

297-1001-190

DMS-100 Family

Disconnect On The DMS100

BASE 04 and up Standard 01.03 September 1999

About this document

Audience

The audience for this document is customer and TAS engineers that support lines on DMS100.

Purpose

The purpose of this document is to describe the behavior of different kind of agents during calling or called party disconnect under different circumstances.

Organization

This user guide has one chapters. This chapter basically explains the behavior of lines during disconnect.Explanation is supported with tables.

Applicable Documents

The following documents contain more information on topics related to line disconnect. Unless otherwise stated, the latest issue is intended.If a contradiction exists between this document and following documents, the information contained in the following documents should be considered standard.

LSSGR Signaling for Analog Interfaces Disconnect procedures GR506CORE Issue 1,June 1995

LSSGR Public Telecommunications Service GR528CORE Issue 1, December 1994

LSSGR Exchange Access Interconnection GR690CORE Issue 2, October 1995

NTP 297-8001-855 03.04 NA DMS-100 Office Parameters Reference Manual

NTP 297-8001-808 03.03 North American DMS-100 SERVORD Reference Manual

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Introduction

There are several functions that take place at disconnect. These include normal disconnect timing, timed release disconnect (TRD), and cutoff on disconnect (global and line option). Timings are associated with each of these capabilities and the interactions are completely dependant on the type of agent and whether it is being served as an originator or terminator. This document is written to give an idea to both Nortel TAS engineers and customer what to expect during call disconnect on DMS100 switches.

Called and Calling Party Disconnect On The DMS100

There are several functions that take place at disconnect. These include normal disconnect timing, timed release disconnect (TRD), and cutoff on disconnect (global and line option). Timings are associated with each of these capabilities and the interactions are completely dependant on the type of agent and whether it is being served as an originator or terminator. In normal call situations, disconnect timing and timed release disconnect behave as expected. However, when cutoff on disconnect (either line or global) is active on the call, non-standard timing will be used and in some cases disconnect treatment will not be provided. It is the intent of this document to describe these interactions.

Before discussing disconnect, it will be necessary to define the terms used describing the state of the called and calling party, as well as the specific functionality applicable to the agent:

Calling Disconnect: Originator on hook, Terminator off hook.

Called Disconnect: Originator off hook, Terminator on hook.

1 Normal Disconnect Timing :

This timer allows an agent 10 seconds to hang up before receiving treatment after the other party has disconnected. This occurs for both originators and terminators. Once disconnect timing has expired, the party will be connected to disconnect treatment and treated as further described in paragraph 3. This is a capability inherent on all lines with the exception of EBS sets. EBS sets are immediately idled, they do not get disconnect timing or treatment.

Normal disconnect timing is simply to provide a grace period for the agent remaining off-hook to hang up before receiving treatment. This timer is not started by any of the background timing primitives, but is a separate timer in the PM. When this timer expires, the exec ID in TVA + 1 will be posted. This is used to send an exit message to the CM on behalf of a line that does not hang up within 10 sec of other party going onhook. **Normal disconnect timing is in effect UNLESS TRD is being performed. TRD overrides normal disconnect timing.**

2 Timed Release Disconnect (TRD):

TRD is a capability that maintains a connection for a datafilled period of time after the terminator goes on-hook. If during this time the called party goes back off-hook again, the connection is maintained. If the originator goes on hook or the TRD timer expires, the calling party is disconnected. In line to line situations, TRD is only performed on POTS terminators with the exception of an origination from a EBS set. EBS, IBN, and RES terminating lines do not perform TRD in line to line situations.

Again, TRD is only performed when the terminator disconnects first and is different from normal disconnect timing in that it maintains the connection during that datafilled time.

2.1 Datafilling Timed Release Disconnect

Values for TRD are provisioned by office wide by parameters LONG_TIMED_RELEASE_DISC_TIME in table OFCENG and SHORT_TIMED_RELEASE_DISC_TIME in table OFCSTD. NTP 297 8001 855 describes the call types controlled by these two parameters as:

- LONG_TIMED_RELEASE_DISC_TIME (LTRD), OFCENG

This disconnect timing is used for the following types of calls which have a potentially high setup cost:

- Line or TOPS-to-trunk (trunk group types TO, TOPS, IT, ATC, and SC)
- Trunk-to-line (trunk group types SC, TI, and IBN)
- Trunk (trunk group type TI) to trunk (trunk group type TO)
- Trunk (trunk group type SC) to trunk (trunk group types TO, TOPS, IT, OC, OP, A5, P2, and PX)
- Trunk- (ISDN PRA) to-trunk (ISDN PRA)
- Trunk- (ISUP) to-trunk (ISUP)

For calls from trunk (trunk group type SC) to trunk (trunk group type PX and P2), no disconnect timing is done for joint hold and called party hold calls.

- SHORT_TIMED_RELEASE_DISC_TIME (STRD), OFCSTD

This disconnect timing is used for the following types of calls that have low setup costs or scarce resources that must be deallocated quickly after use:

- line-to-line
- line-to-trunk (trunk group types PX, P2, and MDC)
- trunk- (trunk group types PX and P2) to-line
- trunk- (trunk group types PX and P2) to-trunk (trunk group types TO, TOPS, IT, OC, SC, A5, P2, PX, and MDC)

Values for TRD can also be provisioned on a per line basis using the line option STRD (ShortTimedReleaseDisconnect). This line option will substitute STRD timing for LTRD timing on trunk to line calls.

- LINE OPTION STRD can be assigned to the following classes of lines:
 - 1FR, 1MR, 2WW, CCF, CDF, CFD, CSD, CSP, IBN, INW, OWT, PBM, PBX, RES, TWX.

3 Disconnect Treatment:

Upon the expiration of disconnect timing , either normal disconnect timing or TRD, disconnect treatment is normally applied to the line. The exception to this are EBS sets . Disconnect timing and disconnect treatment do not apply to EBS sets.

The TELCO can define disconnect treatment by the datafile used in table TMTCNTL to define DISC treatment. This treatment is performed by a route list which can be varied. It can include silence, idle, lockout, copp(operate cutoff relay), etc. It is the strong recommendation of NORTEL TECHNOLOGY to ensure that the route list ends with lockout as protection against toll fraud.

4 Global_cutoff_on_disconnect (GCOD), OFCENG:

GCOD is an office engineering parameter contained in table OFCENG. the intent of this parameter is to provide the ability to supply an open battery signal (open interval) upon call disconnect to either the originating or terminating agent (depending on which remains offhook) in a call on every standard line in a DMS-100 switch. Standard lines include all lines in the DMS with the exception of EBS, ISDN, and multiparty lines.

This parameter consists of three fields:

- GC_PRESENCE_BOOL - This field activates or deactivates the GCOD feature. The detection of an open interval will indicate to the line side equipment that disconnection occurred, and the line side equipment should release.
- GC_RELAY_OPEN_TIME - This field specifies the length of the open battery signal when field GC_PRESENCE_BOOL is true (yes). The recommended datafilled per LSSGR requirement is 80 to provide a 800ms open interval. The LSSGR states that this value must be equal or greater then 800ms and equal or less than 1 second.(GR-506-CORE).
- GC_DELAY_RELAY_OPEN - Some clarification of this bool is necessary. NTP 297 -8001 - 855 state that “Field GC_DELAY_RELAY_OPEN specifies whether the cutoff relay is operated before or after disconnect timing is initiated.” (Y) indicates that relay should be operated after disconnect timing, (N) indicates that the relay should be operated before disconnect timing. This is a bit misleading as it relates to TRD.

GC_DELAY_RELAY_OPEN will not and should not allow the relay to be operated before TRD timing. This would in effect kill the connection that would otherwise be maintained during TRD timing TRD timing, either STRD or LTRD, will always be performed before the open interval is applied. If this were not so, re-connection would not be possible should the party go back off hook before TRD expired.

Also, GC_DELAY_RELAY_OPEN does apply to normal disconnect timing with one exception. When TRD is not in effect, this field will indicate whether the relay should be operated before or after normal disconnect timing. This does as it states with respect to calling party disconnect. However, in a called party disconnect situation and the field is set to (Y) no disconnect timing is provided. This non-standard disconnect timing is warned of when the office parameter is activated in the switch.

AFFECTED PERIPHERALS MUST HAVE THEIR EXECS RESENT
TO ACTIVATE GLOBAL COD.

WARNING NON STANDARD EXIT TIMING WILL BE USED

The NORTEL TECHNOLOGY recommended default value of this bool is N. However, the value of this bool does not have any effect on GC_RELAY_OPEN_TIME.

An important aspect of GCOD is that application of the open interval will be in conjunction with the called or calling party being routed to DISC treatment as described above, depending on which party remains off hook. The route list taken for DISC treatment will be defined in table TMTCNTL. This route list will define the action performed on the agent. Should the line be provisioned with the COD option, part of the GCOD functionality will be overwritten by the COD functionality. The main interaction will be that lines with COD are immediately IDLED after the application of the open interval where lines without COD will result in treatment.

5 Line Option COD (CUTOFF ON DISCONNECT):

Line option COD allows an open interval to be applied on a line basis rather than on an office wide basis. COD is available on all lines in the DMS with the exception of EBS, ISDN, and multiparty lines.

The first notable difference between COD and GCOD is the office parameter that controls the open interval. The controlling parameter for line option COD is CUTOFF_ON_DISC_TIME located in table OFCVAR. Again, to be LSSGR compliant, this value should be datafilled as 80 to provide an 800ms open interval.

The second notable difference between COD and GCOD is the behavior of the line after the cutoff is performed. For line option COD, by design intent, the line is immediately idled after the open interval is applied. The end user will be dropped back to dialtone. This should not cause exposure to toll fraud as long as the connected equipment is able to detect and respond to the applied open interval.

An interaction between COD and GCOD is operating the cutoff relay twice. When office parameter GCOD is active, GCOD is run automatically on every standard line in the office by the PM controlling the line. When the COD option is present, the agent can be supervised a second time. This second supervision will cancel the first, but the result can be the relay opening for the time set by GCOD, followed by the relay opening for the value set by COD (cutoff_on_disc_time).

While this may appear to be an anomaly, in reality it is transparent to the line side equipment, as they will disconnect upon detection of the first open interval. Patch DLW21 has eliminated this “double” supervision for most ISUP to line calls, but feature work will be required to eliminate it from all calls. This issue is currently being examined under PRS CM70103.

Line option COD is presently incompatible with lines having either option ACD and/or option LDTPSAP.

6 Interactions of Disconnect functionalities

6.1 Calling Disconnect: Originator on hook, Terminator off hook:

In scenarios where the originator disconnects first, 10 second exit off-hook timing is performed on the terminator. However, if GCOD turned on in the office, the office parm can be provisioned to activate the cutoff before or after the 10 second timing. This is true for POTS, IBN, and RES line terminators. If COD is on that line, the line will not go to disconnect treatment but instead will be dropped to dialtone. When a EBS set is the terminator and remains offhook, no disconnect timing or cutoff is provided. The phone is idled immediately.

6.2 Called Disconnect: Originator off hook, Terminator on hook:

In scenarios where the terminator disconnects first, TRD takes precedence over normal disconnect timing. If TRD is being done, the originating line is idled after the release timing and no additional disconnect timing is done. On calls doing TRD, not normal disconnect timing, and GCOD is turned on in the office, the cutoff will be activated after the release timing. If normal disconnect timing is in effect and GCOD is active on these calls, the cutoff is activated immediately and then non-standard disconnect timing is provided. Again, if COD is on that line, the line will not go to disconnect treatment but instead will be dropped to dialtone. When a EBS set is the originator and remains offhook, no disconnect timing or cutoff is provided. The phone is idled immediately.

7 COPP (Cutoff on Permanent Signal and Partial Time Relay Open Time)

A third method to open the cutoff relay is provided by datafilled COPP in a treatment route list. The office parameter controlling this routing element is COPP_RELAY_OPEN_TIME located in table OFCENG. The purpose of COPP is to provide the open interval for lines that enter the permanent signal or partial dial state. It is only mentioned in this document as it is possible to include COPP in the treatment route list for DISC, and not use COD or GCOD. The NORTEL TECHNOLOGY recommendation would be to use GCOD and COD to provide a cutoff on disconnect, and to use COPP to provide a cutoff for permanent signal and partial dial. If COPP is used in the DISC treatment route list where GCOD is enabled, this will result in two open intervals applied to the line being treated.

8 Relationship to Payphones and/or toll fraud:

Providing an open interval when possible or routing the line to lockout treatment when the open interval is not possible is vital to preventing toll fraud in the network. This is especially true since many ISUP releases are normal releases that will result in IDLE being applied to the originator, which will drop the line back to dialtone when they stay offhook. The open interval indicates the disconnect that forces an additional deposit for either a conventional payphone or smart payphone. Many payphone today are not traditional coin lines (CCF, CDF, or CPP), but smart payphones that are in reality data terminals attached to a voice line (1fr, 1mr, or pbx line class codes).

Such phones can also be Customer Owned Pay Phones. NORTEL markets such a product under the trade name Millenium Pay Phone. The detection of COD or GCOD and answer supervision is performed by firmware contained in the phone. In other scenarios either the originator or terminator may be another type of data set or P.C., that uses its own hardware to detect the open interval. This is how the data set or P.C. determine to disconnect the call. Any changes to how the DMS disconnects calls can have a large impact to the end user. Recommendations in the current LSSGR should always be followed.

The following tables describe the actions applied to Calling and Called parties during call disconnect for line to line, ISUP trunk to line, and MF trunk to line calls. It is intended to document how disconnect is performed by the current DMS100 legacy code. It was compiled by test calls performed in NA05, NA06, and NA08, NA10 office loads.

Note: For AccessNode Line card specifications, please refer to NTP 323-3001-181.

Table 1: Line to Line: Calling Disconnect, NoGCOD, No COD

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	10 sec Disconnect timing on Pots then to DISC TRMT.	10 sec Disconnect timing on RES then to DISC TRMT.	10 sec Disconnect timing on IBN then to DISC TRMT.	No Disconnect Timing on Pphone The phone is immediately idled.
RES	10 sec Disconnect timing on Pots then to DISC TRMT.	10 sec Disconnect timing on RES then to DISC TRMT.	10 sec Disconnect timing on IBN then to DISC TRMT.	No Disconnect Timing on Pphone. The phone is immediately idled.
IBN	10 sec Disconnect timing on Pots then to DISC TRMT.	10 sec Disconnect timing on RES then to DISC TRMT.	10 sec Disconnect timing on IBN then to DISC TRMT.	No Disconnect Timing on Pphone. The phone is immediately idled.
PPHONE	10 sec Disconnect timing on Pots then to DISC TRMT.	10 sec Disconnect timing on RES then to DISC TRMT.	10 sec Disconnect timing on IBN then to DISC TRMT.	No Disconnect Timing on Pphone The phone is immediately idled.

Table 2: Called Disconnect, No GCOD, No COD.

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	Short TRD. No additional disconnect timing.	No TRD. 10 sec disconnect timing on POTS.	No TRD. 10 sec disconnect timing POTS.	No TRD. 10 sec disconnect timing on POTS.
RES	Short TRD. No additional disconnect timing.	No TRD. 10 sec disconnect timing on RES.	No TRD. 10 sec disconnect timing on RES.	No TRD. 10 sec disconnect timing on RES.
IBN	Short TRD. No additional disconnect timing.	NO TRD 10 sec disconnect timing on IBN	NO TRD 10 sec disconnect timing on IBN	NO TRD 10 sec disconnect timing on IBN
PPHONE	No TRD. No disconnect timing on PPHONE.	No TRD No disconnect timing on PPHONE.	No TRD No disconnect timing on PPHONE.	No TRD No disconnect timing on PPHONE.

Table 3: Line to Line: Calling Disconnect, GCOD (Y 80 Y),No COD.

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	10 second timing on POTS, GCOD, then 2 more sec., then to TRMT. *	10 second timing on RES, GCOD, then 2 more sec., then to TRMT.	10 second timing on IBN, GCOD, then 2 more sec., then to TRMT.	NO disconnect timing. No GCOD. Phone is idled immediately.
RES	10 second timing on POTS, GCOD, then 2 more sec., then to TRMT.	10 second timing on RES, GCOD, then 2 more sec., then to TRMT.	10 second timing on IBN, GCOD, then 2 more sec., then to TRMT.	NO disconnect timing. No GCOD. Phone is idled immediately.
IBN	10 second timing on POTS, GCOD, then 2 more sec., then to TRMT.	10 second timing on RES, GCOD, then 2 more sec., then to TRMT.	10 second timing on IBN, GCOD, then 2 more sec., then to TRMT.	NO disconnect timing, no GCOD. Phone is idled immediately.
PPHONE	10 second timing on POTS, GCOD, then 2 more sec., then to TRMT.	10 second timing on RES, GCOD, then 2 more sec., then to TRMT.	10 second timing on IBN, GCOD, then 2 more sec., then to TRMT.	NO disconnect timing, no GCOD. Phone is idled immediately.

* The 2 sec timing indicated in this and following tables is design intend to prevent race conditions.

Table 4: Line to Line: Called Disconnect, GCOD (Y 80 Y), No COD.

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	3 sec STRD GCOD, then TRMT applied to POTS.	2 sec timing GCOD, then TRMT applied to POTS.	2 sec timing GCOD, then TRMT applied to POTS.	No TRD, GCOD, then TRMT applied to POTS.
RES	3 sec STRD GCOD, then TRMT applied to RES	2 sec timing GCOD, then TRMT applied to RES	2 sec timing GCOD, then TRMT applied to RES.	No TRD, GCOD, 2 seconds of timing then TRMT.
IBN	3 sec STRD GCOD, then TRMT applied to IBN.	2 sec timing GCOD, then TRMT applied to IBN.	2 sec timing GCOD, then TRMT applied to IBN.	No TRD, GCOD, 2 seconds of timing then TRMT.
PPHONE	No GCOD No GCOD. No timing Phone is immediately idled	No GCOD No timing Phone is immediately idled	No GCOD No timing Phone is immediately idled	No GCOD No timing Phone is immediately idled

Table 5: Line to Line: Calling Disconnect, GCOD (Y 80 N), no COD.

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	GCOD, then 10 sec- ond discon- nected timing. Then to TRMT.	2 sec timing GCOD, then 10 sec- ond discon- nected timing. Then to TRMT.	2 sec timing GCOD, then 10 sec- ond discon- nected timing. Then to TRMT.	NO disconnect timing, no GCOD Phone is idled imme- diately.
RES	2 sec timing GCOD, then 10 sec- ond discon- nected timing. Then to TRMT.	2 sec timing GCOD, then 10 sec- ond discon- nected timing. Then to TRMT.	2 sec timing GCOD, then 10 sec- ond discon- nected timing. Then to TRMT.	NO disconnect timing, no GCOD Phone is idled imme- diately.
IBN	2 sec timing GCOD, then 10 sec- ond discon- nected timing. Then to TRMT.	2 sec timing GCOD, then 10 sec- ond discon- nected timing. Then to TRMT.	2 sec timing GCOD, then 10 sec- ond discon- nected timing. Then to TRMT.	NO disconnect timing, no GCOD Phone is idled imme- diately.

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
PPHONE	GCOD, then 10 sec- ond discon- nected timing. Then to TRMT.	GCOD, then 10 sec- ond discon- nected timing. Then to TRMT.	GCOD, then 10 sec- ond discon- nected timing. Then to TRMT.	NO disconnect timing, no GCOD Phone is idled imme- diately.

Table 6: Line to Line: Called Disconnect,, GCOD (Y 80 N), no COD.

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	3 sec STRD GCOD done on POTS, then to trmt.	2 sec timing GCOD, 10 sec dis- connected timing, then to TRMT.	2sec timing GCOD, 10 second discon- nected tim- ing, then to TRMT.	GCOD, then 10 sec- ond discon- nected timing, then to TRMT.
RES	3 sec STRD GCOD done on RES then to TRMT.	2 sec timing GCOD, 10 second discon- nected tim- ing, then to TRMT.	2 sec timing GCOD, 10 second discon- nected tim- ing, then to TRMT.	2 sec timing , GCOD, 10 second discon- nected tim- ing, then to TRMT.

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
IBN	3 sec STRD GCOD done on IBN then to TRMT.	2 sec timing GCOD, 10 second discon- nected tim- ing, then to TRMT.	2 sec timing GCOD, 10 second discon- nected tim- ing, then to TRMT.	2 sec timing GCOD, 10 second discon- nected tim- ing, then to TRMT.
PPHONE	No GCOD No TRD. Phone is immedi- ately idled.	No GCOD No TRD. Phone is immedi- ately idled.	No GCOD No TRD. Phone is immedi- ately idled.	No GCOD No TRD. Phone is immedi- ately idled.

Table 7: Line to Line: Called Disconnect, GCOD (Y 80 N), COD.

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	3 sec STRD COD done on POTS, then IDLE (Dial Tone).	COD, then IDLE (Dial Tone).	COD, then IDLE (Dial Tone).	COD, then IDLE (Dial Tone).
RES	3 sec STRD COD done on RES- then IDLE (Dial Tone).	COD, then IDLE (Dial Tone).	COD, then IDLE (Dial Tone).	COD, then IDLE (Dial Tone).
IBN	3 sec STRD COD done on IBN, then IDLE (Dial Tone).	COD, then IDLE (Dial Tone).	COD, then IDLE (Dial Tone).	COD, then IDLE (Dial Tone).

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
PPHONE	COD N/A No GCOD. NO timing Phone is immedi- ately idled.	COD N/A No GCOD. NO timing Phone is immedi- ately idled.	COD N/A No GCOD. NO timing Phone is immedi- ately idled.	COD N/A No GCOD, NO timing Phone is immedi- ately idled.

Table 8: Line to Line: Calling Disconnect, GCOD (Y 80 N),COD.

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	No TRD, COD done on POTS then IDLE (Dial Tone).	No TRD, COD done on RES then IDLE (Dial Tone).	No TRD, COD done on IBN then IDLE (Dial Tone).	COD N/A, No GCOD, no timing, Phone is immedi- ately idled.

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
RES	No TRD, COD done on POTS, then IDLE (Dial Tone),	No TRD, COD done on RES, then IDLE (Dial Tone).	No TRD, COD done on IBN, then IDLE (Dial Tone).	COD N/A, No GCOD, no timing, Phone is immedia- tely idled.
IBN	No TRD, COD done on POTS, then IDLE (Dial Tone).	No TRD, COD done on RES, then IDLE (Dial Tone).	No TRD, COD done on IBN, then IDLE (Dial Tone).	COD N/A, No GCOD, no timing, Phone is immedia- tely idled.
PPHONE	No TRD, COD done on POTS, then IDLE (Dial Tone).	No TRD, COD done on RES, then IDLE (Dial Tone).	No TRD, COD done on IBN, then IDLE (Dial Tone).	COD N/A, No GCOD, no timing, Phone is immedia- tely idled.

Table 9: Line to Line: Called Disconnect, GCOD (Y 80 Y), COD.

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	3 sec STRD COD done on POTS, then IDLE.	2 sec timing COD done on POTS, then IDLE.	2 sec timing COD done on POTS, then IDLE.	No TRD, COD done on POTS, then IDLE.
RES	3 sec STRD COD done on RES, then IDLE.	2 sec timing COD done on RES, then IDLE.	2 sec timing COD done on RES, then IDLE.	No TRD, COD done on RES, then IDLE.
IBN	3 sec STRD COD done on IBN, then IDLE.	2 sec timing COD done on IBN, then IDLE.	2 sec timing COD done on IBN, then IDLE.	No TRD, COD done on IBN, then IDLE.
PPHONE	No TRD, COD N/A, no GCOD. Phone is immediately idled.			

Table 10: Line to Line: Calling Disconnect, GCOD (Y 80 Y), COD.

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	No TRD, No timing COD done on POTS Then IDLE.	No TRD, 2 sec timing COD done on RES Then IDLE.	No TRD 2 sec timing COD done on IBN Then IDLE.	No TRD No timing COD N/A Immediate IDLE.
RES	No TRD 2 sec timing COD done on POTS. Then IDLE.	No TRD, 2 sec timing COD done on RES. Then IDLE.	No TRD, 2 sec timing COD done on IBN. Then IDLE.	No TRD No timing COD N/A Immediate IDLE.
IBN	No TRD 2 sec timing COD done on POTS, Then IDLE.	No TRD, 2 sec timing COD done on RES Then IDLE.	No TRD 2 sec timing COD done on IBN Then IDLE.	No TRD No timing COD N/A Immediate IDLE.
PPHONE	No TRD 2 sec timing COD done on POTS, Then IDLE.	No TRD, 2 sec timing COD done on RES. Then IDLE.	No TRD 2 sec timing COD done on IBN Then IDLE.	No TRD No timing COD N/A Immediate IDLE.

Table 11: ISUP Trunk to Line:Called Disconnect,GCOD (Y 80 N).

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	LTRD then GCOD followed by TRMT.	No TRD, GCOD followed by TRMT.	No TRD, GCOD followed by TRMT.	No TRD, GCOD followed by TRMT.
RES	LTRD then GCOD followed by TRMT.	2 sec timing then GCOD followed by TRMT.	2 sec timing then GCOD followed by TRMT.	No TRD GCOD followed by TRMT.
IBN	LTRD then GCOD followed by TRMT.	2 sec timing then GCOD followed by TRMT.	2 sec timing then GCOD followed by TRMT.	No TRD GCOD followed by TRMT.
PPHONE	No TRD No timing GCOD N/A immediately IDLE.	No TRD No timing GCOD N/A Immedi- ately IDLE.	No TRD No timing GCOD N/A Immedi- ately IDLE.	No TRD No timing GCOD N/A Immedi- ately IDLE.

Table 12: ISUP Trunk To Line:Calling Disconnect, GCOD (Y 80 N).

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	2 sec timing GCOD, 10 sec timing, TRMT.	2 sec timing GCOD, 10 sec timing, TRMT.	2 sec timing GCOD, 10 sec timing TRMT.	No timing GCOD N/A immediately IDLE.
RES	2 sec timing GCOD, 10 sec timing TRMT.	2 sec timing GCOD, 10 sec timing, TRMT.	2 sec timing GCOD, 10 sec timing TRMT.	No timing GCOD N/A immediately IDLE.
IBN	2 sec timing GCOD, 10 sec timing TRMT.	2 sec timing GCOD, 10 sec timing TRMT.	2 sec timing GCOD, 10 sec timing TRMT.	No timing GCOD N/A immediately IDLE.
PPHONE	2 sec timing GCOD, 10 sec timing TRMT.	2 sec timing GCOD, 10 sec timing TRMT.	2 sec timing GCOD, 10 sec timing TRMT.	No timing, GCOD N/A immediately IDLE.

Table 13: ISUP Trunk to Line:Called Disconnect, GCOD (Y 80 N) & COD.

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	LTRD, COD then IDLE.	2 sec timing COD then IDLE.	2 sec timing COD then IDLE.	2 sec timing COD then IDLE.
RES	LTRD GCOD, COD then IDLE.	2 sec timing COD then IDLE.	2sec timing COD then IDLE.	2 sec timing COD then IDLE.
IBN	LTRD GCOD COD then IDLE.	2 sec timing COD then IDLE.	2 sec timing COD then IDLE.	2 sec timing COD then IDLE.
PPHONE	No TRD No timing Immediate IDLE.	No TRD No timing Immediate IDLE.	No TRD No timing Immediate IDLE.	No TRD No timing Immediate IDLE.

Table 14: ISUP trunk to Line: Calling Disconnect, GCOD (Y 80 Y) & COD.

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	2 sec timing COD then IDLE.	2 sec timing COD then IDLE.	2sec timing COD then IDLE.	No timing COD N/A Immediate IDLE.
RES	2 sec timing COD then IDLE.	2 sec timing COD then IDLE.	2 sec timing COD then IDLE.	No Timing COD N/A Immediate IDLE.
IBN	2 sec timing COD then IDLE.	2 sec timing COD then IDLE.	2 sec timing COD then IDLE.	No Timing COD N/A Immediate IDLE.
PPHONE	2 sec timing COD then IDLE.	2 sec timing COD then IDLE.	2 sec timing COD then IDLE.	No timing COD N/A Immediate IDLE.

Table 15: ISUP Trunk To LIne: Called Disconnect, GCOD (Y 80 Y)

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	LTRD GCOD then TRMT.	No TRD GCOD then TRMT.	No TRD GCOD then TRMT.	No TRD GCOD then TRMT.
RES	LTRD GCOD then TRMT.	2 sec timing GCOD then TRMT.	2 sec timing GCOD then TRMT.	2 sec timing GCOD then TRMT.
IBN	LTRD GCOD then TRMT.	2 sec timing GCOD then TRMT.	2 sec timing GCOD then TRMT.	2 sec timing GCOD then TRMT.
PPHONE	No TRD No timing Immediate IDLE (D.T.)			

Table 16: ISUP Trunk To Line:Calling Disconnect, GCOD (Y 80 Y)

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	10 sec timer (delay) GCOD then TRMT.	10 sec timer (delay) GCOD then TRMT.	10 sec timer (delay) GCOD then TRMT.	No timer. GCOD N/A Immediate IDLE.
RES	10 sec timer (delay bool) GCOD then TRMT.	10 sec timer (delay bool) GCOD then TRMT.	10 sec timer (delay bool) GCOD then TRMT.	No TImer GCOD N/A Immediate IDLE.
IBN	10 sec timer (delay bool) GCOD then TRMT.	10 sec timer (delay bool) GCOD then TRMT.	10 sec timer (delay bool) GCOD then TRMT.	No timer GCOD N/A Immediate IDLE.
PPHONE	10 sec timer (delay bool) GCOD then TRMT.	10 sec timer (delay bool) GCOD then TRMT.	10 sec timer (delay bool) GCOD then TRMT.	No timer GCOD N/A Immediate IDLE.

Table 17: ISUP Trunk To Line:Called Disconnect, GCOD (Y 80 Y) & COD

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	LTRD, COD, then IDLE.	2 sec timing COD, then IDLE.	2 sec timing COD, then IDLE.	2 sec timing COD, then IDLE.
RES	LTRD, GCOD, COD, then IDLE.	2 sec timing COD, then IDLE.	2 sec timing COD, then IDLE.	2 sec timing COD, Then IDLE.
IBN	LTRD, GCOD, COD, then IDLE.	2 sec timing COD, then IDLE.	2 sec timing COD, then IDLE.	2 sec timing COD, then IDLE.
PPHONE	No TRD, COD N/A Immediate IDLE.	No TRD, COD N/A Immediate IDLE.	No TRD, COD N/A Immediate IDLE.	No TRD, COD N/A Immediate IDLE.

Table 18: ISUP Trunk to Line: Calling Disconnect, GCOD (Y 80 Y),COD

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	2 sec timing COD, then IDLE.	2 sec timing COD, then IDLE.	2 sec timing COD, then IDLE.	No timing COD N/A Immediate IDLE.
RES	2 sec timing COD, then IDLE.	2 sec timing COD, then IDLE.	2 sec timing COD, then IDLE.	No timing COD N/A Immediate IDLE.
IBN	2 sec timing COD, then IDLE	2 sec timing COD, then IDLE.	2 sec timing COD, then IDLE.	No timing COD N/A Immediate IDLE.
PPHONE	2 sec timing COD, then IDLE	2 sec timing COD, then IDLE	2 sec timing COD, then IDLE	No timing COD N/A Immediate IDLE.

Table 19: IBN MF Trunk To Line:Called Disconnect, GCOD (Y 80 N)

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	STRD, GCOD, then TRMT	STRD, GCOD, then TRMT	STRD, GCOD, then TRMT	2 sec timer GCOD, then TRMT.
RES	STRD, GCOD, then TRMT.	STRD, GCOD, then TRMT.	STRD, GCOD, then TRMT.	2 sec timer GCOD, then TRMT.
IBN	STRD, GCOD, then TRMT.	STRD, GCOD, then TRMT.	STRD, GCOD, then TRMT.	2 sec timer GCOD, then TRMT.
PPHONE	No STRD GCOD N/A Immediate IDLE.	No STRD GCOD N/A Immediate IDLE.	No STRD GCOD N/A Immediate IDLE.	No STRD GCOD N/A Immediate IDLE.

Table 20: IBN MF Trunk To Line: Calling Disconnect, GCOD (Y 80 N)

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	No TRD, GCOD, 10 sec timing, then TRMT.	No TRD, GCOD, 10 sec timing, then TRMT.	No TRD, GCOD, 10 sec timing, then TRMT.	No TRD, GCOD N/A Immediate IDLE.
RES	2 sec timer, GCOD, 10 sec timer then TRMT.	No TRD, GCOD, 10 sec timing, then TRMT.	No TRD, GCOD, 10 sec timing, then TRMT.	No TRD, GCOD N/A Immediate IDLE.
IBN	2 sec timer, GCOD, 10 sec timer then TRMT.	No TRD, GCOD, 10 sec timing, then TRMT.	No TRD, GCOD, 10 sec timing, then TRMT.	No TRD, GCOD N/A Immediate IDLE.
PPHONE	No TRD, GCOD, 10 sec timing, then TRMT.	No TRD, GCOD, 10 sec timing, then TRMT.	No TRD, GCOD, 10 sec timing, then TRMT.	No TRD, GCOD N/A Immediate IDLE.

Table 21: IBN MF Trk. To Line: Called Disconnect, GCOD (Y 80 N),COD

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	STRD, GCOD, COD, then IDLE.	STRD, GCOD, COD, then IDLE.	STRD, GCOD, COD, then IDLE.	STRD, GCOD, COD, then IDLE.
RES	STRD, GCOD, COD, then IDLE.	STRD, GCOD, COD, then IDLE.	STRD, GCOD, COD, then IDLE.	STRD, GCOD, COD, then IDLE.
IBN	STRD, GCOD, COD, then IDLE.	STRD, GCOD, COD, then IDLE.	STRD, GCOD, COD, then IDLE.	STRD, GCOD, COD, then IDLE.
PPHONE	No TRD, GCOD N/A COD N/A Immediate IDLE.			

Table 22: IBN MF Trk. To Line: Calling Disconnect, GCOD (Y 80 N),COD

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	No TRD COD, then IDLE.	No TRD COD, then IDLE.	No TRD COD, then IDLE.	No timing COD N/A GCOD N/A Immediate IDLE.
RES	2 sec timing COD, then IDLE.	2 sec timing GCOD COD, then IDLE.	2 sec timing GCOD COD, then IDLE.	No timing COD N/A GCOD N/A Immediate IDLE.
IBN	2 sec timing COD, then IDLE.	2 sec timing GCOD COD, then IDLE.	2 sec timing GCOD COD, then IDLE.	No timing COD N/A GCOD N/A Immediate IDLE.
PPHONE	2 sec timing COD, then IDLE.	2 sec timing GCOD COD, then IDLE.	2 sec timing GCOD COD, then IDLE.	No timing COD N/A GCOD N/A Immediate IDLE.

Table 23: IBN MF Trk to Line: Called disconnect, GCOD (Y 80 Y),COD

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	STRD, GCOD, COD, then IDLE.	STRD, COD, then IDLE.	STRD, COD, then IDLE.	STRD, GCOD, COD, then IDLE.
RES	STRD, GCOD, COD, then IDLE.	STRD, GCOD, COD, then IDLE.	STRD, GCOD, COD, then IDLE.	STRD, GCOD, COD, then IDLE.
IBN	STRD, GCOD, COD, then IDLE.	STRD, GCOD, COD, then IDLE.	STRD, GCOD, COD, then IDLE.	STRD, GCOD, COD, then IDLE.
PPHONE	No TRD GCOD N/A COD N/A Immediate IDLE.			

Table 24: IBN MF Trk To Line: Calling Disconnect, GCOD (Y 80 Y),COD

Row: originator Column: Terminator	POTS	RES	IBN	PPHONE
POTS	2 sec timing COD, then IDLE.	2 sec timing COD, then IDLE.	2 sec timing COD, then IDLE.	No timing, COD N/A, Immediate IDLE.
RES	2 sec timing COD, then IDLE.	2 sec timing COD, then IDLE.	2 sec timing COD, then IDLE.	No timing, COD N/A, Immediate IDLE.
IBN	2 sec timing COD, then IDLE.	2 sec timing COD,then IDLE.	2 sec timing COD, then IDLE.	No timing, COD N/A, Immediate IDLE.
PPHONE	2 sec timing COD, then IDLE.	2 sec timing COD, then IDLE.	2 sec timing COD, then IDLE.	No timing, COD N/A, Immediate IDLE.

DMS 100 Family

Disconnect On The DMS 100

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