Interpolator

NOTE: This adjustment has only to be performed if the ti-
mer/counter has lost it's calibration information, (that is
if the counter displays " CaL LOSt", or if you have
made any repairs in the interpolator circuits.

• *Setup*

— Connect the Pulse Generators output A to the input A of
PM 6681.
— Connect the LF-synthesizers to the EXT INput of the
Pulse Generator.
— Connect a 10 MHz (aging at least 10^{-8}) reference to the
reference input of PM 6681 and the synthesizer.
— Connect the the GPIB connectors of the PM 6681, LF-
synthesizer, and Pulse Generator to the PC;s GPIB card.
NOTE: The timer/counter, synthesizer, and the pulse gener-
ator should not have the same GPIB address, none of
them should have address 0 or 30, (this is used by the
PC).

• *Adjustment*

— Turn on the *timer/counter,* the synthesizer, and the pulse
generator.
If the *timer/counter* shows a flashing "CaL.LOSt"   , press
the preset button until this message disappears.

NOTE: The calibration should be done when the counter has
been on for more than 20 minutes. If you start the ca-
libration program before 20 minutes has passed since
power on, the program will wait the required time.

— Insert the discette labeled "Test and Calibration program
for PM 6681", into the $3^1/_2$" disc-drive on the PC.
— Start the calibration program from the DOS command
prompt with the command "[path]CALVER81". Suppo-
sing you use the A: drive, this might look like:

   >a:CALVER81

The first displayed screen on the PC will show you the nee-
ded hardware and software to run the calibration program.
It also shows the bus addresses the different instrument
must be set to.
— Press ENTER when you are ready to begin the calibra-
tion.
— Now you shall enter the different GPIB addresses for the
instruments involved.
— Type the serial number of the counter under test and
press ENTER.
Now you will be asked if you want to calibrate the counter.
The calibration will take between 20 and 60 minutes to
complete. (If you answer no (n) on this question you will be
asked if you want to verify the calibration of the interpola-
tors. The verification will only take a few minutes.)

The program will attempt calibration using a number of dif-
ferent input signals, and will check the result, choosing for
the final calibration the best result achieved.

After the calibration is completed the best calibration para-
meter will be stored in the counters battery backuped
RAM. A printout of the calibration result will also be sent to
LPT1 of the PC. The printout will look as shown below:

NOTE: Even though the specification says 50ps the system
does not accept more than 40ps. This limit is set to en-
sure that the spec should be fulfilled over the whole
temperature range.

```
****************************************************************************
* PM6681 TEST DATA                             TEST PROGRAM UERSION 1.0
****************************************************************************
* DATE: 94-06-14      TIME: 12:51:25
* IDENTITY CODE: SM 999
* TASK: VERIFICATION OF INTERPOLATOR CALIBRATION
****************************************************************************
* Identification Query:
* PHILIPS, PM6681, 0, MAIN X1.02 Mar 08 1994 13:53:01 / GPIB X1.13 Mar 0 *
* PM9626,0
****************************************************************************
* T (°C) CAL PLS (s) MIN SDEV MEAN SDEV MEAN SPEC MAX SDEV MAX SPEC P/F *
****************************************************************************
    +22   4.29E-009 2.16E-011 2.91E-011 3.00E-011 3.99E-011 4.00E-011 P
****************************************************************************
```

Calibrated at temperature	Pulse used to calibrate	Minimum value measured by the system	Mean value measured by the system	Mean value accepted by the system	Maximum value measured by the system	Maximum value accepted by the system	Pass/ Fail

*All of these values are results of standard deviation measurements of pulse widths in the range 4 to 50 ns (in 2 ns steps).
For each pulse width 2000 samples are taken.*