

ANEXO I. Código de la macro en Excel.

```
Function crea_matriz(i, p)
```

```
    Rows(i + 1).Select ' selecciona la fila antes de la cual se va a  
insertar la matriz
```

```
    n_salto = p - 1
```

```
    While (n_salto <> 0)
```

```
        Selection.Insert Shift:=xlDown  
        n_salto = n_salto - 1
```

```
    Wend
```

```
    Range("J1:Q1").Offset(i - 1, 0).Select  
    Application.CutCopyMode = False  
    Selection.Cut  
    Range("B1").Offset(i, 0).Select  
    ActiveSheet.Paste  
    Range("R1:Y1").Offset(i - 1, 0).Select  
    Selection.Cut  
    Range("B1").Offset(i + 1, 0).Select  
    ActiveSheet.Paste  
    Range("Z1:AG1").Offset(i - 1, 0).Select  
    Selection.Cut  
    Range("B1").Offset(i + 2, 0).Select  
    ActiveSheet.Paste
```

```
End Function
```

```
Sub encuentra_fila()
```

```
    i = 1  
    puertos = 4  
    Range("A1").Select  
    n_fila = 1  
    While (ActiveCell.Value <> "")  
        a = crea_matriz(i, puertos)
```

```
        i = i + puertos
```

```
        Range("A1").Offset(i, 0).Activate
```

```
    Wend
```

```
    a = crea_matriz(i, puertos)
```

```
End Sub
```

ANEXO II. Código de los estándares de calibración.

```

10    !$    Standard Definitions for HP 85054B Precision Type-N Cal Kit.
20    !
30    !$    Definitions for 50 Ohm jack (FEMALE center contact) test
40    !$    ports, plug (MALE center contact) standards.
50    !
60    !    OPEN: $ HP 85054-60027 Open Circuit Plug
70    !    Z0    50.0 $ Ohms
80    !    DELAY 1.7411E-11 $ Sec
90    !    LOSS  7E+8 $ Ohms/Sec
100   !    C0    7.3279E-12 $ Farads
110   !    C1    -4.0379E-20 $ Farads/Hz
120   !    C2    6.1893E-29 $ Farads/Hz^2
130   !    C3    -2.7486E-38 $ Farads/Hz^3
140   !
150   !    SHORT:      $ HP 85054-60025 Short Circuit Plug
160   !    Z0    50.0 $ Ohms
170   !    DELAY 1.7817E-11 $ Sec
180   !    LOSS  2.1002E+9 $ Ohms/Sec
190   !
200   !    LOAD: $ HP 00909-60011 Broadband Load Plug
210   !    Z0    50.0 $ Ohms
220   !    DELAY 0 $ Sec
230   !    LOSS  7E+8 $ Ohms/Sec
240   !
250   !    THRU: $ HP 85054-60038 Plug to Plug Adapter
260   !    Z0    50.0 $ Ohms
270   !    DELAY 0 $ Sec
280   !    LOSS  7E+8 $ Ohms/Sec
290   !
300   END

```