Octel 200/300

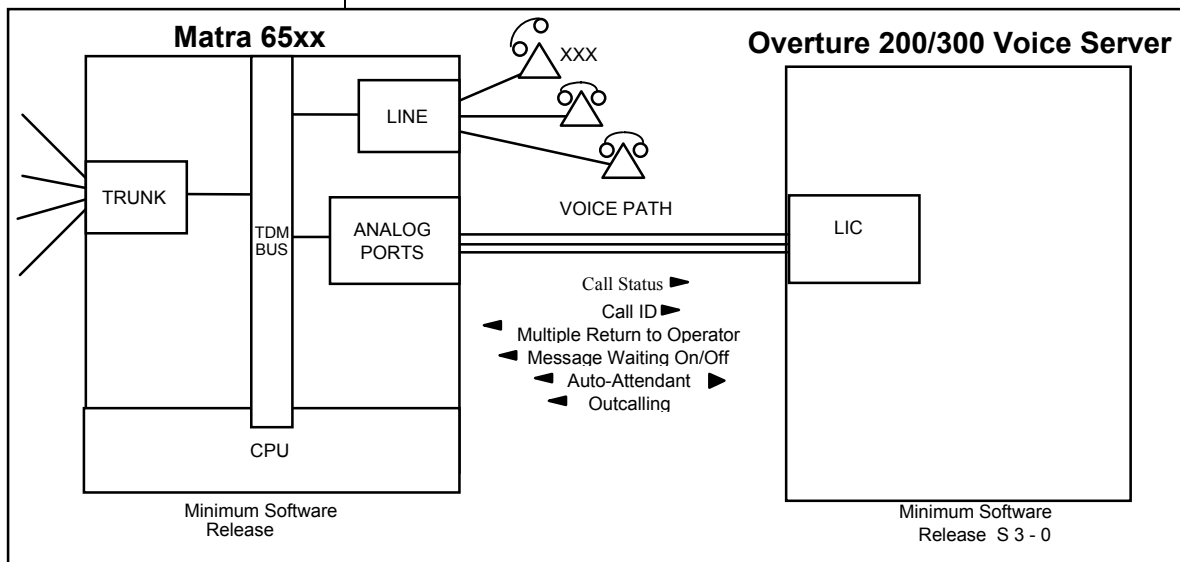**Message Server**

Configuration Note 6109 - Revision C (03/01)

Matra 65xx series.

DTMF in band Integration using the

Matra "Europe Protocol Q23"

1.0   METHOD OF INTEGRATION

With Overture in-band integration, one pathway between the PBX and the Octel system transmits both call information and voice communications. The pathway is provided by 2-wire analog single-line circuits that connect to Overture LIC cards in the Octel system. The LIC cards simulates a 2-wire analog line. The Matra 65xx series uses Enhanced DTFM In-band Integration which expands the capability of the Octel beyond an interfaced or standard integrated environment. The PBX is equipped to send DTMF call records to identify the called and calling parties as well as a call status in a form of Call Progress Tones (CPT).These DTMF code sequences are used to replace normal telephony cadence tones. This also means that the detection of Call Progress Indication (CPI) is a great deal faster. Appendix A lists the different call types of CPT. The Octel system answers and plays the appropriate greeting. Message-waiting indication is set and canceled using DTMF commands over the same pathway.

Method of integration

Octel ordering information

2.0   OCTEL ORDERING INFORMATION

2.1 VOICEMAIL SOFTWARE

- Serenade 3.0 (or higher)
- COD DSP ports
- Software Features X0031 (Adaptive Integration Package)

2.2 VOICE MAIL HARDWARE

- LIC4E or LIC8E (4 or 8 port card) or,
- D-LIC16 (16 port card) or,
- I-LIC12 (12 port card which can support Earth & Loop recall)
- Line cables (one per Lic card)

PBX requirements

3.0 PBX REQUIREMENTS

3.1 PBX HARDWARE

- Matra Models :

    Matra 6501: 104 users maximum
    Matra 6504: 576 users maximum
    Matra 6550: 20,000 users maximum

    Station Interface (One VM Port)
    Matra 6501: LA4 LA8 linecard
    Matra 6504 & 6550:
    LAB linecard (16 ports)
    LAF linecard (16 ports)
    LAE linecard (32 ports)

3.2 PBX SOFTWARE

- Software V8.6 or V11.3 or higher

Supported integration features

4.0 SUPPORTED INTEGRATION FEATURES

- Forward to Personal Greeting - Internal & External calls
  -All calls
  -Busy
  -Ring-no-answer

- Check mailbox exists when forwarding a extension to VM

- Specific call transfer to an extension forwarded voicemail
      See Considerations chapter 11.0.2

- Message-waiting

- Message notification

- Quick Log on - Standard

- Quick Log on - Enhanced (which Includes Mailbox Password)

- Multiple Greeting

- Multiple return-to-operator

- Direct Call

- Outcalling

- Auto Attendant

- Feature code for direct access to any extension's personal greeting - See Considerations chapter 11.0.3

- Centralized voicemail : all integration features supported

Configuring the pbx to integrate

5.0   CONFIGURING THE PBX TO INTEGRATE

5.1   Message Waiting Indication

- Analogue and digital sets - Stuttered dial tone
- Digital display -
"VEUILLEZ RAPPELER VOTRE BOITE VOCALE"

It is possible to setup any configurable feature key on the digital phone as 'voicemail' access. The lamp associated to this key will light when MWI is ON.

5.2   Quick logon

- Can be accessed any time by pressing the voicemail key

- **VOICEMAIL HUNT GROUP INITIATION (example for F3/F4 range)**

  Here, hunt group call number is 4795

COMMANDE DESIREE :   *XGRABO*

              GROUPEMENTS D"ABONNES TELEPHONIQUES   (Ctrl H : Help)

Objet=**Tete de groupement**   Action=Visualisation
--------------------------------TETE DE GROUPEMENT--------------------------------
Numero d"abonne du groupement=**4795..**   Societe=0..   Service=0..
Type de groupement= **Cyclique**   Tete de groupement=**Normal**Type de poste=Normal

Type de l''abonne= **Mono_Usager**   Service support=Parole
Plans : P_1 =Non =......   P_2 =Non =*   P_3 =Non =*   P_4 =Non =*
(*=Inex.)P_5 =Non =*   P_6 =Non =*   P_7 =Non =*   P_8 =Non =*
------------------------------------CARACTERISTIQUES---------------------------------
Categorie : jour=40 nuit=40   Categorie lia : jour=40 nuit=40
Classe de facilites=40
Classe de priorite=..   Classe de cloisonnement : Depart=..
Arrivee=..
Renvoi predetermine=Non programme   Numerotation=.................

- **VOICEMAIL HUNT GROUP MEMBERS INITIATION (example for F3/F4 range)**

  Here, hunt group members are 5790 and 5791

COMMANDE DESIREE :   *XGRABO*

GROUPEMENTS D''ABONNES TELEPHONIQUES   (Ctrl H : Help)
Objet=**Abonnes du groupement**   Action=Visualisation
-------------------------------TETE DE GROUPEMENT-----------------------------
Numero d''abonne du groupement=**4795**..   Societe=0..Service=0..Page=Premiere
Tete de groupement=**Normal**   Type de groupement=**Cyclique**

UCG=3. Numero abonne=**5790**.. Etat=Actif UCG=3. Numero abonne=**5791**.. Etat=Actif
UCG=.. Numero abonne=...... Etat=???   UCG=.. Numero abonne=...... Etat=???
UCG=.. Numero abonne=...... Etat=???   UCG=.. Numero abonne=...... Etat=???
UCG=.. Numero abonne=...... Etat=???   UCG=.. Numero abonne=...... Etat=???
UCG=.. Numero abonne=...... Etat=???   UCG=.. Numero abonne=...... Etat=???
UCG=.. Numero abonne=...... Etat=???   UCG=.. Numero abonne=...... Etat=???
UCG=.. Numero abonne=...... Etat=???   UCG=.. Numero abonne=...... Etat=???
UCG=.. Numero abonne=...... Etat=???   UCG=.. Numero abonne=...... Etat=???
UCG=.. Numero abonne=...... Etat=???   UCG=.. Numero abonne=...... Etat=???
UCG=.. Numero abonne=...... Etat=???   UCG=.. Numero abonne=...... Etat=???
UCG=.. Numero abonne=...... Etat=???   UCG=.. Numero abonne=...... Etat=???
UCG=.. Numero abonne=...... Etat=???   UCG=.. Numero abonne=...... Etat=???
UCG=.. Numero abonne=...... Etat=???   UCG=.. Numero abonne=...... Etat=???
UCG=.. Numero abonne=...... Etat=???   UCG=.. Numero abonne=...... Etat=???

- **CONFIGURATION OF VOICEMAIL PORTS (example for F3/F4 range)**

  Here, configuration of port 5790

  COMMANDE DESIREE :   *XLIGAB*

      ABONNES TELEPHONIQUES   (Ctrl H : Help)

Objet=**Abonne Telephonique**   Action=Visualisation
---------------------------------IDENTITE DE L"ABONNE--------------------------------
Maint automatique=OUI   Numero d"abonne=**5790**..
Numero de site=1..
Grappe=3.   Carte=3.   Voie=0.   Cellule de reference=...
Type de l"abonne=**Mono_usager**   Societe=0..   Service=0..
                                                    Postes associes=NON

Type de poste=**Repondeur Q23**
Langues messages : Vocaux =....
Plans : P_1 =NON =......   P_2 =NON =*   P_3 =NON =*   P_4 =NON =*
(*=Inex.)P_5 =NON =*   P_6 =NON =*   P_7 =NON =*   P_8 =NON =*
--------------------------CARACTERISTIQUES DE L"ABONNE-----------------------
-
Categorie : jour=0. nuit=0.   Categorie lia : jour=0. nuit=0.
Classe de facilites=0.
Classe de priorite=..   Classe de cloisonnement :Depart=.. Arrivee=..
Groupes intercom. :   =...   =…   Groupes de renvoi   =...   =...
Renvoi predetermine   =NON   Numerotation=.................
Ligne JOUR   =NON   Numerotation=.................
Ligne NUIT   =NON   Numerotation=.................
Effacement du mot de passe=NON   Effacement du mess. depose=NON
                                        Service support=Parole

- **CONFIGURATION OF VOICEMAIL DTMF CALL RECORD (example for F3/F4 range)**

  Check of all DTMF call records
  Example for forwarded call call record:

   COMMANDE DESIREE :   *XMEVOC*
        MESSAGERIE VOCALE   (Ctrl H : Help)
Objet=Messagerie vocale Q23   Action=Visualisation

        Type de code=**Facilite emise vers la messagerie**

        Facilite   =Appel simple   Code Q23=**B21**.......

- **Example for MWI ON**

     COMMANDE DESIREE :   *XMEVOC*

        MESSAGERIE VOCALE   (Ctrl H : Help)
Objet=Messagerie vocale Q23   Action=Visualisation

     Type de code=**Facilite recue de la messagerie**

     Facilite   =Depot de message   Code Q23=**C1**........

- **List of call records sent to voicemail:**

  Séquences émises vers la messagerie

- APPEL SIMPLE	B21
- DOUBLE APPEL	B22
- TRANSFERT	B23
- CONSULTATION APPEL INTERNE	B42
- CONSULTATION APPEL EXTERNE	B41
LECTURE DIRECTE BOITE VOCALE	B43#0000#5

  (Enhanced quick logon, here 0000 is the general password sent over the call record)

- SUPERVISION	B70
- DEMANDE DE RENVOI	B51
- MISE A L'HEURE	B62

- **List of call records received from voicemail:**

  Séquences reçues de la messagerie

- PRESENCE DE MESSAGES	C1
- ABSENCE DE MESSAGES	C2
- PRESENCE DE BOITE VOCALE	C51
- ABSENCE DE BOITE VOCALE	C52
- SUPERVISION	C70
- DEMANDE DE MISE A L'HEURE	C61#

- **CHECKING CONFIGURATION OF ENHANCED QUICK LOGON**

  COMMANDE DESIREE :   *XSERVI*

  ```
          GESTION DES SERVICES                    (Ctrl H : Help)
  Objet=Service                            Action=Visualisation
  Sous-objet=MESSAGERIE VOCALE
  ----------------------------- ACCES A UN SERVICE -----------------------------
  Grappe modele=3.

  ----------------------------- DONNEES DU SERVICE -----------------------------


      1 :                 Site=1..        Grappe=3.
      2 :                 Site=...        Grappe=..
      3 :                 Site=...        Grappe=..
      4 :                 Site=...        Grappe=..
      5 :                 Site=...        Grappe=..
      6 :                 Site=...        Grappe=..
      7 :                 Site=...        Grappe=..
      8 :                 Site=...        Grappe=..
  ```

Numero annuaire=**4795**..   Commande lecture directe BV=**B43#0000#5**..........

      Compte rendu=O.K.

Programming forward to personal greeting

6.0   PROGRAMMING FORWARD TO PERSONAL GREETING

6.1   Default PBX feature access codes **:**

- **Immediate or All Calls**, will forward all calls.

Immediate Activation   *** 25**

Activation Code   *** 21** *xxxx*

Deactivation Code   **# 21**

- **Ring-no-Answer,** will divert a call if the user does not answer their phone within a specified time.

Immediate Activation   *** 26**

Activation Code   *** 22** *xxxx*

Deactivation Code   **# 22**

- **Busy Diversion,** will divert calls to a specified extension when the user is on the phone.

Immediate Activation   *** 27**

Activation Code   *** 23** *xxxx*

Deactivation Code   **# 23**

- **Cancel ALL Diverts   # 20**

Note : where *xxxx* denotes the Octel Pilot Number.

6.2   Digital handsets**.**

These sets have specific feature keys which give access to a menu that gives more forwarding options to the user :-

- All calls,
- Ring No Answer
- Busy :
    - Forward Internal calls only

- Forward External calls only
- Forward Internal and External calls.

The digital display will show the current forwarding condition.

Example of forwarding all calls :

"MSG VOC POUR TOUT APPEL"   ALL CALLS
"MSG VOC POUR TOUT APPEL INTERIEUR"   ALL CALLS INTERNAL
"MSG VOC POUR TOUT APPEL EXTERIEUR"   ALL CALL EXTERNAL

Other PBX voicemail codes :-

- Direct access to any extension's personal greeting

    Activation Code *54 or 19

    PBX Feature 'Appel répodeur'

- Enhanced Quick Log on

    Activation Code *53

    PBX feature 'Appel direct boite vocale'

Configuring the Octel System

7.0   CONFIGURING THE OCTEL SYSTEM

7.1   SYSTEM PARAMETERS

7.1.1   PBX RELATED

Index 3   PBX Type   - **MATRA**
                 PBX Model   - **MATRA**

NB. Index 3 will default many of the System Parameters listed below

Index 9	Flash Time (msec)	=	270
Index 13	Transfer Initiate code	=	FE
	RE-CONNECT code After NO Answer	=	FE1
	RE-CONNECT code After Busy	=	F
	RE-CONNECT code After Fast Busy	=	F
	Transfer Complete code	=	D
Index 16	Alternate Transfer Initiate Code	=	FE
	Alternate re-connect code After No Answer	=	FE1
	Alternate re-connect code After Busy	=	F
	Alternate re-connect code After Fast Busy	=	F
	Alternate Transfer complete code	=	D
Index 26	Double-Interrupted Ring back	=	NO
Index 28	"D" Char delay time (msec.)	=	500
Index 33	PBX Initialize code	=	E
Index 45	System-Reload Forward string	=	NONE
Index 46	System-Reload Cancel-Forward string	=	NONE
Index 51	RS - 232 Integration with PBX	=	NO
Index 77	PBX Provides Momentary Disconnect	=	YES
Index 85	Reconnect code after 3rd Party Hang-up	=	F
Index 111	Dial Extension after Reconnect code	=	NO
Index 117	Ringbacks before answering AX port	=	1 (note 1)
Index 206	Hang-up on Glare Detection	=	NO
Index 207	No Tone Detect means Bad line instead of Ans.		NO
Index 272	Is Initial dial tone expected Stuttered	=	NO
Index 289	DTMF CPT digits for Internal Busy	=	A6
	DTMF CPT digits for Internal FastBusy	=	A6
	DTMF CPT digits for Internal Ring	=	A2
	DTMF CPT digits for Internal Answer	=	A5
Index 290	DTMF CPT digits for External Busy	=	A6
	DTMF CPT digits for External Ring	=	A2
	DTMF CPT digits for External answer	=	A5
Index 291	DTMF CPT digits for Dial Tone Indication	=	A1
Index 292	DTMF CPT digits for hang-up Notification	=	A6

NOTE 1: This sysp must be set to 1 when PBXs are networked together . If not, it can cause   intermittent calls failures (PBX will never send DTMF information). Trace is indicating NO_RECORD

7.1.2   MESSAGE WAITING SETTINGS

- Four new system parameters 309 - 312 are added to allow the configuration of MWI commands to include the DTMF digits 'A', 'B', 'C', 'D'.

- When system parameters 3 is set to Matra - Matra, System parameters 79 - 82 will not be defined.

Index 79	Over ridden by Index 309
Index 80	Over ridden by Index 310
Index 81	Over ridden by Index 311
Index 82	Over ridden by Index 312

Index 309	ENHANCED LAMP MWI "ON" PRE-EXTENSION DIGITS = **C1**
Index 310	ENHANCED LAMP MWI "ON" POST-EXTENSION DIGITS = **#**
Index 311	ENHANCED LAMP MWI "OFF" PRE-EXTENSION DIGITS = **C2**
Index 312	ENHANCED LAMP MWI "OFF" POST-EXTENSION DIGITS = **#**

7.3   DTMFINT TABLE.

DTMFINT Table:

Format 1   **Call Type: 15   (Check Mailbox)**
1:                          B51
2:                          DEST (VAR, #)

Format 2   **Call Type: 16   (Mailbox Exists Reply)**
1:                          C51
2:                          DEST (VAR,#)

Format 3   **Call Type: 17   (Mailbox Does Not Exist Reply)**
1:                          C52
2:                          DEST (VAR, #)

Format 4   **Call Type: 8   (Forwarded Internal)**
1:                          B21
2:                          DEST (VAR, #)

Format 5   **Call Type: 13   (Transfer to Forwarded Extension)**
1:                          B22
2:                          DEST (VAR, #)

Format 6   **Call Type: 8   (Forwarded Internal)**
1:                          B23

```
2:                    DEST (VAR, #)

Format 7            Call Type: 1   (Direct External)
1:                    B41

Format 8            Call Type: 12   (Auto Log on)
1:                    B42
2:                    SOURCE (VAR, #)

Format 9            Call Type: 14   (Direct Message Access)
1:                    B43
2:                    SOURCE (VAR, #)
3:                    MISC (VAR, #)
4:                    MISC (FIX ,1, #, T)

Format 10           Call Type: 18   (Link Supervision Request)
1:                    B70
2:                    MISC (VAR, #)

Format 11           Call Type: 19   (Link Supervision Reply)
1:                    C70
2:                    MISC (VAR, #)
```

7.4   SLOTS TABLE.

Configure the SLOTS Table per LIC card as required.
DTMF In-band ports should be configured as an AX mode port.
Ensure that the COS Assigned to the Ports has Attribute 68 & 143
assigned.
Enter into the Extension field the corresponding PBX extension
number assigned to each voicemail port (for information only, not
used by the voicemail system).
No need to dedicate MX ports (see Considerations chapter 11.0.3).

7.5   COS TABLE

Add Attribute 9 to COS for sets with Message Waiting Lamps and
Attribute 89 for Auto logon to Mailbox.

7.6 PORT COS TABLE

A new COS Attribute will be added to enable / disable the DTMF sequence recognition as CPT on a per port basis. This attribute is to be added to the port COS to enable DTMF detection of the CPT tones. This COS attribute follows the same approach as currently implemented for COS 62 (This port uses Standard Integration) and 68 (This port is DTMF Integrated).

Attribute 143 and 68 to all <u>Port COS</u>.

7.7 USER TABLE

All extension numbers configured for In-band Integration must match the mailbox number, therefore, shared extensions with different mailbox numbers are not allowed.

7.8 APPLICATION DELAY TABLE

Application Delay index 141.
The Matra 6500 PBX models do not provide ring-back tone to voice mail ports if the called number is ringing, making it impossible to count ring-back to determine Ring-No-Answer (RNA). In order to overcome this problem, application delay index 141 is to be used which will define the duration of one ring in milli-seconds units. In the case of internal calls, the value of the information table index 7 (number of rings before extension no answer) multiplied by the duration of one ring will give the time-out for RNA. In the case of message waiting outcalls, information table index 8 (number of message waiting rings) will be used to compute the time-out value for RNA.

Application Delay index 142.

Application delay 142 will be used to define the maximum time the Octel server will wait for the call transferring party to hang-up so that the transfer to an extension forward to Message Server is complete.

Application Delay index 111.

Application delay 111 will be used to indicate how long to wait after receiving the first DTMF CPT for the subsequent DTMF digits.

- Index 141 Default = 5000 msec

- Index 142 Default = 30000 msec
- Index 111 Default = 1500 msec

Application Delay index 123

Time to wait for answer. In a CPT environment, the PBX does not provide ringing condition immediately, we must wait longer than Application delay 51, before we consider the call answered. With this application delay, the timeout is longer to wait ANSWER CPT Code.

- Index 123 Default = 30000

Installing the Line Interface Cards

8.0   INSTALLING THE LINE INTERFACE CARDS

Each LIC supports either 4,8,12 or 16 set appearances. Each LIC port connects to the PBX via the 25 pair connector at the rear of the Octel system. Connect each equipped port to the PBX. Ensure that all Yellow LED's on the LIC cards are extinguished.

Testing the Installation

9.0   TESTING THE INSTALLATION

9.0.1   Create two mailboxes associated with two test extensions. Record a name and personal greeting for each mailbox. Put a different security code on each mailbox.

9.0.2   Call forward the test extensions to the Octel system access number.

9.0.3   Using one test extension, call the Octel Pilot extension number. You should hear "To enter your mailbox, press #".
Press #,#. You should hear "Please enter your security code". Enter the security code and verify that the correct mailbox has been accessed.

9.0.4   Using one test extension, call the other test extension. You should hear the personal greeting.

9.0.5   Leave a message. Verify that the message waiting indicator turns on.

9.0.6   Verify that transfer to attendant works properly.

9.0.7   Call the voice-processing module from a test extension. Log onto the mailbox.

9 .0.8   Review the message in the mailbox.

9 .0.9 Delete the message. Verify that the message waiting indicator turns off

9 .1 Other useful tests.

9 .1.1 Make a direct External call. Hear company greeting.

9 .1.2 Alarm call test to a local extension.

9 .1.3 Alarm call to an external number. Ensure that the PBX allows access to the Public network on the Voicemail ports.

9 .1.4 Make a call into Voicemail and get Company Greeting. Transfer a call to a local extension and test the conditions of answer, no answer, busy, re-divert back into voicemail.

Important notes regarding this integration

10.0 Considerations

Before you start the integration, With PBX from F3/F4 range and started in version before v8.6,, contact the local MATRA-NORTEL TAC center (for FRANCE : Bois d'Arcy : +33 1.34.60.8000) to check the configuration of the tones tables .

10.1 When a divert is set up to the Octel, the Matra PBX will setup call to the server to perform a mailbox check. If no mailbox exists then the divert cannot take place.
NB Specific call record received call type 15

10.2 Specific call transfer to a extension forwarded to voicemail
When an user tries to transfer a call to an extension which diverts into voicemail, the transferring extension will hear 'bleeps' to let him know that they must go on hook to complete the transfer. The greeting will only start when the transfer is complete. This way the caller is able to listen to the whole greeting.
NB Specific call records received call type 13 followed by type 8.

10.3 Direct access to any user's personal greeting without the need for MX ports - PBX Code *53 *Ext. Number*. The extension is not configured with any forwarding. After the call has been answered, a attempt to transfer to an extension which does not answer or is busy, reconnection is made to the caller who now wishes to leave a message. Dial *53 *Ext. Number* and hang-up only when the voicemail answers with 'bleeps'.

10.4 Enhanced Quick Logon (includes Mailbox Password).
This automatically sends your default password and a 5 which queues the first message for playing without any action by the user.

Appendix A

Appendix A - CALL PROGREE TONES

Called extension available (ringing)	A2 + Silence
Called extension goes off hook	A5
Called extension is busy	A6 + Silence
Called extension is invalid	A6 + Silence
Dial tone (off-hook / flash-hook)	A1
Caller hang-up	A6
Called number available (external)	A2
Called number goes of hook (external)	A5
Called number is busy (external)	A6

Appendix B

Appendix B - CALL TRACE

The Call Processing Trace will be modified.

To add a new trace types

- **INTGQRY**   - PBX query call record types.
- **INTGREP**   - PBX reply call record types.

To add the following new trace sub-types:

- **CHKMBXQRY** - PBX query to check the existence of a mailbox.
- **CHKMBXYES** - Reply "YES" to the check mailbox query.
- **CHKMBXNO** - Reply "NO" to the check mailbox query.
- **LINK_REQ** - PBX query to check the link authorization.
- **LINK_REP** - Reply to the link supervision query.
- **DIRMSGACC** - Direct message access call type.
- **XFREXTFWD** - Transfer to forwarded extension call type.

The mailbox security code received as part of the Direct Message Access call packet (call type 14) will not be traced in the CPT. This is against the convention that we do trace all the DTMF digits received as part of call packet.