interface as described by SIN 351[6] except that the following clauses or parts of clauses do not apply:

1	Scope
5.3	Call progress information
5.4	Call Set-Up Time
6.1	Call Arrival Indication. Applies except for the reference for supplementary services, and the details of Distinctive Ringing which should be replaced by those listed in Annex C of this document
8	Supervisory Signals
9.2	Announcements
9.4	Howler
9.5	End-To-End Insertion Loss
9.6	Loss/Frequency Response
9.7	Relative Group Delay
10	Supplementary Services
11	Routine Testing of the Local Network

Although the interface supports terminals with 10 pulses per second loop-disconnect dialling the full range supplementary services can only be invoked by terminals capable of generating multi-frequency (MF) digit code sequences, including * and #, and the Recall signal. Annex B details the signalling codes and the services invoked.

4.2 FeaturePhone Interface

The FeatureNet FeaturePhone interface is described in Nortel Specification NIS S106-1[11]. This interface is presented at a BT Master socket, compatible with plugs which meet the requirements of BS 6312:Part 1[27], with the line connected to pins 2 and 5.

The services invoked by the use of MF digit code sequences, including * and #, and the Recall signal are listed in Annex B.

Ringing cadences are as listed in Annex C

Note. In the BT Master socket, a surge protection device is connected across the line as is a 470 k ohm resistor in series with a 1.8 μF capacitor.

4.3 Simplified Desk Message Interface

The Simplified Desk Message Interface (SMDI) is described in Telcordia specification TR-NWT-000283[30] and provides a 1200 bit/s or 2400 bit/s data link to the FeatureNet switch. This is delivered as an ITU-T V.32[14] data stream at a FeatureNet Loop Calling Unguarded Clearing Signalling interface.

SMDI supports both the FeatureNet Screen Based Console 1 and customer's voice messaging equipment connected to FeatureNet's VoiceMail service.

4.4 CompuCALL Interface

The FeatureNet CompuCALL interface is described by American National Standards Institute (ANSI) specification T1.626 for Switch Computer Application Interface (SCAI) and implemented in accordance with Nortel specification NIS Q218[13]. The delivery options are:

- an ITU-T V.32 data stream presented at a BT socket, compatible with plugs which meet the requirements of BS 6312:Part 1, with the line connected to pins 2 and 5,
- an ITU-T X.21[15] interface with a 15-way D-type connector conforming to BS ISO 4903[26],
- an interface carrying the ITU-T X.25[16] protocol with the physical layer compliant with ITU-T X.21 and presented at a 15-way D-type connector conforming to BS ISO 4903, and
- a TCP-IP interface as described in clause 6.

The CompuCALL interface supports the FeatureNet Link service that provides a Computer Telephony Integration (CTI) facility for FeatureNet 5000 ACD customers.

Note. CompuCALL is a trademark of Nortel.

4.5 FeatureNet Manager Interface

FeatureNet Manager is a web-based service that provides customers with facilities to make simple changes to their network. Access is via the http://www.hostedvoicemanager.bt.com/ and can also be accessed through the BT Global Service portal at https://www.myaccount.globalservices.bt.co .

The old URL (below) still works for the present but this is subject to change. http://www.bt.com/featurenetmanager. The web sites can be accessed by using a username and password. FeatureNet Manager may be accessed by any PC with a modern browser but internet explorer 7 and above is recommended.

4.6 ISDN Basic Access Interface

The FeatureNet basic access ISDN interface conforms to ETSI standards. The provision of other types of ISDN interfaces in the future is not precluded. The ISDN interface supports basic and supplementary services for circuit switched calls but packet switched calls are not supported (but this does not preclude their provision in the future).

The ISDN user-network interface is specified in the following ETSI standards and is configured for operation in S/T-reference point configuration:

Layer 1 - ETS 300 012[18]

Layer 2 - ETS 300 125[20]

Layer 3 - ETS 300 102-1[19]

Implementation options applicable to each layer are specified below in the form of notes against the relevant ETSI standard. Many of these implementation options reflect the current interface configuration and services/supplementary services supported. Enhancement of the interface in the future to support additional services and capabilities is not precluded.

4.6.1 Layer 1

The customer interface is presented to the user via an NTTA (Network Terminating and Test Apparatus). The NTP is a socket on the NTTA.

Note: the NTTA performs the NT1 function specified in the ETSI standards.

Connection of terminal equipment to the service is via one of the following options:

- a socket in accordance with EN 28877[17],
- hard wiring.

Currently, the NTTA is mains powered and provides Power Source 1 (PS1) restricted in accordance with ETS 300 012. PS1 normal can be provided using an auxiliary power supply as defined ETS 300 012.

4.6.2 Layer 2

Layer 2 is implemented in accordance with ETS 300 125.

The XID-command/response frame is not used and if received by the network, the frame will be discarded as unimplemented and no action shall be taken as a result of that frame.

SAPI (Service Access Point Identifier) values 0 (for layer 3 signalling) and 63 (for layer 2 management) are supported. All other SAPI values are treated as reserved (the use of the D-channel to support Packet mode data (SAPI=16) and X.25 LAPB frames is not supported).

Only automatically assigned TEI (Terminal Endpoint Identifier) values (i.e. TEI values in the range 64 to 126) are supported. The use of TEI=0 for point-to-point signalling connection as specified in ETS 300 125, Annex A is not supported (in alignment with the S/T configuration for the ISDN interface). The TEI Check procedure will use Ai (Action indicator) = 127 only i.e. all TEI values will be checked.

The values for the relevant system parameters are the default values specified in ETS 300 125, Table 3.

4.6.3 Layer 3 Basic Call Control

Layer 3 for basic circuit switched call control is implemented in accordance with ETS 300 102-1 (but excluding Amendments 1 and 2).

The layer 3 options applicable to S/T-reference point configuration apply i.e. all incoming calls will be offered in a SETUP message sent on the broadcast data link (i.e. point-to-multipoint procedures will apply) and global call references, messages and procedures i.e. Restart, will not be used (in the event of a major failure, the network will attempt to return a call or all calls on the basic access interface to the Null state be sending the appropriate clearing message).

The following services/capabilities are not supported and hence the associated messages and information elements are not supported. If received by the network, they will be treated as invalid messages and treated accordingly:

- Terminal portability supplementary service (and hence RESUME, RESUME ACKNOWLEDGE, RESUME REJECT, SUSPEND, SUSPEND ACKNOWLEDGE, SUSPEND REJECT and NOTIFY messages and Call identity and Notification indicator information elements) is not supported.
- User-to-user signalling (and hence USER INFORMATION and CONGESTION CONTROL messages and More data, Congestion level and User-to-user information information elements) is not supported.
- Message segmentation procedure (and hence SEGMENT message) is not supported. No services/supplementary services requiring the use of message segmentation are supported.
- Supplementary services using the FACILITY message Facility information element are not supported.
- Packet communication procedures and all associated information elements are not supported.
- Overlap receiving is not supported (the network will always include the Sending complete information element in the SETUP message sent from the network to the user).
- Progress indication from the called user to the network in a call establishment message or the PROGRESS message is not supported and if received, will be treated as a non-mandatory information element not implemented or message not implemented respectively. Progress indication received by the network from the calling user in a SETUP message will be transparently mapped and sent on.
- The symmetric procedures in ETS 300 102-1, annex D are not supported.
- Transit network selection (and hence the Transit network selection information element) is not implemented.
- Network specific facility (and hence the Network specific facilities information element) is not implemented.
- Low layer compatibility negotiation (ETS 300 102-1, Annex M) is not supported.
- Establishment of bearer connection prior to call acceptance (ETS 300 102-1, Annex N) is not supported.

- The network will not send Display or Date/time information elements.

Bearer Capabilities: The bearer services of speech, 3.1 kHz audio and 64 kbit/s unrestricted data are supported and only code points in the Bearer capability information element (BC) associated with these services are supported.

High layer compatibility and Low layer compatibility information elements: the network will transport these information elements only after prior arrangement by the calling party.

4.6.4 Supplementary Services

The following supplementary services are implemented at service launch. These services are implemented in accordance to the relevant ETSI standards as follows:

4.6.4.1 Calling Line Identification Presentation (CLIP)

The access signalling for CLIP is implemented in accordance with ETS 300 092[24].

At service launch, the following options will not be offered:

- the delivery of 2 numbers at the called subscriber's user-network interface (see Annex B of ETS 300 092),
- the special arrangement to permit calling users to send User Provided, Not Screened (UPNS) numbers.

Note: Called users may receive UPNS numbers in association with the public network Presentation Number supplementary service.

4.6.4.2 Calling Line Identification Restriction (CLIR)

The access signalling for CLIR is implemented in accordance with ETS 300 093[25].

Customers can request that their calling line identity (ISDN number) is not released to the customers they are calling. The following subscription options are available:

(a) permanent mode (i.e. applies to all calls) - presentation restricted

(b) temporary mode (i.e. setting can be overridden by user) - presentation restricted

(c) temporary mode (i.e. setting can be overridden by user) - presentation not restricted i.e. their calling line identity will be released and forwarded to the called user.

Users subscribed to the temporary mode (options b and c) can override the restricted/not restricted setting by use of the "presentation indicator" in the Calling party number information element.

Note 1: The use of prefix digits (as in the PSTN) to the called party number of 141 and 1470 to restrict/release respectively on a per call basis is not supported.

Note 2: When CLIR is invoked, it is applicable to both FeatureNet (OnNet) calls and call to the public network (OffNet).

4.6.4.3 Multiple Subscriber Number (MSN)

The access signalling for MSN is implemented in accordance with ETS 300 052[22].

4.6.4.4 Sub-Addressing (SUB)

The access signalling for SUB is implemented in accordance with ETS 300 061[23].

The service is only applicable to calls between FeatureNet ISDN interfaces and is not supported to or from FeatureNet 1000 sites or public ISDN lines.

Note: The procedures associated with Calling party subaddress or Connected party subaddress information elements are part of the CLIP and Connected Line Identification Presentation (COLP) supplementary services respectively and are not part of the Subaddressing supplementary service. The COLP supplementary service is not supported at service launch.

4.7 Signalling System Symmetrical Digital Subscriber Line Interface

Symmetrical Digital Subscriber Line Interface for FeatureNet 5000 was introduced during the summer of 2004. The characteristics of the interface will be as described in the Broadband Symmetric SINs, 376[8], 404[9] and 405[10] and the services available will be the equivalent of those described in SIN 404 and SIN 405.

4.8 Asynchronous Digital Subscriber Line Interface

Voice over ADSL for Featurenet 5000 is proposed to be introduced during early 2010. The characteristic of the interface are described in SINs 346, 347, 386.

5 Call Centre Digital Access Interface

The Call Centre Digital Access interface presents 2048 kbit/s Type 1 Channel Associated Signalling to the customer. The characteristics of the interface are as described in SIN 223 for BT MegaStream 2 and Nortel specification “Interface Specification for Connection to a 3rd Party Multiplexor” for loop signalling.

The services invoked by the use of MF digit code sequences, including * and #, and the Recall signal are listed in Annex B.

6 TCP/IP Interface

The FeatureNet TCP/IP interface is an Ethernet 10BaseT or 100BaseTX interface, conforming to IEEE 802.2[28] and IEEE 802.3[29], presented at RJ-45 sockets. The TCP/IP protocol is as described in IETF RFC 0792[32] and RFC 0793[33].

7 TONES

The customer information tones that are generated by the FeatureNet service and encountered at the customer interface for telephony services are as described in SIN 350[5], with the exclusion of the following tones:

Acknowledgement Tone
Call Waiting Indication
Confirmation Tone
Pay Tone
Special Call Waiting Indication
Special Congestion Tone

Special Proceed Indication
Switching Tone

and the addition of the special FeatureNet tones listed in Annex D.

Note. Calls to the PSTN will encounter a wider variety of tones.

8 Calling Line Identification

Calling Line Identification (CLI) information is available at digital FeatureNet interfaces and at the FeaturePhone interface for both calls originating on FeatureNet and the PSTN.

For outgoing calls from FeatureNet to the PSTN, a CLI number can be forwarded to the called party.

For FeatureNet 5000, this CLI can be either the natural CLI associated to the calling line or a “presentation” CLI. Customers can choose to have their CLIs either released or withheld as a default for calls to the PSTN. Callers have the ability to over-ride this default setting on a per call basis.

For FeatureNet 1000, the forwarded CLI can be either a number associated with the calling PBX or a "presentation" CLI. In either case, only a single number will be assigned to a link between the PBX and the FeatureNet switch and this number will be forwarded for all calls from the PBX using this link. Customers can choose to have their CLIs either released or withheld as a default for calls to the PSTN. FeatureNet will accept digits prefixed to calls sent from the PBX to allow callers to over-ride this default setting on a per call basis. FeatureNet will also accept the DPNSS Number Presentation Restriction Type A (NPR-A) string as an indication that the CLI should be withheld for the call.

This outgoing CLI capability will be delivered as part of an ongoing roll-out programme to both new and existing customers.

9 Direct Dialling In

FeatureNet 1000 interfaces support the Direct Dialling In (DDI) facility. This allows incoming calls to FeatureNet from the PSTN to be routed by terminal equipment to specific extensions, without operator assistance, based on receipt of the final digits of the public directory number.

For the FeatureNet 5000 non-ISDN interfaces, the DDI facility is supported but routing is performed by the FeatureNet service so no DDI signalling is present at the FeatureNet 5000 interface.

For the FeatureNet 5000 basic access ISDN interface access signalling for DDI is implemented in accordance with ETS 300 064[21]. The network will always send the DDI number to the called user using en-bloc sending and overlap receiving is not support (as specified in clause 4.6.3).

10 VoiceButton

VoiceButton is a button that sits on a business's web page. Consumers browsing the web can request a call back from the business by clicking on this button and entering their own

telephone number and other relevant information. This information is then presented to the FeatureNet customer via the TCP/IP interface.

11 Glossary

ACD	Automatic Call Distribution
Ai	Action indicator
ANSI	American National Standards Institute
BTNR	BT Network Requirement
CENELEC	European Committee for Electrotechnical Standardisation
CLI	Calling Line Identification
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
COLP	Connected Line Identification Presentation
CTI	Computer Telephony Integration
DARPA	Defense Advanced Research Projects Agency
DDI	Direct Dialling In
DMS	Digital Multiplexed Switch
DPNSS	Digital Private Network Signalling System No 1
DSS1	Digital Subscriber Signalling System No. one
EC	European Commission
EN	Norme Européen
ETS	European Telecommunication Standard
ETSI	European Telecommunications Standards Institute
HLC	High Level Compatibility
IEEE	Institute of Electrical and Electronics Engineers
IETF	Internet Engineering Task Force
ISDN	Integrated Services Digital Network
ISRM	Initial Service Request Message
ISUP	Integrated Services User Part
IVR	Interactive Voice Response
LAPB	Link-Access Procedures, Balanced
LAN	Local Area Network
LLC	Low Level Compatibility
LX	Long Wavelength (1310nm)
MIS	Management Information System

MSN	Multiple Subscriber Number
MWI	Message Waiting Indicator
NPR-A	Number Presentation Restriction - (A - Party)
NPR-B	Number Presentation Restriction - (B - Party)
NPR-O	Number Presentation Restriction - (Other Party)
NT1	Network Termination Type 1
NTE	Network Termination Equipment
NTP	Network Termination Point
NTTA	Network Terminating and Testing Apparatus
PD	Published Document of the British Standards Institution
PN	Presentation Number
PS1	Power Source 1
PSTN	Public Switched Telephone Network
RFC	Request For Comments
RJ	Registered Jack connector
SAPI	Service Access Point Identifier
SIN	Suppliers Information Note
SMDI	Simplified Desk Message Interface
SUB	Subaddressing
SX	Short Wavelength (850nm)
TCP/IP	Transmission Control Protocol/Internet Protocol
TEI	Terminal Endpoint Identifier
TIG	Technical Interface Guide
TP	Terminal Portability
UPNS	User Provided, Not Screened
VLAN	Virtual Local Area Network

12 References

BT Network Requirements

[1]	BTNR 181	Signalling System AC15
[2]	BTNR 185	Signalling System MF4 via private circuits
[3]	BTNR 188	Digital Private Network Signalling System No 1

Suppliers' Information Notes

[4]	SIN 223	BT MegaStream 2 and MegaStream 8 Service Description

[5]	SIN 350	BT Public Switched Telephone Network (PSTN): Network Tones And Announcements
[6]	SIN 351	BT Public Switched Telephone Network (PSTN):Technical Characteristics Of The Single Analogue Line Interface
[7]	SIN 355	BT Analogue Private Circuits: Technical Characteristics Of 2-Wire And 4-Wire Analogue Interfaces
[8]	SIN 376	BT Wholesale Broadband SHDSL, Interface Description
[9]	SIN 404	BT DataStream Symmetric, Service Description and Interface Specification
[10]	SIN 405	BT IPStream Symmetric, Service Description and Interface Specification

Nortel specifications

[11]	NIS S106-1	Electronic Business Service Network Access Interface Specification
[12]		Interface Specification for Connection to a 3rd Party Multiplexor
[13]	NIS-Q218	CompuCall/Meridian SCAI

Note: Nortel claim Intellectual Property Rights for the FeaturePhone interface.

ITU-T Recommendations

[14]	V.32	A family of 2-wire, duplex modems operating at data signalling rates of up to 9600 bit/s for use on the general switched telephone network and on leased telephone-type circuits.
[15]	X.21	Interface between Data Terminal Equipment (DTE) and Data Circuit-Terminating Equipment (DCE) for Synchronous Operation on Public Data Networks.
[16]	X.25	Interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for terminals operating in the packet mode and connected to the public data networks by dedicated circuit.

ETSI and CENELEC standards

[17]	EN 28877 (9/93) (Same as ISO/IEC 8877)	Interface connector and contact assignments for ISDN basic access interface located at reference points S and T
[18]	ETS 300 012 (12/91) + Amendment 2 (3/96)	ISDN: Basic user-network interface Layer 1 specification and principles
[19]	ETS 300 102-1 (12/90)	ISDN: User-network interface layer 3 specification for basic call control.
[20]	ETS 300 125 (9/91)	ISDN: User-network interface data link layer specification Application of CCITT Recommendations Q.920/I.440 and Q.921/I.441

[21]	ETS 300 064-1 (9/96)	ISDN: Direct Dialling In (DDI) supplementary service; DSS1 Protocol
[22]	ETS 300 052 (10/91)	ISDN: Multiple Subscriber Number (MSN) supplementary service; DSS1 Protocol
[23]	ETS 300 061 (11/91)	ISDN: Subaddressing (SUB) supplementary service; DSS1 Protocol
[24]	ETS 300 092 (4/92)	ISDN: Calling Line Identification Presentation (CLIP) supplementary service; DSS1 Protocol
[25]	ETS 300 093 (4/92)	ISDN: Calling Line Identification Restriction (CLIR) supplementary service; DSS1 Protocol

British Standards

[26]	BS ISO 4903	Information technology, Data communications. 15-pole DTE/DCE interface connector and contact number assignments
[27]	BS 6312: Part 1	Connectors for analogue telecommunication interfaces. Part 1. Specification for plugs

IEEE specifications

[28]	IEEE 802.2	Information technology, Telecommunications and information exchange between systems, Local and Metropolitan area networks, Specific requirements, Part 2: Logical link control
[29]	IEEE 802.3	Information technology, Telecommunications and information exchange between systems, Local and Metropolitan area networks, Specific requirements, Part 3: Carrier sense multiple access with collision detection (CSMA/CD) access method and physical layer specifications

Telcordia Specification

[30]	TR-NWT-000283	Simplified Message Desk Interface (SMDI) Generic Requirements, FSD 05-02-0150

ANSI Specification

[31]	ANSI T1.626	Telecommunications – Switch Computer Application Interface (SCAI)

Internet Engineering Task Force RFCs

[32]	RFC 0792	Internet Control Message Protocol, DARPA Internet Program Protocol Specification
[33]	RFC 0793	Transmission Control Protocol, DARPA Internet Program Protocol Specification

For further information or copies of referenced documents please see document sources http://www.sinet.bt.com/docsources.htm.

13 History

TIG 11 Issue 1 & TIG 12 Issue 1	October 1988	First issue of TIGs published describing the technical characteristics of the interfaces for the BT FeatureNet service. TIG 11 described non-ISDN interfaces and TIG 12 described the ISDN interface.
TIG 11 Issue 2.0	May 1999	Addition of Call Centre Digital Access CASS interface.
TIG 11 Issue 3.0	November 1999	Addition of Caller Return and extra code for Ring Back in dial plan.
TIG 11 Issue 4.0	November 1999	Addition of TCP/IP interface and VoiceButton facility.
TIG 11 Issue 5.0	December 1999	CLI clause re-worded. Addition of SMDI, CompuCALL and FeatureView interfaces. Additions to FeaturePhone and CCDA interface. Annex A and Annex D amended.
SIN 357 Issue 1.0	July 2000	TIG 11 issue 5.0 and TIG 12 issue 1.0 combined and re-issued as SIN 357. In Annex A, the table entry for Executive Intrusion changed to "Compliant" for PBX → FN & FN → PBX.
SIN 357 Issue 2.0	October 2000	Addition of Featurenet IP Service. Withdraw of support for Windows 3.1 FeatureView software. Addition of CLI release to PSTN.
SIN 357 Issue 3.0	August 2001	Annex A updated - BTNR 188 Sections 44 to 48 added. Clause 7 CLI release information updated. Addition of Annex E - Trial of TCP-IP access to the CompuCALL facility. X.25 access to CompuCALL facility added.
SIN 357 Issue 4.0	November 2002	Editorial changes. Addition of 1471 Erasure and FeatureNet Manager. Calling Line Identification roll-out updated. FeatureNet IP removed. Annex E deleted (Trial of TCP-IP access to the CompuCALL facility) and facility added to clause 4.4 (CompuCALL Interface).
SIN 357 Issue 5.0	May 2004	References in 4.1 to SIN 351 updated to track changes in SIN 351. Notification of withdrawal of FeatureView interface added. Symmetrical Digital Subscriber Line Interface added for FeatureNet 5000. Editorial changes.

SIN 357 Issue 5.1	June 2005	FeatureView interface removed following withdrawal and reference to FeatureView removed from FeatureNet Manager description. Calling Line Identification roll-out updated.
SIN 357 Issue 5.2	May 2006	Reference to International Featurenet removed from Feature Dial Plan due to withdrawal of the service.
SIN 357 Issue 5.3	Mar 2010	Ref 3.2: For DPNSS customer PBX is to be designated PBX B. Ref 4.5: Upgrade to Featurenet manager interface PC and browser specification.

WE WOULD BE GRATEFUL IF YOU WOULD SPEND A FEW MINUTES TO COMPLETE AN ONLINE CUSTOMER SATISFACTION FORM AT HTTP://WWW.SINET.BT.COM/HAPPY.HTM

Annex A: FeatureNet 1000 DPNSS Conformance to BTNR 188

The following table details the FeatureNet 1000 DPNSS interface's degree of compliance with BTNR 188.

BTNR 188 Section	BTNR 188 Feature Name	PBX → FN (a)	FN → PBX (a)	PBX – PBX (a)
1-5		C	C	C
6	Simple Telephony Call	C	C	C
7	Circuit-Switched Data Call	C	C	C
8	SS: SWAP	NS	NS	C
9	SS: Call Back When Free	C	C	C
10	SS: Executive Intrusion	C	C	C
11	SS: Diversion	PC (c)	PC (c)	C
12	SS: Hold	C	C	C
13 (g)	SS: Three Party	C	C	C
14	SS: Call Offer	C (e)	C	C
15	SS: Non Specified Information	PC (p)	PC (p)	C
16	Service Independent Strings	PC (h)	PC (h)	C
17	SS: Call Waiting	NC (n)	NC (n)	C
18	SS: Bearer Service Selection	NS	NS	C
19	SS: Route Optimisation	C	C	C
20	SS: Extension Status	NS	NS	C
21 (i)	SS: Controlled Diversion	NC (d)	NS	C
22	SS: Redirection	C (b)	C (b)	C
23	SS: Series Call	NC (j)	NC (j)	C
24	SS: Three Party Takeover	NS	NS	C
25	SS: Night Service	NC	NS (m)	C
26 (k)	SS: Centralised Operator	PC	NC	C
27	SS: Traffic Channel Maintenance	NS	NS	NS
28	SS: Remote Alarm Reporting	NS	NS	C
29	SS: Add-On Conference	NC (d)	NC (f)	C

Annex A: FeatureNet 1000 DPNSS compliance with BTNR 188 (continued)

BTNR 188 Section	BTNR 188 Feature Name	PBX → FN (a)	FN → PBX (a)	PBX – PBX (a)
30	SS: Time Synchronisation	NS	NS	C
31	SS: Call Back When Next Used	NS	NS	C
32	SS: Do Not Disturb	NS	NS	C
33	SS: Remote Registration of Diversion	NS	NS	C
34	SS: Remote Registration of Do Not Disturb	NS	NS	C
35	SS: Priority Breakdown	NS	NS	C
36	SS: Call Back Messaging	NS	NS	C
37	SS: Loop Avoidance	NS	NS	NS (o)
38	SS: Forced Release	NS	NS	C
39	SS: Text Message	NS	NS	C
40	SS: Charge Reporting	NS	NS	C
41	SS: Network Address Extension	NS	NS	C
42	SS: Call Park	NS	NS	C
43	SS: Call Distribution	NS	NS	C
44	SS: Route Capacity Control	NS	NS	NS (q)
45	SS: Wait On Busy	NS	NS	C
46	SS: Call Pick Up	NS	NS	C
47	SS: Travelling Class Of Service	NS	NS	C
48	SS: Number Presentation Restriction	C (r,s)	NS	C (r)

Legend:	C	Compliant	PC	Partially compliant
	FN	FeatureNet	PBX	Private exchange branch
	NC	Non-compliant	SS	Supplementary service
	NS	Not supported		

DPNSS Conformance – Explanatory Notes:

a (i)Single Channel Working and Branching Function not supported.

(ii) PBX – PBX can involve more than one FeatureNet switch in the progression

b Redirection is on no answer only and to original answer point (see n).

c Call Diversion Immediate, Call Diversion on Busy and Call Diversion on No Reply are supported. FeatureNet 5000 Access Lines do not support Call Diversion – Follow Me and Diversion Bypass is only supported on calls from a PBX to FeatureNet.

d Treated by FeatureNet as a simple call.

e Not available on calls to FeaturePhones.

f Presented to PBX as simple call.

g For End function Shuttle is limited to FeaturePhones and only up until Add - On. For MF4 sets, the Call Hold feature can be used to shuttle prior to Add-On Conference.

h Busy Information only.

i Bypass is not supported by the FeatureNet.

j From Attendant Console only. No End to End Messages.

k The mandatory requirements for Centralised Operator are:

- Section 10 Tables 2, 3 & 4 – Executive Intrusion
- Section 13 Tables 2, 4 & 6 – Three Party
- Section 14 Tables 2, 3 & 4 – Call Offer
- Section 22 Tables 2, 3 & 4 – Redirection
- Section 26 – Service Information on Busy

For the PBX as a Centralised Operator the Mandatory services are supported as follows:

- Busy Information
- Three Party
- Call Offer
- Redirection

For a FeatureNet 5000 Attendant Console as a Centralised Operator the following equivalent services are provided:

- Executive Intrusion - Called Busy Verification, same Business Group, same node but not DPNSS connections.
- Three Party - Three Way Call.
- Call Offer - Called Camp-On, same Business Group, same node but not DPNSS connections.
- Redirection - Auto Recall feature provides a similar function.
- Busy Information - same Business Group, same node but not DPNSS connections.
- Night Service (not mandatory)

In addition, other network services are available to the Attendant console; these include Call Hold, Conferencing, Serial call and Two Way Splitting.

l Note deleted.

m The effect of this is that if a PBX Attendant is on Night Service to another PBX and a call is made from a FeatureNet 5000 Access Line or AC15a FeatureNet 1000 connected PBX, the Night Service diversion will not take place.

n FeatureNet does not recognise the DPNSS Call Waiting string, *26#, when it is received and is similarly unable to generate the string.

On calls from FeatureNet to a DPNSS PBX, the DMS does not recognise the Call Waiting string indicating that the PBX extension has been Camped-On, but neither does it assume that the destination is free and hence Redirection can not take place.

On calls from a DPNSS PBX to FeatureNet, the State of Destination-Free string, *66#, is passed from the DMS to the PBX, suggesting that the line is free rather than camped-on. Hence, on Redirection, a "ring tone no answer" message is given rather than "camp-on still busy" message

o Although not supported on FeatureNet any Loop Avoidance information will be passed transparently.

p Message Waiting Indicator (MWI) centrex interworking supported. However, MWI interworking with the Simplified Message Desk Interface (SMDI) is not supported.

q Although not supported on FeatureNet any Route Capacity Control information will be passed transparently.

r NPR-A supported for ISRM only. NPR-B and NPR-O are not supported.

s NPR-A mapped to ISUP presentation indicator parameter if networking involved.

Annex B: FeatureNet 5000 And Call Centre Digital Access Feature Access Codes

Unless otherwise indicated, the Loop Calling Unguarded Clearing Signalling interface responds to feature access codes at the primary (initial) or secondary (recall) dial tone stage, when the feature has been activated for that interface. These codes may also be used at the FeaturePhone interface. The codes can be configured for individual customers but a standard default dial plan is available.

B.1 Default Dial Plan

B.1.1 Basic Dial Plan

Facility	Four Digit Access Code	Three Digit Access Code
Attendant Access	0	0
Feature Access Codes	10 to 19	10 to 19
Feature Activation Codes	*000 to *999	*00 to *99
Feature Deactivation Codes	#000 to #999	#00 to #99
Network Speed Calling Access	8 (or *808)	8 (or *80)
Private Network Access	7	7
PSTN Access	9	9
Speed Calling – Short List	*0# to *9#	*0# to *9#
Speed Calling – Long List	*00# to *69#	Not available

B.1.2 Feature Dial Plan

Facility	Four Digit Access Code	Three Digit Access Code
Automatic Call Distribution Login Activation	*919	*91
Automatic Call Distribution Login Deactivation	#919	#91
Automatic Call Distribution Not Ready Activation	*939	*93
Automatic Call Distribution Not Ready Deactivation	#939	#93
Call Forwarding Busy Programming	*242	*24
Call Forwarding Busy Cancellation	#242	#24
Call Forwarding Busy External Programming	*262	*26
Call Forwarding Busy External Cancellation	#262	#26
Call Forwarding Busy Internal Programming	*252	*25
Call Forwarding Busy Internal Cancellation	#252	#25
Call Forwarding Program	*212	*21
Call Forwarding Cancel	#212	#21
Call Forwarding Don't Answer Programming	*272	*27
Call Forwarding Don't Answer Cancellation	#272	#27
Call Forwarding Don't Answer External Programming	*292	*29
Call Forwarding Don't Answer External Cancellation	#292	#29
Call Forwarding Don't Answer Internal Programming	*282	*28
Call Forwarding Don't Answer Internal Cancellation	#282	#28
Call Forwarding per Key Programming	*202	*20
Call Forwarding per Key Cancellation	#202	#20
Call Forwarding Remote Access	*232	*23
Call Hold	*575	*57
Call Hold – Multiple Appearance Directory Number – Activation	*585	*58
Call Hold – Multiple Appearance Directory Number – Cancellation	#585	#58

B.1.2 Feature Dial Plan (Continued)

Facility	Four Digit Access Code	Three Digit Access Code
Call Hold – Permanent	*595	*59
Call Park	*545	*54
Call Park Retrieve	#545	#54
Call Park – Directed	*565	*56
Call Pickup	*515	*51
Call Pickup – Directed	*535	*53
Call Request Activation	*717	*71
Call Request Delete All	*747	*74
Call Request Delete Specific	*767	*76
Call Request Retrieval	*737	*73
Caller Return, play back call details	#1471	#1471
Caller Return, return last call	3 (Note a)	3 (Note a)
Calling Line Identity -per call release	#1470	#1470
Calling Line Identity -per call withhold	#141	#141
Code Calling Activate	*949	*94
Code Calling Pickup	*969	*96
Conference – Meet Me – Lock	*616	*61
Conference – Meet Me – Unlock	#616	#61
Conference – Station Controlled	*636	*63
Conference – Station Controlled – Release	#636	#63
Dialled Call Waiting	*959	*95
Dialled Call Waiting Cancel	#959	#95
Executive Busy Override	*838	*83
Group Intercom via Access Code	*484	*48
Last Number Redial	## (or *414)	## (or *41)
Make Set Busy Activation	*818	*81
Make Set Busy Deactivation	#818	#81

B.1.2 Feature Dial Plan (Continued)

Facility	Four Digit Access Code	Three Digit Access Code
Malicious Call Hold	99#	99#
Privacy	*848	*84
Privacy Release Activation	*868	*86
Privacy Release Cancel	#868	#86
Ring Back When Free (OffNet) and Ring Again (OnNet)	5 (or *434) (Note b)	5 (or *43) (Note b)
Speed Calling Programming – Short List	*101	*10
Speed Calling Programming – Long List	*707	*70
Trunk Answer from Any Station	*424	*42
Uniform Call Distribution Agent Login Activation	*929	*92
Uniform Call Distribution Agent Login Deactivation	#929	#92
Uniform Call Distribution Night Service Activation	*989	*98
Uniform Call Distribution Night Service Deactivation	#989	#98
Warm Line Activation	*494	*49
Warm Line Deactivation	#494	#49
1471 Erasure	#1475	#1475

Note a: Activation during calling number play back only.

Note b: With access code 5, activation is on busy tone.

B.2 Customer Specified Dial Plan

Customers may specify their own feature access codes provided they conform to the following format:

- The first digit can be a numeral, a * or a #. All remaining digits must be numeric.
- Speed Calling uses the pre-set codes *0 to *9 and *00 to *69 for short and long lists respectively. These codes must either be avoided or the corresponding Speed call list disabled.
- All other activation/deactivation codes must be of the same length but may be from 1 to 7 digits long.
- When using three digit codes beginning with a * (*00 to *98), Speed Call Short codes must be appended by a # to avoid time-out delays.
- When using four digit codes beginning with a * (*000 to *989), all Speed Call codes (short and long) must be appended by a # to avoid time-out delays.
- The Malicious Call Hold and Caller Return features have predefined activation codes that can not be altered.
- The single digit Ring Back When Free and Ring Again code (5) is not flexible.
- The two digit Last Number Redial code (##) is not flexible.

A customer can have up to three different access codes lists operating on different sites. In addition, each list may contain both "old" and "new" feature access code sets in operation simultaneously providing these codes do not clash.

Annex C: Distinctive Ringing

Distinctive ringing is provided based on the origin of the call and can be assigned to individual lines on a per-line or system basis. The following table lists types of calls, which can support distinctive ringing. The default ringing codes given may be changed unless otherwise stated.

Ring Code	Cadence	Default assignment
0	0.4s ON, 0.2s OFF, 0.4s ON, 2.0s OFF (standard ringing cadence)	External Calls – calls originating from lines outside the organisation, and calls extended from an attendant console in the same organisation, and Uniform Call Distribution calls
1	0.8s ON, 0.2s OFF, 0.2s ON, 1.8s OFF	Calls originating from a Group InterCom.
2	0.8s ON, 0.2s OFF, 0.8s ON, 1.2s OFF	Calls not covered by any other ring codes.
3	1.0s ON, 2.0s OFF	Internal Calls: calls originating from other lines in the same organisation, and FeatureNet Network Calls: calls originating from FeatureNet trunks in the same organisation. (Ring Code fixed).
4	0.8s ON, 0.2s OFF, 0.2s ON, 0.2s OFF, 0.4s ON, 1.2s OFF	Recall Calls: calls that have recalled to the originating station due to the activation of a feature that supports recalls; for example, the Call Park feature. (Ring Code fixed).
5	0.2s ON, 0.2s OFF, 0.4s ON, 0.2s OFF, 0.2s ON, 0.2s OFF, 0.4s ON, 1.2s OFF	Automatic Call Distribution calls

Annex D: Additional FeatureNet Supervisory Tones

FeatureNet Generated Tone	Significance	Range of levels at the FeatureNet interface	Tone Composition *(± 5%)*	Cadence *(± 5%)*
Call Forcing Tone	Call Forcing tone indicates to an ACD agent that a call is about to be connected through to an agent's headset automatically	0 dBm to -27 dBm.	440 Hz	0.5 s
Call Waiting Tone	Indicates to the called party that another caller is waiting	0 dBm to -27 dBm.	440 Hz	0.1 s not repeated (Note 1)
Conference Entrance Tone	Indicates to the conferees that a party has entered the conference	0 dBm to -27 dBm.	1000 Hz	0.4 s
Conference Exit Tone	Indicates to the conferees that a party has left the conference	0 dBm to -27 dBm.	400 Hz & 250 Hz	0.4 s
Confirmation Tone	Following the application of a Feature Activation Code, informs the user that the feature has been successfully activated	0 dBm to -27 dBm.	400 Hz	0.15 s ON, 0.15 s OFF, 0.3 s ON repeated
Distinctive Call Waiting Tone	Indicates to the called party whether the caller is internal or external to the Customer Group	0 dBm to -27 dBm.	440 Hz	Internal: 0.1 s External: 0.25 s ON, 0.1 s OFF, 0.25 s ON repeated
Executive Busy Override Tone (Note 2)	Indicates to the called party and the party connected to the called party that an intrusion is about to take place	0 dBm to -27 dBm.	440 Hz	0.3 s

Annex D: Additional FeatureNet Supervisory Tones (Continued)

FeatureNet Generated Tone	Significance	Range of levels at the FeatureNet interface	Tone Composition *(± 5%)*	Cadence *(± 5%)*
Special Dial Tone	Indicates that a supplementary service is being invoked	0 dBm to -27 dBm.	350 Hz and 440 Hz	350 Hz: 0.75 s ON, 0.75 s OFF repeated 440 Hz: continuous
Stutter Dial Tone	Used as a Message Waiting Indicator or to indicate that the line is logged into a Uniform Call Distribution on the Loop Calling Unguarded Clearing Signalling interface	0 dBm to -27 dBm.	350 Hz and 440 Hz	0.1 s ON, 0.1 s OFF repeated

Note 1. If the line has both the Call Waiting feature and the Call Hold feature activated, the tone will be played twice, with a ten second gap between the instances.

Note 2. For the Loop Calling Unguarded Clearing Signalling interface a tone may be set to indicate that Call Forwarding is active on the line. The default tone is Executive Busy Override Tone that precedes dial tone and has a duration of 750ms.

- END -