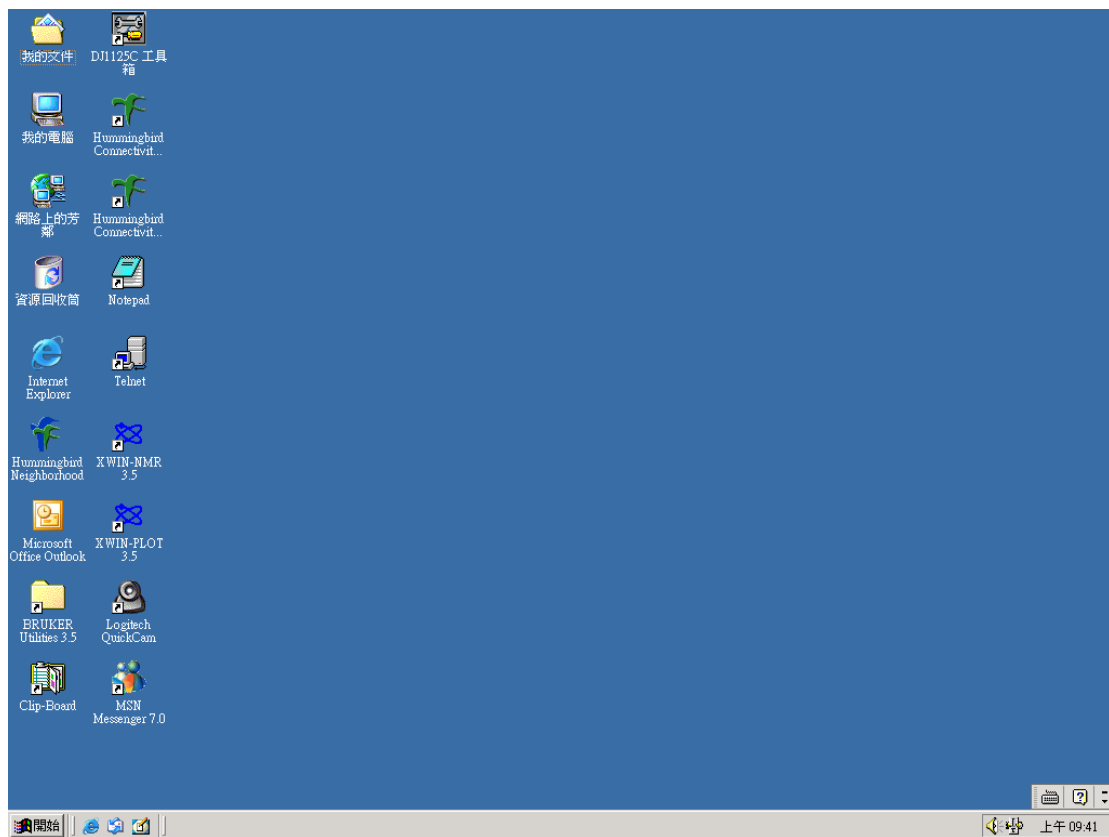
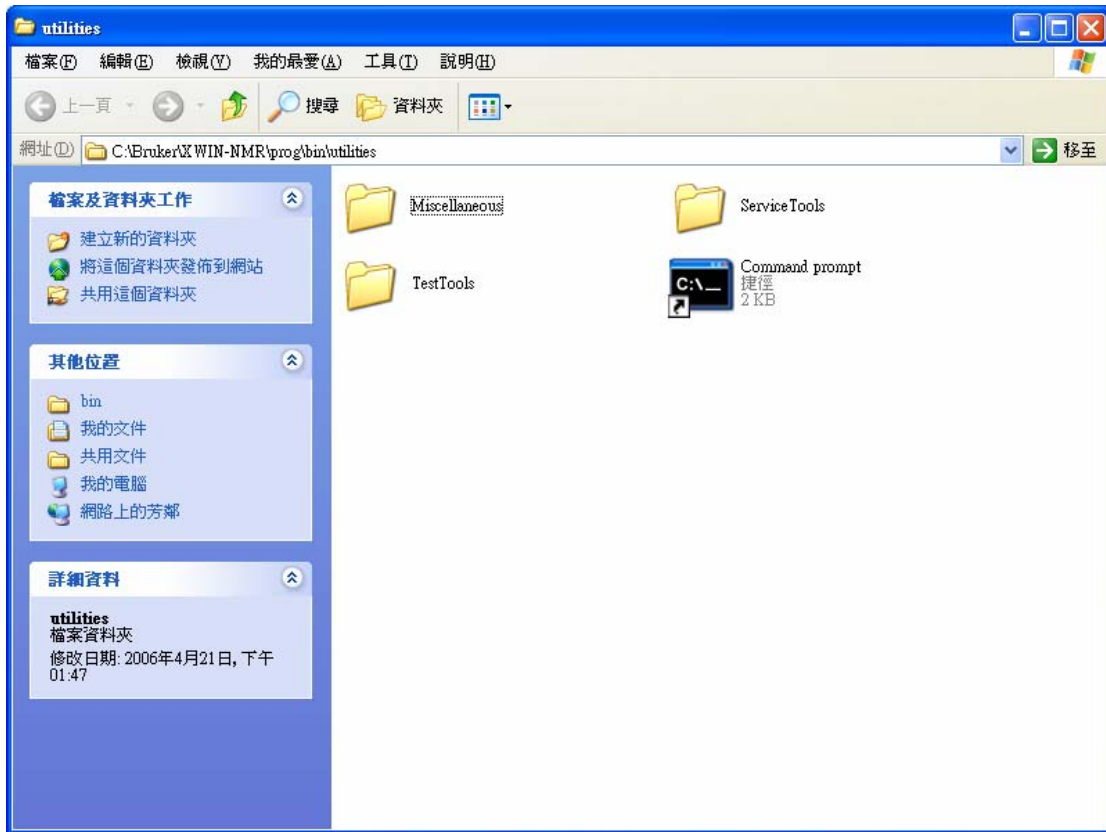


## Measure Shim coil temperature during variable temperature experiment

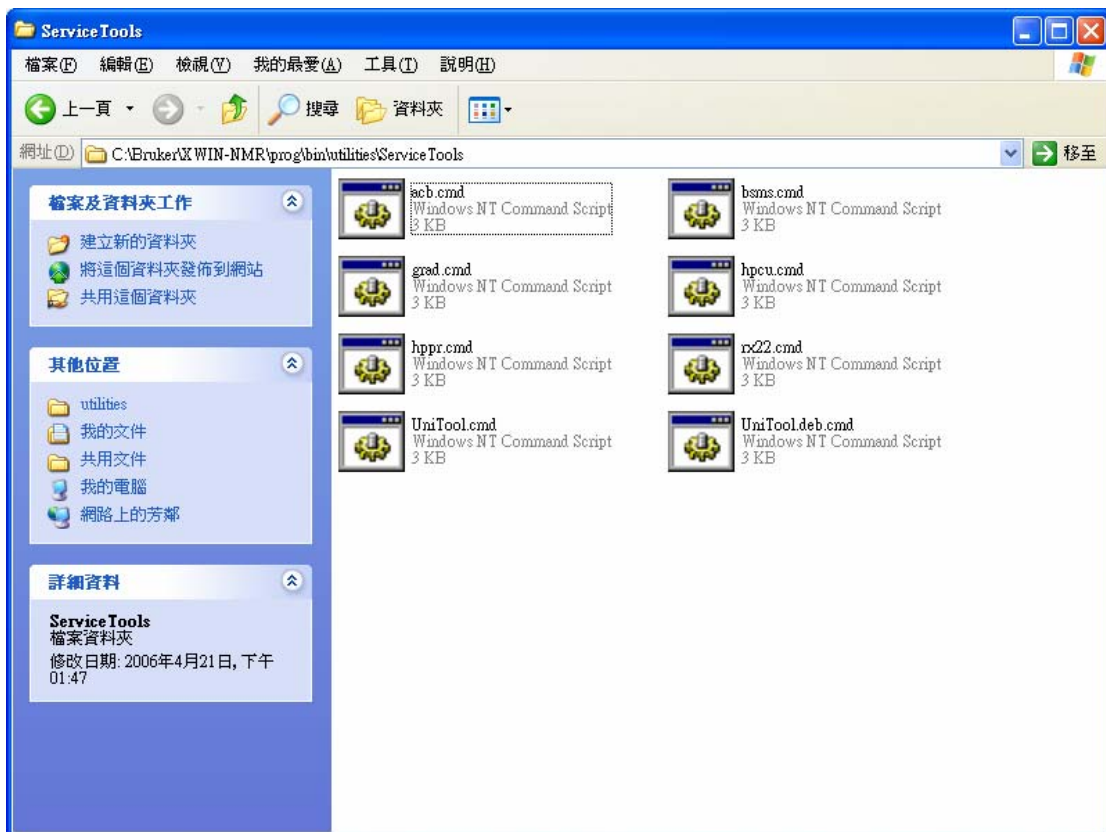
### 1. 在桌面點選 Bruker Utilities



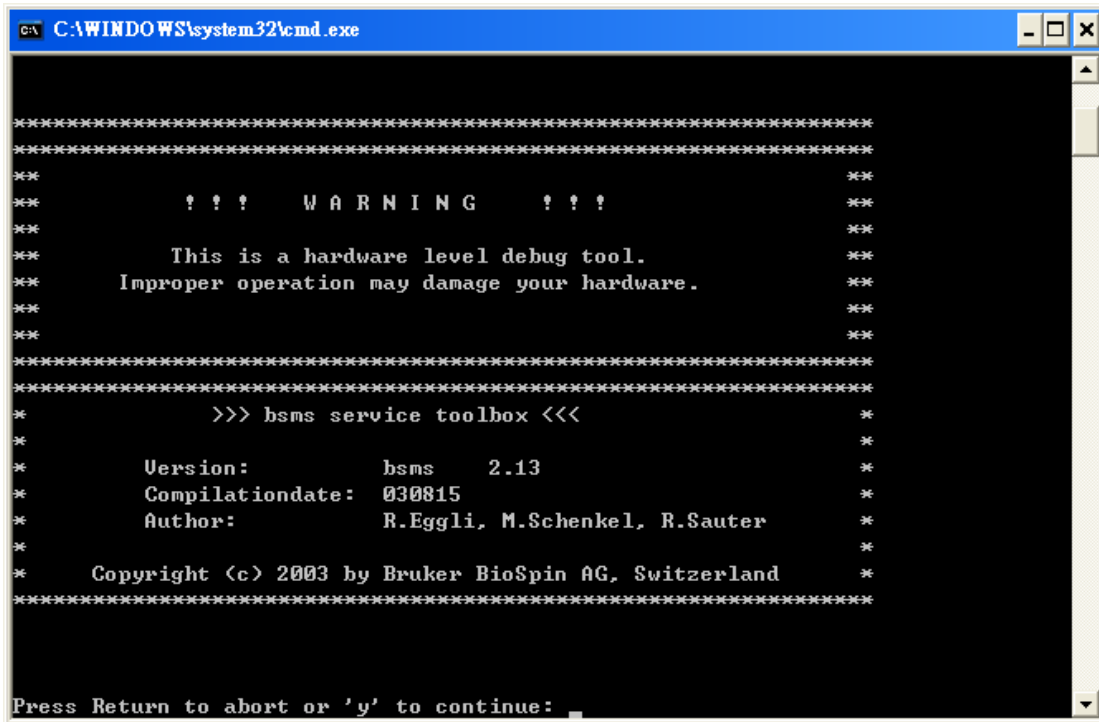
### 2. 在 Bruker Utilities 的資料夾點選裡面 Service Tools



3. 在點選 bsms.cmd



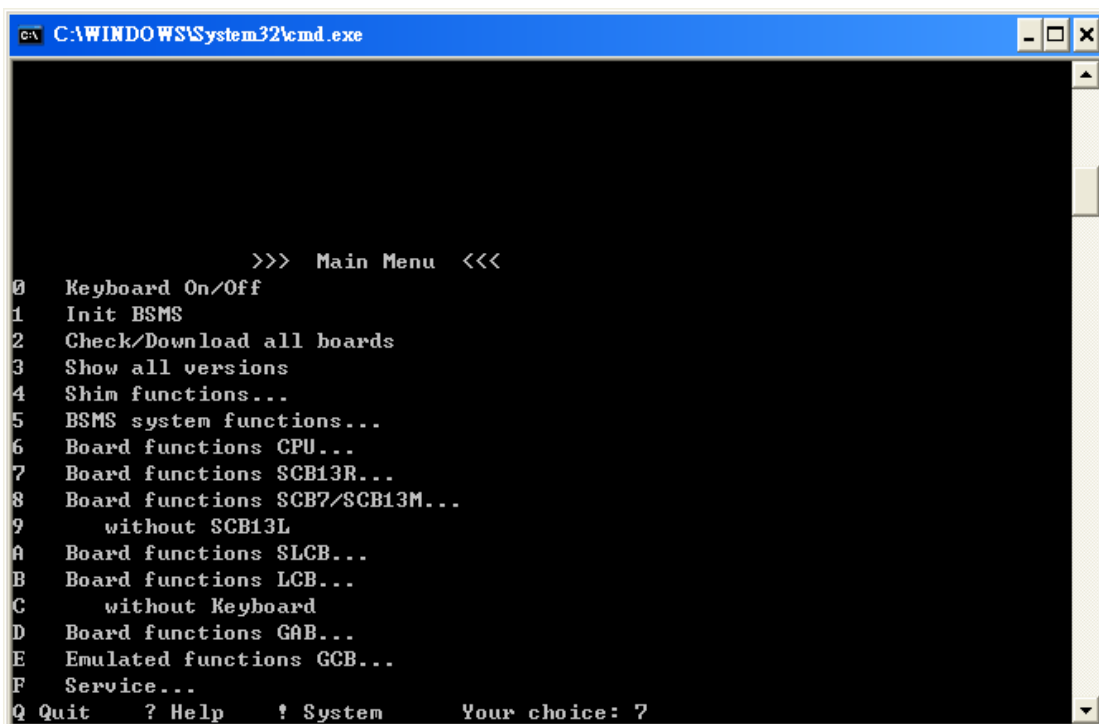
4. 再按 y 以進入 bsms service toolbox



```
C:\WINDOWS\system32\cmd.exe

*****
*****
**                                     **
**          ? ? ?  WARNING  ? ? ?          **
**                                     **
**          This is a hardware level debug tool.          **
**          Improper operation may damage your hardware.  **
**                                     **
*****
*****
**          >>> bsms service toolbox <<<          **
**                                     **
**          Version:          bsms          2.13          **
**          Compilationdate:  030815          **
**          Author:           R.Eggli, M.Schenkel, R.Sauter **
**                                     **
**          Copyright (c) 2003 by Bruker BioSpin AG, Switzerland **
*****
Press Return to abort or 'y' to continue: _
```

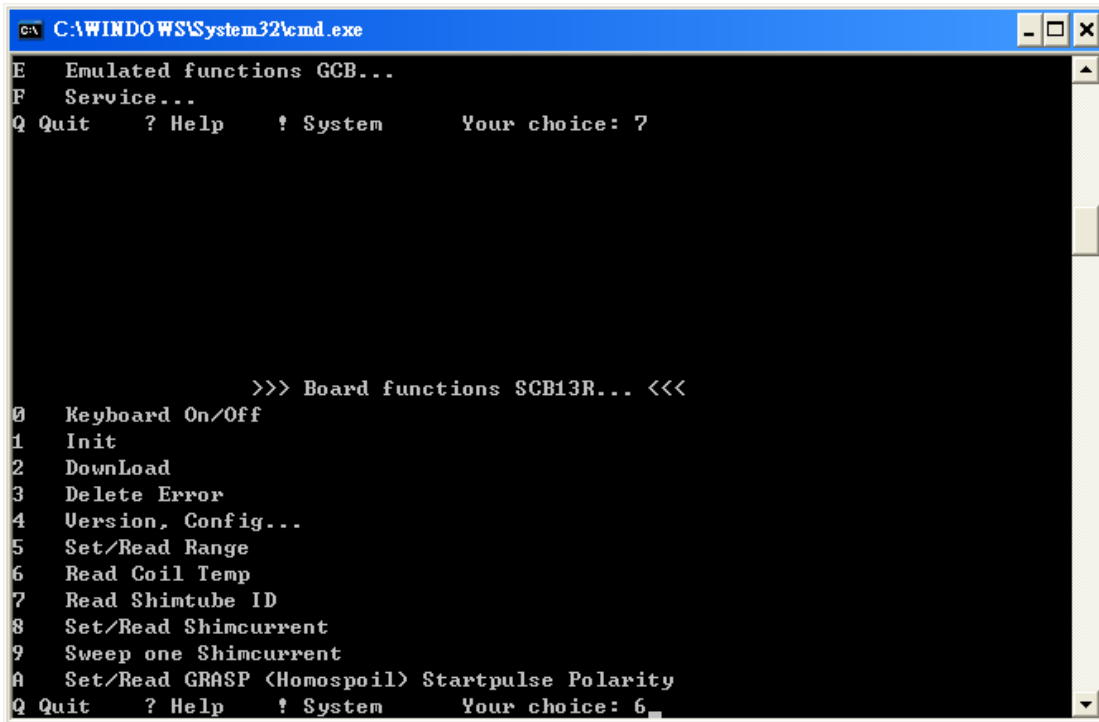
5. 按下 7 進入 Board functions SCB13R



```
C:\WINDOWS\System32\cmd.exe

>>> Main Menu <<<
0 Keyboard On/Off
1 Init BSMS
2 Check/Download all boards
3 Show all versions
4 Shim functions...
5 BSMS system functions...
6 Board functions CPU...
7 Board functions SCB13R...
8 Board functions SCB7/SCB13M...
9   without SCB13L
A Board functions SLCB...
B Board functions LCB...
C   without Keyboard
D Board functions GAB...
E Emulated functions GCB...
F Service...
Q Quit   ? Help   ! System   Your choice: 7
```

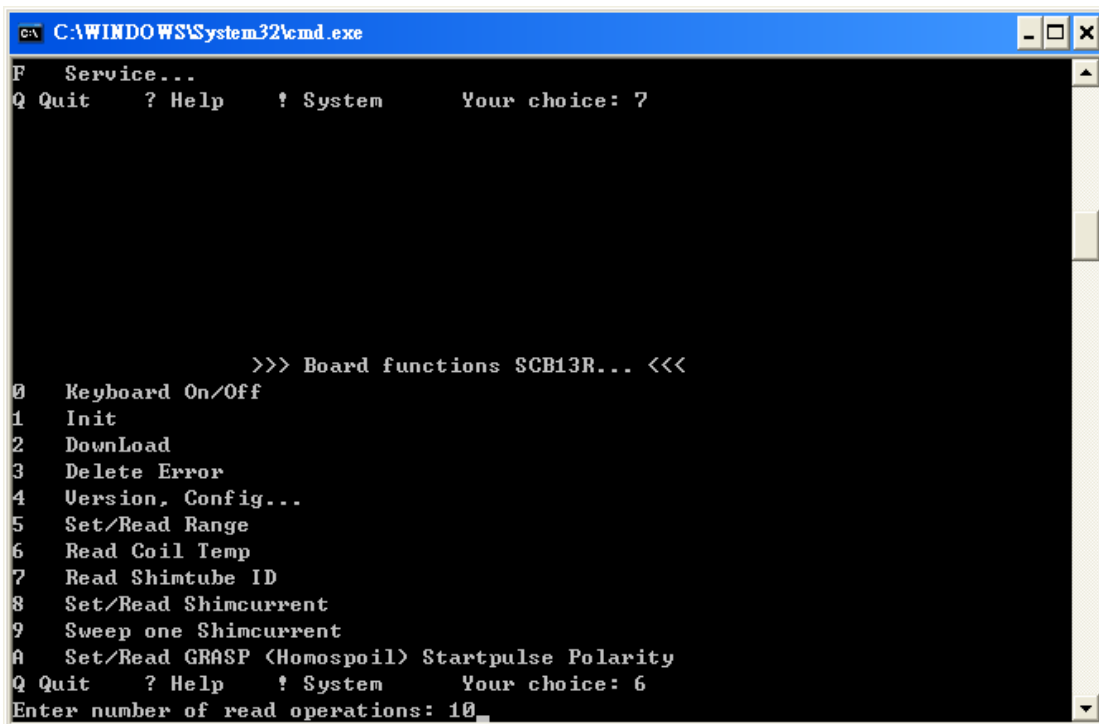
6. 按下 6 進入 Read Coil Temp



```
C:\WINDOWS\System32\cmd.exe
E Emulated functions GCB...
F Service...
Q Quit ? Help ! System Your choice: 7

>>> Board functions SCB13R... <<<
0 Keyboard On/Off
1 Init
2 DownLoad
3 Delete Error
4 Version, Config...
5 Set/Read Range
6 Read Coil Temp
7 Read Shimtube ID
8 Set/Read Shimcurrent
9 Sweep one Shimcurrent
A Set/Read GRASP <Homospoil> Startpulse Polarity
Q Quit ? Help ! System Your choice: 6
```

7. 輸入 10 表示讀 10 次 SHIM COIL 溫度



```
C:\WINDOWS\System32\cmd.exe
F Service...
Q Quit ? Help ! System Your choice: 7

>>> Board functions SCB13R... <<<
0 Keyboard On/Off
1 Init
2 DownLoad
3 Delete Error
4 Version, Config...
5 Set/Read Range
6 Read Coil Temp
7 Read Shimtube ID
8 Set/Read Shimcurrent
9 Sweep one Shimcurrent
A Set/Read GRASP <Homospoil> Startpulse Polarity
Q Quit ? Help ! System Your choice: 6
Enter number of read operations: 10
```

```

C:\WINDOWS\System32\cmd.exe
1  Init
2  Download
3  Delete Error
4  Version, Config...
5  Set/Read Range
6  Read Coil Temp
7  Read Shimtube ID
8  Set/Read Shimcurrent
9  Sweep one Shimcurrent
A  Set/Read GRASP <Homospoil> Startpulse Polarity
Q Quit  ? Help  ! System  Your choice: 6
Enter number of read operations: 10
Value = 24
Value = 24
Value = 24
Value = 24
Value = 24
Value = 24
Value = 24
Value = 24
Value = 24
Value = 24
Value = 24
Press RETURN to continue...

```

8. 按下 enter 即可離開至 Board functions SCB13R , 然後按 q 即可離開至 Main menu

```

C:\WINDOWS\System32\cmd.exe
Press RETURN to continue...

>>> Board functions SCB13R... <<<
0  Keyboard On/Off
1  Init
2  Download
3  Delete Error
4  Version, Config...
5  Set/Read Range
6  Read Coil Temp
7  Read Shimtube ID
8  Set/Read Shimcurrent
9  Sweep one Shimcurrent
A  Set/Read GRASP <Homospoil> Startpulse Polarity
Q Quit  ? Help  ! System  Your choice: q

```

9. 再按一次 q 即可離開 BSMS Toolbox:

```
C:\WINDOWS\System32\cmd.exe

          >>> Main Menu <<<
0 Keyboard On/Off
1 Init BSMS
2 Check/Download all boards
3 Show all versions
4 Shim functions...
5 BSMS system functions...
6 Board functions CPU...
7 Board functions SCB13R...
8 Board functions SCB7/SCB13M...
9   without SCB13L
A Board functions SLCB...
B Board functions LCB...
C   without Keyboard
D Board functions GAB...
E Emulated functions GCB...
F Service...
Q Quit   ? Help   ! System   Your choice: q
```

9. 再按 y

```
C:\WINDOWS\System32\cmd.exe

2 Check/Download all boards
3 Show all versions
4 Shim functions...
5 BSMS system functions...
6 Board functions CPU...
7 Board functions SCB13R...
8 Board functions SCB7/SCB13M...
9   without SCB13L
A Board functions SLCB...
B Board functions LCB...
C   without Keyboard
D Board functions GAB...
E Emulated functions GCB...
F Service...
Q Quit   ? Help   ! System   Your choice: q

Quit Program [Y/N]? y
```

10. 另一種方式為執行 xwinnmr 內之 coiltemp 自動程式，溫度資料在 我的文件 內 coiltemp

PS：某些較老式之系統，shim coil 內無溫度感應器，讀值將無法反映 shim coil 之實際溫度。

Shim coil 溫度若已達攝氏 80 度或 0 度，需增加 cooling ring 之氣體流量或停止變溫實驗。