

Alcatel-Lucent OmniPCX Enterprise Communication Server

TA-MMK (MMK V2)



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- 89/336/CEE (concerning electro-magnetic compatibility)
- 73/23/CEE (concerning electrical safety)
- 1999/5/CE (R&TTE)



TA-MMK (MMK V2)

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1.1 General

The PAC/MAC (4049/4059) terminal is a graphical application enabling all attendant console functions to be activated on a monitor (CRT or LCD) or compatible PC. This application is equipped with an Alcatel-Lucent-specific MMK (MultiMedia Keyboard) enhancing the attendant workstation.

The terminal is connected to an Alcatel-Lucent OmniPCX Enterprise Communication Server via the TA-MMK unit. This unit contains all the hardware and software required to ensure the link between the attendant console and the Alcatel-Lucent OmniPCX Enterprise CS.

From R3.2, this unit is common to both the Alcatel 4049 PAC and the Alcatel 4059 MAC. It replaces the TA-MAC V1 (3AK17095AB) and is also called the TA-MMK V2.

1.1.1 TA-PAC function

When used by the Alcatel 4049 PAC application, the TA-MMK is connected to a CRT or LCD monitor. It is also called TA-PAC.

The Alcatel 4049 PAC comprises:

- a Terminal Adaptater unit (TA-MMK) powered by the Alcatel-Lucent OmniPCX Enterprise CS ,
- a PC compatible MMK keyboard with audio functions. This keyboard is powered by the TA-MMK (the "keyboard / TA-MMK" cable is an integral part of the keyboard),
- a VGA CRT or LCD screen powered from the mains (the "monitor / TA-MMK" cable is an integral part of the monitor).

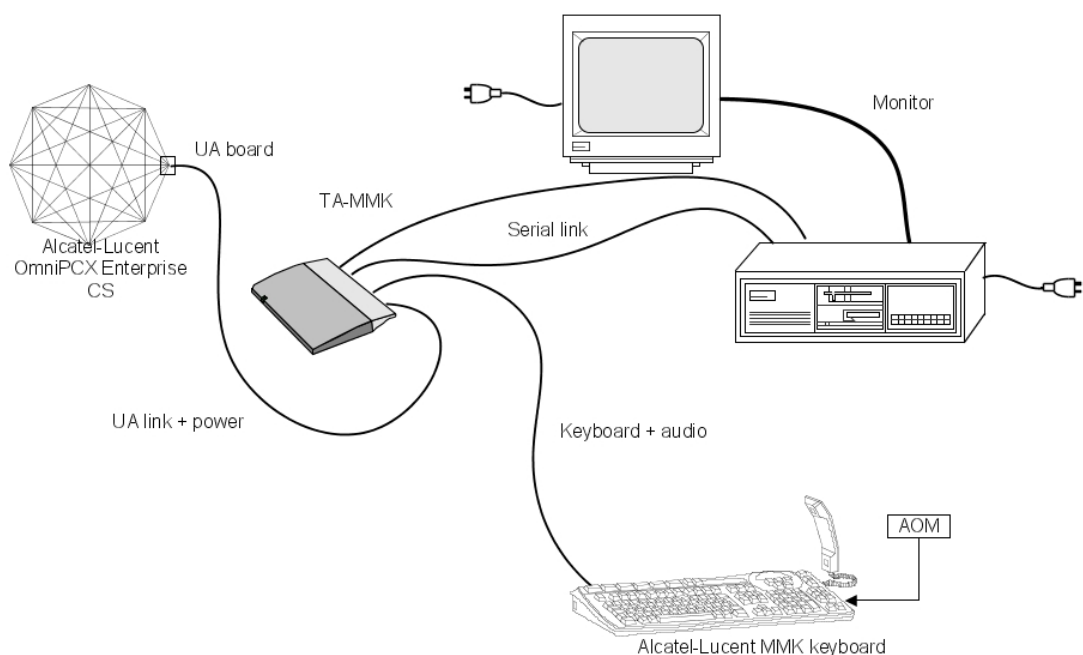


Figure 1.1: standard PAC configuration

Caution:

the AOM extension keyboard must be a 40-key keyboard.

1.1.2 TA-MAC function

When used by the Alcatel 4059 MAC application, the TA-MMK is connected to a PC. It is also called TA-MAC.

The Alcatel 4059 MAC comprises:

- a Terminal Adaptater unit (TA-MMK) powered by the Alcatel-Lucent OmniPCX Enterprise CS,
- a PC compatible MMK keyboard with audio functions. This keyboard is powered by the TA-MMK,
- a PC with its own VGA screen,
- cables used for connection to the PC.

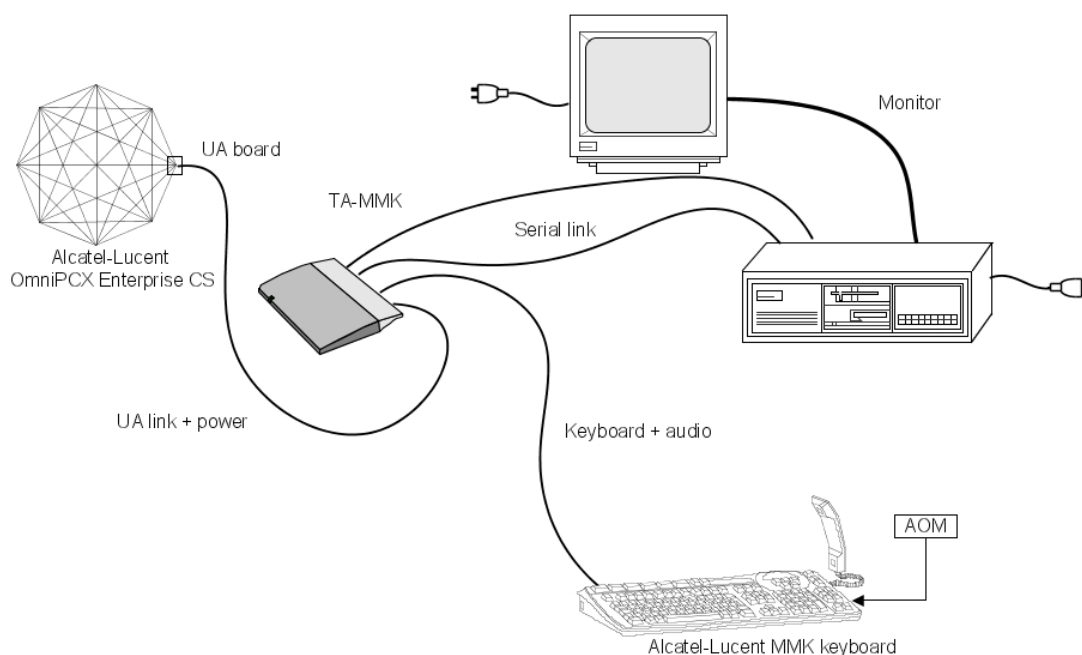


Figure 1.2: standard MAC configuration

Caution:

the AOM extension keyboard must be a 40-key keyboard.

1.2 Compliance

This product complies with the following standards:

- EN 60950 (1992) + Amend. : 1&2 (1993) & 3 (1995) & 4(1997),
- EN 55022 (1994) + Amend. : 1(1995) & 2(1997),
- EN 55024 (1998),

In addition, this product also complies with the following directives:

- EC 721-3,
- TBR8.
- CITT G.711

1.3 Operation

The TA-MMK contains the hardware and software required to ensure the link between the attendant console application used by the PBX and the attendant via the MMK keyboard and monitor (or PC).

The following diagram shows the different functional units that make up the TA-MMK

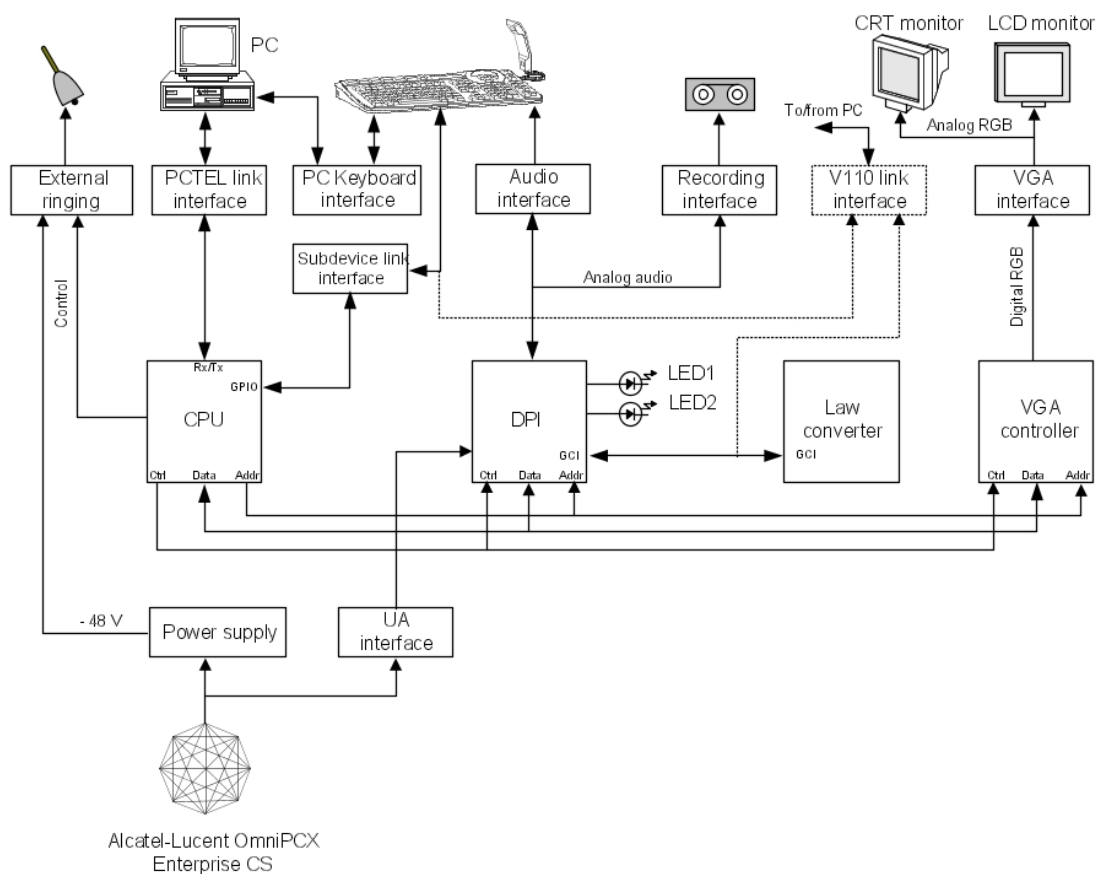


Figure 1.3: TA-MMK block diagram

1.3.1 UA interface

The UA interface handles the UA line on a physical level.

The TA-MMK is connected to the Alcatel-Lucent OmniPCX Enterprise CS by a single UA link that enables communication and remote power supply.

The TA-MMK communicates with the Alcatel-Lucent OmniPCX Enterprise CS via the UA256 transmission link. Four B channels are available:

- a UA signaling channel,
- a B channel for voice transmission,
- 2 other B channels.

Note:

the transmission pair, located in the center (pins 4 and 5) of the 8-pin connector, has no polarity. The two wires of the line can be inverted.

1.3.2 Power supply

The TA-MMK is remote supplied by the PBX via the UA link. This module is used to convert the external power supply to 3.3 V and 5 V - as required by the other functional units. A -48 V output is used for external ringing.

1.3.3 DPI

The DPI (Digital Phone Interface) is an interface that mainly provides UA transmission and that manages, under CPU control, all audio functions. It is basically a DA/AD converter.

1.3.4 Audio interface

The audio interface is an analog interface that acts as a link between the audio functions of the the MMK keyboard (handset, hands-free, loudspeaker) and the DPI. The audio signals used by the MMK keyboard are analog signals.

1.3.5 CPU

The CPU is made up of the following main parts:

- a 23.07 MHz Motorola MC68340 microprocessor,
- a 1024 KByte SRAM memory,
- a 512 KByte FLASH memory,
- a 512 KByte EPROM memory,

1.3.6 Screen interface

Composed mainly of the VGA controller and VGA interface, the screen interface enables a CRT or LCD monitor to be connected to the TA-MMK.

The VGA characteristics are:

- a resolution of 640x480 pixels and a frequency of 31.5 MHz,
- horizontal frequency: up to 43 KHz,
- vertical frequency: up to 70 Hz,
- interlaced mode: no.

1.3.7 Sub-device link interface

The sub-device link interface converts the sub-assembly serial link into TA-MMK output signals used to control the MMK keyboard and an add-on module keyboard (AOM). It does not have B channel capacity.

Note:

the MMK keyboard and add-on keyboard can be connected with the TA already powered up.

The add-on keyboard connected to the MMK keyboard is remote controlled by the PBX.

1.3.8 External ringing interface

The TA-MMK can be connected to external ringing.

Controlled by the processor, the external ringing interface sends a cadence (rate) signal to external ringing.

Caution:

maximum output current on the dedicated 6-pin connector is 4 mA.

1.3.9 Recording interface

The recording interface is used to record conversations between the attendant and a call party. Audio signals sent to the 5-pin DIN connector are analog type.

1.3.10 PC-TEL and V110 interfaces

Two V24 interfaces are offered:

- PC-TEL interface:
 - V24 output allowing full duplex at 19200 bauds that can be connected to a PC's serial port.
- V110 interface:
 - Asynchronous data interface allowing connection of a DTE (Data Terminal Equipment) device with V110 or V120 protocol.

Note:

the V110 link is not installed.

1.3.11 A law — μ law adapter

The A law — μ law adapter converts, on the GCI link, A law input channels to μ law output channels and vice-versa.

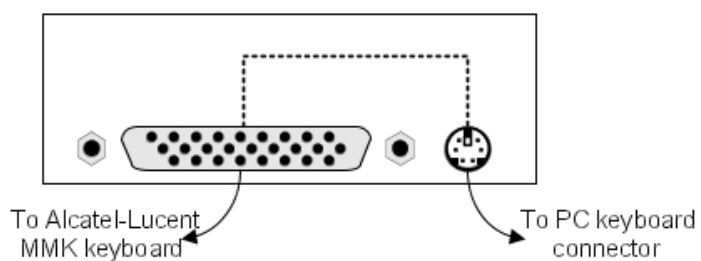
1.3.12 PC keyboard interface

This interface allows the MMK keyboard to be used as a PC keyboard.

The PC keyboard interface allows the MMK connector of the TA-MMK to be connected to the 6-pin mini DIN female connector connected to the keyboard connector of a PC.

Caution:

the PC cannot access the audio capability of the MMK keyboard via this link.



1.3.13 LEDs

2 green LEDs are located on top of the TA-MMK case.

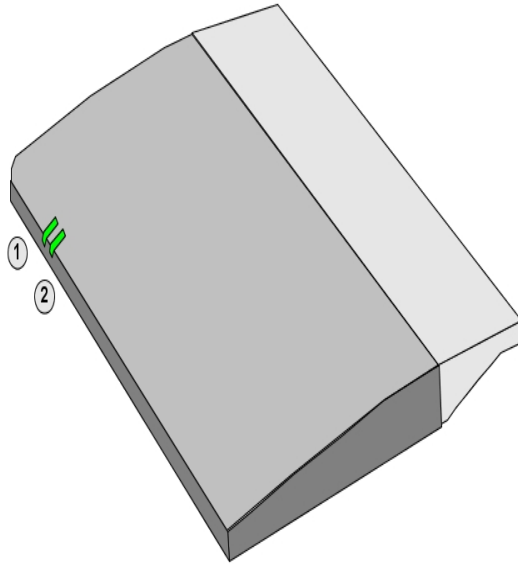


Figure 1.5: view of TA-MMK LEDs

1. CPU operating status
2. On and steady, flash procedure

2.1 Reference

TA-MMK V2 reference: **3AK 17095 AC**

2.2 Connection

All TA-MMK connectors are located on the rear panel of the terminal.

The TA-MMK unit is connected as follows:

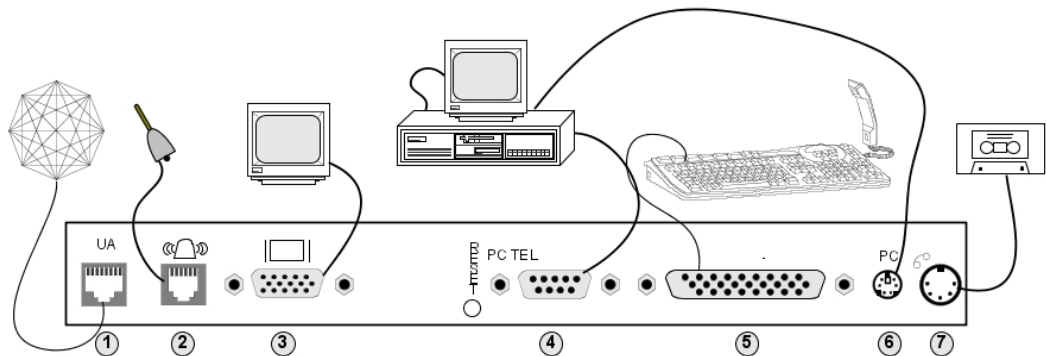


Figure 2.1: Connecting the TA-MMK unit

The TA-MMK is connected to:

1. the Alcatel-Lucent OmniPCX Enterprise CS (communication + power supply): **with a cable with RJ45 connector,**
2. external ringing: **with a cable with RJ11 connector,**
3. the CRT or LCD monitor (PAC configuration): **with the monitor's integral VGA cable,**
4. a PC (MAC configuration): **with a TA to PC connection cable (ref. 3AK 17016 AB),**
5. the Alcatel-Lucent MMK keyboard: **with the integral keyboard cable (ref. 1AB 12217 0001),**
6. the PC keyboard connector (MAC configuration only): **with a cable equipped with 2 6-pin mini DIN male — male connectors, (ref. 1AB 12314 0002),**
7. a recorder deck: **with a specific cable for the recorder used.**

2.3 TA-MMK rear panel details

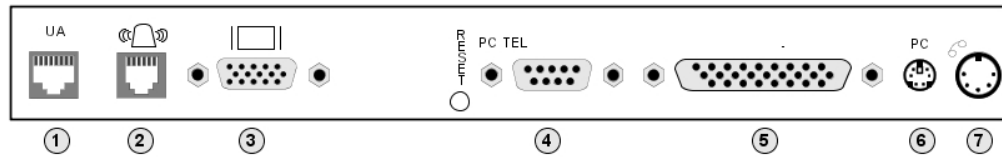
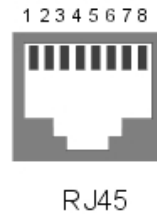


Figure 2.2: Detailed view of the TA-MMK rear panel

1. RJ 45 connector for PBX connection,
2. RJ 11 connector for external ringing connection,
3. 15-pin VGA female connector for CRT or LCD monitor connection,
4. SUB—D 9-pin female connector for PCTEL link,
5. 26-pin female connector for Alcatel-Lucent MMK keyboard,
6. 6-pin mini DIN female connector for connection to the PC keyboard connector,
7. 5-pin female connector for recorder connection.

2.3.1 RJ 45 connector



1		
2		
3		
4	UA1	UA256 + Power supply
5	UA2	UA256 + Power supply
6		
7		
8		

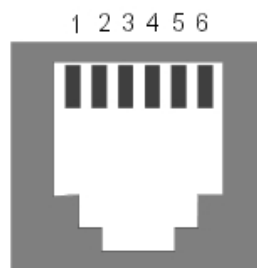
Caution:
the UA link (pins 4/5) is used for voice transmission and TA-MMK unit power supply; connection is only to an even equipment (on the UA board).

Maximum lengths to be used depending on power supply voltage and type of cable:

Cable quality datas Voltage	LY 0,5mm	Ref 278 0,6mm
43 V	600 m	900 m
48 V	800 m	1000 m
54 V	900 m	1400 m

2.3.2 RJ11 connector

The line connector is a modular 6-pin jack. Pins (2, 5) carry the signal to external ringing. The choice of pins is country-specific.



RJ11 6 pin Modular Jack

1	SONPOS	Not connected
2	SONPOS	Positive ringing polarity
3	NC	Not connected
4	NC	Not connected
5	SONNEG	Negative ringing polarity
6	SONNEG	Not connected

2.3.3 PCTEL link connector

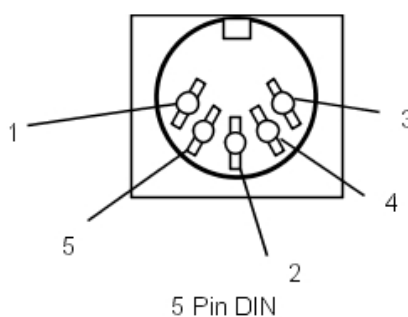


1		
2	PCRD	Data transmission

3	PCTD	Data reception
4		
5	GND	Protective ground
6		
7	PCRTS	Transmission request
8	PCCTS	Ready to transmit
9		

2.3.4 Recorder connector

The connector is a 5-pin DIN.



1	CD1	Relay contact
2	AGND	Ground
3	CD2	Relay contact
4	VOICE	Voice analog signal
5	VOICE	Voice analog signal

2.4 Strappings

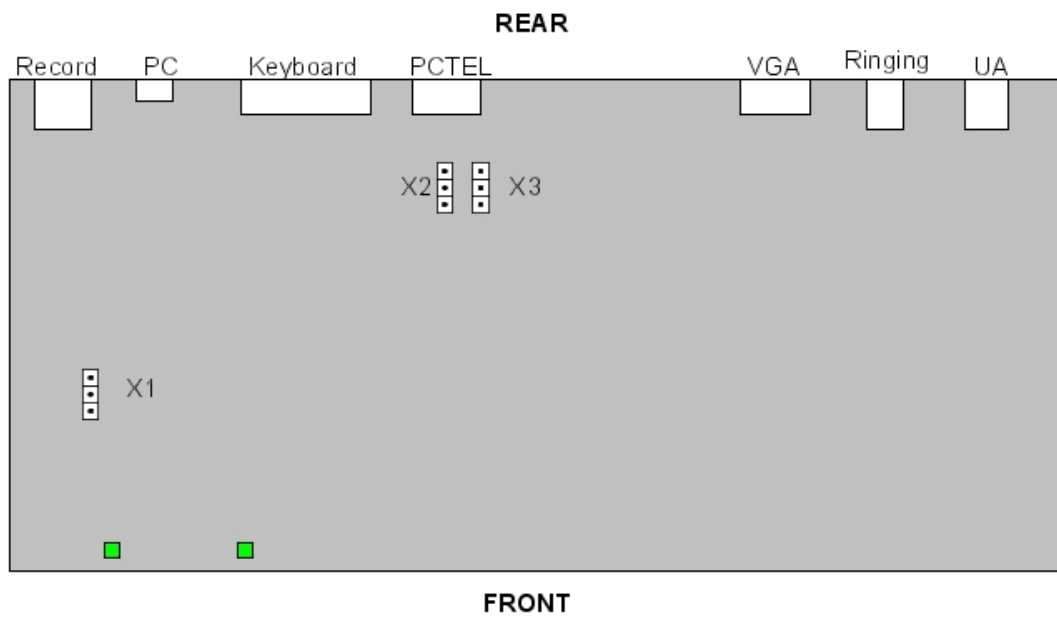


Figure 2.8: Strappings on TA-MMK board

Ex-factory strappings are shown on grey background.

Type of boot	Boot on flash	Boot on EPROM
	X 1 	X 1
PCTEL link activation	PCTEL Port in use	Software tests
	X 2 X 3 	X 2 X 3

Important:

these straps must not be moved for either application (Alcatel 4049 PAC or Alcatel 4059 MAC).

3.1 Checking the MMK Keyboard and the TA-MMK Version

TA/MAC function: The MMK keyboard must be version 3.7 minimum and the TA-MMK must be version 4.7 minimum.

TA/PAC function: The MMK keyboard must be version 3.8 minimum and the TA-MMK must be version 1.5 minimum.

To check the MMK keyboard version and the TA-MMK version, follow the procedure below:

```
Login      : mtcl
>export MENU_LANG=ENO
>he_dow_tuner
Option 3      : Tools
Option 3      : Query terminal's version
Crystal number : Enter the ACT number in which is located A4059 MAC
Board number  : Enter the UA board number on which is located A4059 MAC
Position number : Enter the equipment number in the UA board
```

The following screen displays the software versions for a TA-MMK (TA-MAC function):

```
TOOLS
05/13/24 vta_type=13 (FBC) neqt=2517 present=Yes
Boot version      : 4.7
Code version      : 4.7
Code1 version     : 4.7
Code2 version     : 4.7
Boot1 version     : 4.7
Keyboard version  : 3.8
International Data 1 : 4.7
international Data 2 : 4.7
On Hook
Main Power On
```

The following screen displays the software versions for a TA-MMK (TA-PAC function):

```
TOOLS
03/23t04 vta_type=7 (PAC) neqt=2248 present=Yes
Boot version      : 1.5
Code version      : 1.5
Code1 version     : 1.5
Code2 version     : 1.5
Boot1 version     : 1.5
Keyboard version  : 3.8
International Data 1 : 1.5
international Data 2 : 1.5
On Hook
Main Power On
```

3.2 Flashing (Programming) a TA-MMK

When there are several Alcatel 4059 MAC consoles, Alcatel-Lucent recommends to flash each TA-MMK one by one. The previous procedure above indicates how to view the flash version of the TA-MMK and the version of the MMK keyboard.

Flashing/Programming procedure:

```
Login      : mtcl
>he_dow_tuner
Option 2   : Equipment Download
Option 13  : UA-FBC (for TA/MAC)
Option 7   : UA-PAC (for TA/PAC)
Do you want to force the download: Yes = 1
Option 2   : Download Some Sections of Some FBC
Option -1  : All the sections
Option 1   : English (EN0), American English (US0), etc.
Crystal number : Enter the ACT number in which the A4059 MAC is located
Coupler number : Enter the UA board number in which the A4059 MAC is located
Position number : Enter the equipment number in the UA board
```

TA-MMK downloading begins. The `he_dow_tuner` command does not indicate the end of downloading; you must refer to the system console in order to view the beginning and the end of downloading. After downloading, it is advisable to verify the new version of the TA-MMK by using the `he_dow_tuner` command.

Caution:

If you press the key <Return> on items Crystal Number, Coupler/Board Number and Position Number, the default value -1 is taken: the downloading of all Alcatel 4059 MAC consoles will be performed.

3.3 Configuring the MMK Keyboard Language

To modify the MMK keyboard language (AZERTY or QWERTY):

1. Reset the TA-MMK
2. During the reset, press simultaneously on S1 and S6 keys during a couple of seconds
The **Tests and Setup** menu appears
3. Press the S3 key to go to the **Setup** menu
4. Press S3 to go to the **Keyboard** menu
5. Select the type of keyboard by pressing the S3 key: French, German, English
6. Press S2 to save modifications
7. Press S1 to exit
8. Press S1 again to exit