

# EVS(Environmental Vibration & Sound) Measurement Operating Manual

| Edition(Ver. 3.0)



## SV Corporation

## [ICON of the EVS]



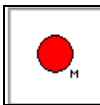
: EVS(Environmental vibration and sound) measurement mode selection



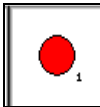
: Transducer option



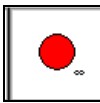
: Trigger option



: (M) Manual recording mode -> Manual start-stop recording without trigger option



: (S) Single recording mode -> Auto single recording with trigger option



: (C) Continuous recording mode -> Auto continuous recording with trigger option



: Manual Stop



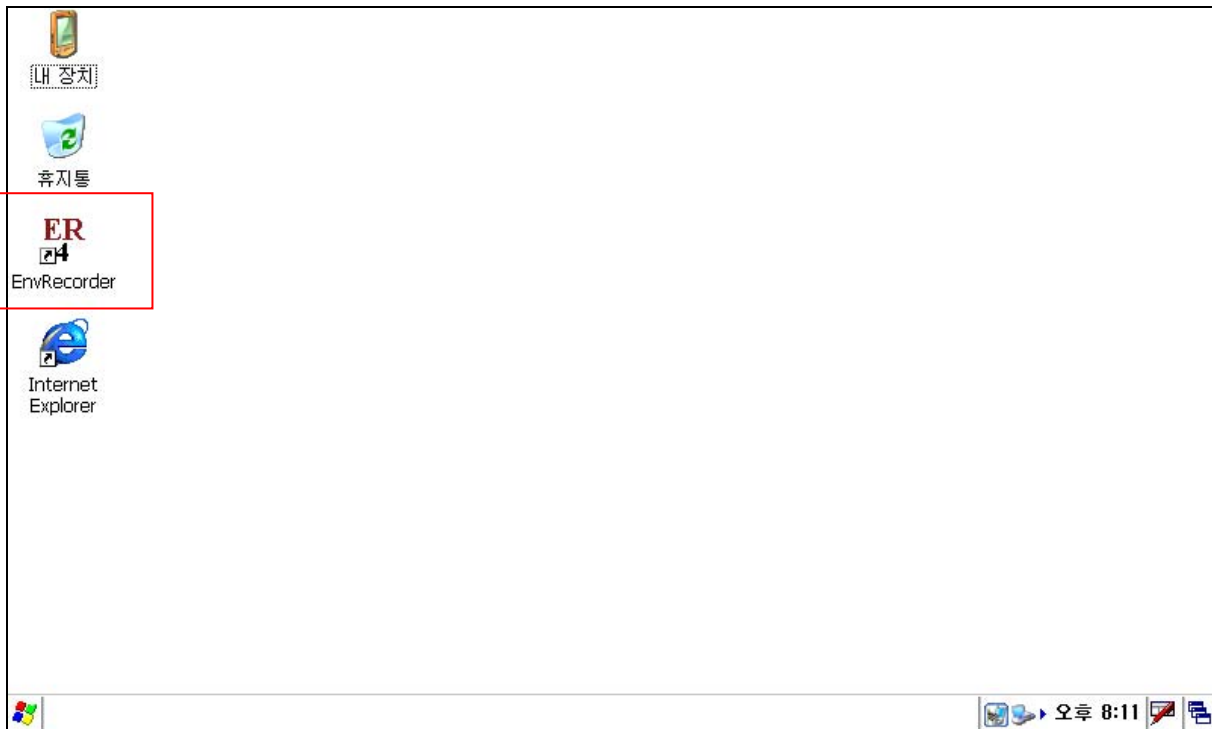
: Open the saved result



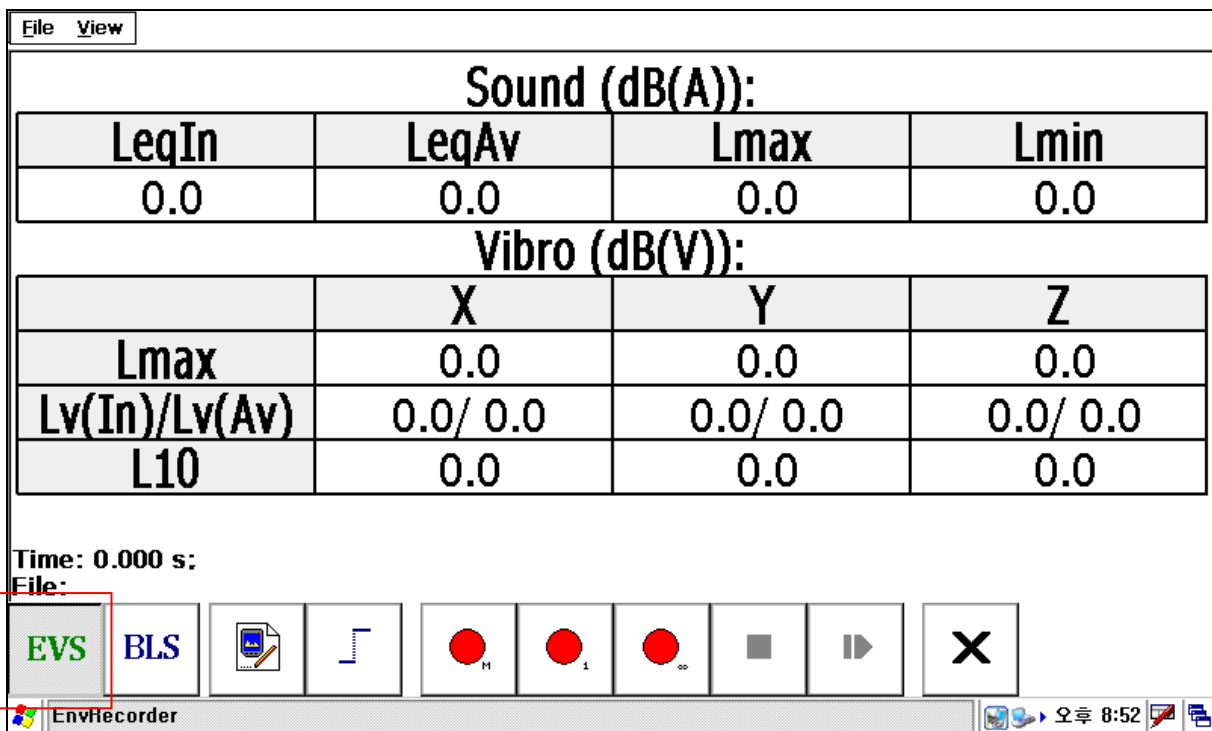
: Exit from program

## [Procedure of the EVS]

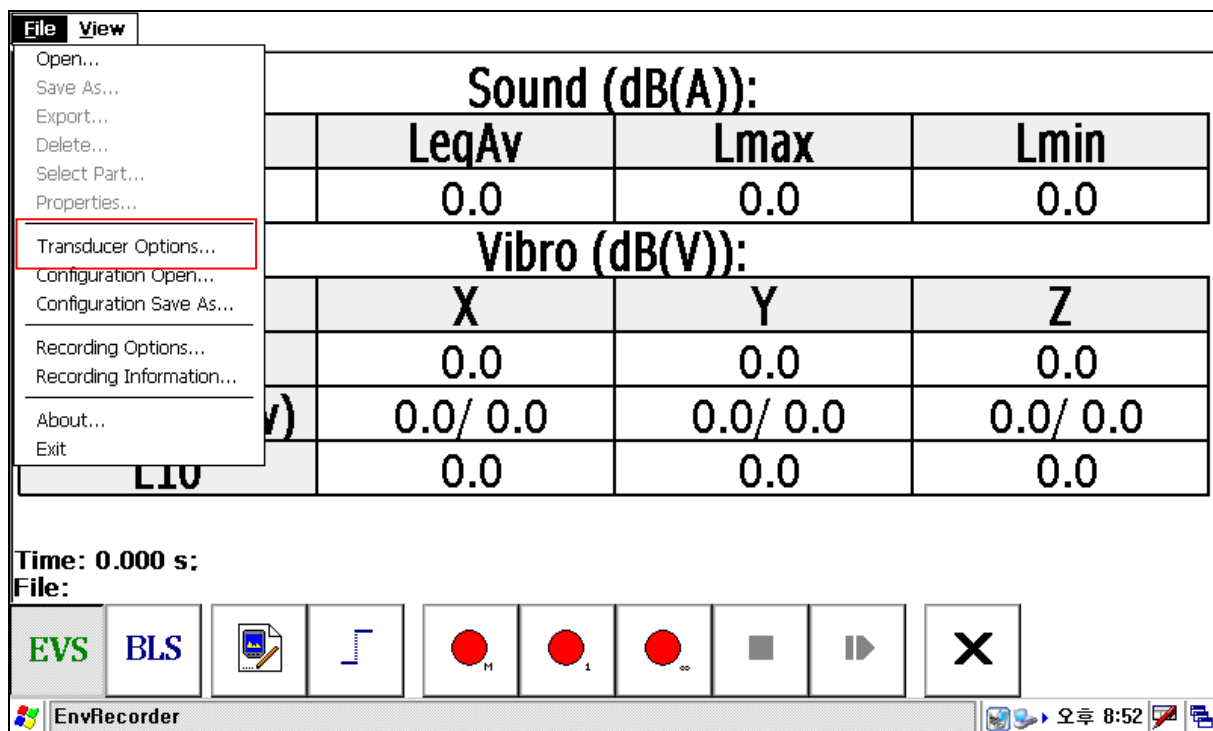
1. You can see the window if you turn on.
2. Please Double click “EnvRecorder” Icon.



3. Please click “EVS” and then “File” if it display as bellow window.



4. To set up Sensor, Please do “Transducer Options” in the file.



5. Please select “V1” at the bottom to set up “Channel 1”. Put the Sensitivity of sensor, with the calibrator, please put the “Norminal RMS” value and “Nominal Frequency” that the output of vibration calibrator was from, Please fix the vibration sensor with “X” direction, and then give the calibration signal, do the “Claibration channel 1” at the bottom, the channel 1 will automatically calibrate with the “Calibr. Coef” value. You can manually do the calibration if you meet an error. Manually to do the calibration, please put the sensitivity of the sensor and give the calibration signal, and then click “OK”, and move the “Measurement window” to check the measuring value and put the “Calibra. Coef.” value to be corresponded with the calibration signal value.

6. for the “V2”(Channle 2), “V3”(Channel 3), Please put the sensivity of vibration sensor’s “Y” and “Z” axis, and put the “Calibr. Coef.” Value as “X” axis.

Transducer Options:

OK

Cancel

Channel 1:

Amp.Gain:

2

▼

Sensitivity:

800.000

mV/g

Norminal RMS:

6.937

m/s<sup>2</sup>

Norminal Freq:

60.000

Hz

Calibr.Coeff:

1.000

1.0

Calibrate Channel 1

V1

V2

V3

Sn

EnvRecorder

오후 7:41

Transducer Options:

OK

Cancel

Channel 2:

Amp.Gain:

2

▼

Sensitivity:

800.000

mV/g

Norminal RMS:

6.937

m/s<sup>2</sup>

Norminal Freq:

60.000

Hz

Calibr.Coeff:

1.000

1.0

Calibrate Channel 2

V1

V2

V3

Sn

EnvRecorder

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Transducer Options:

OK

Cancel

Channel 3:

Amp.Gain:

2

▼

Sensitivity:

800.000

mV/g

Norminal RMS:

6.937

m/s<sup>2</sup>

Norminal Freq:

60.000

Hz

Calibr.Coef:

1.000

1.0

Calibrate Channel 3

V1

V2

V3

Sn

EnvRecorder

오후 7:42

7. "Please put the sensivity of the microphone for the Sn"(Channel 4), and connect the sound calibrator with 94dB output at 1kHz to the microphone, and generate standard signal, and click "OK" to move measurement window, and check the measuring value, please put "Calibra. Coef" value to be corresponded with that Leq value is 94dBw. If you finished all channels, please click "OK" to exit.

Transducer Options:

OK

Cancel

Channel 4:

Amp.Gain:

2

▼

Sensitivity:

50.000

mV/pa

Calibr.Coef:

0.700

1.0

V1

V2

V3

Sn

EnvRecorder

오후 7:43

8. Please move “File” menu again to do “Recording Option”.

(1) File Name : write the file name to be stored

(2) File Format, PCM : select the file format to be stored.

| Sound (dB(A)): |       |      |      |
|----------------|-------|------|------|
|                | LeqAv | Lmax | Lmin |
|                | 0.0   | 0.0  | 0.0  |

| Vibro (dB(V)): |          |          |          |
|----------------|----------|----------|----------|
|                | X        | Y        | Z        |
|                | 0.0      | 0.0      | 0.0      |
| v)             | 0.0/ 0.0 | 0.0/ 0.0 | 0.0/ 0.0 |
|                | 0.0      | 0.0      | 0.0      |

Time: 0.000 s:  
File:

EVS BLS [Icons: File, Plot, M, L, ∞, Stop, Play, Close]

EnvRecorder 오후 8:52

### Recording Options:

OK

Cancel

File Name: SV 00N.wav;

[File Format: PCM, 3 ch, 16 bits]

- ☒ Save raw and result data;
- ☐ Save raw data only (.wav file);
- ☐ Save result data only;

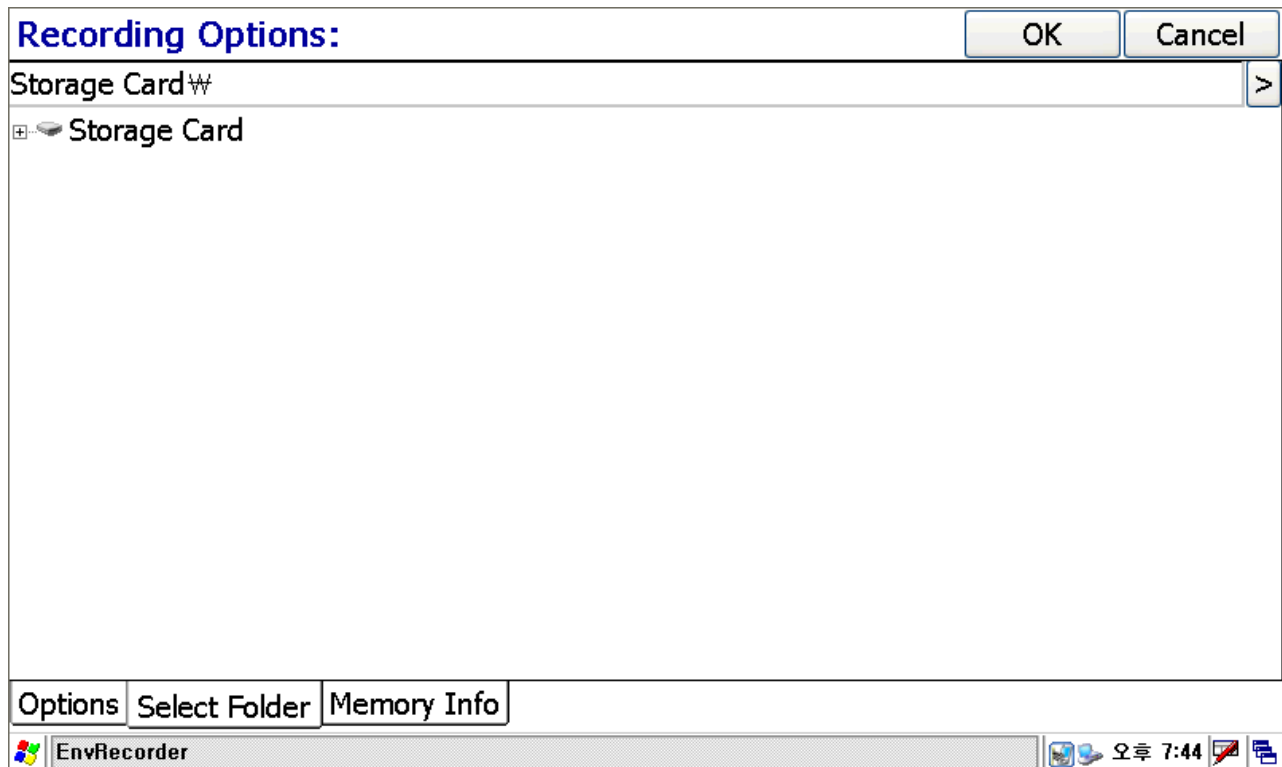
☐ Ask about deleting;

Timer in Manual Recording (EVS,BLAST): Do not use

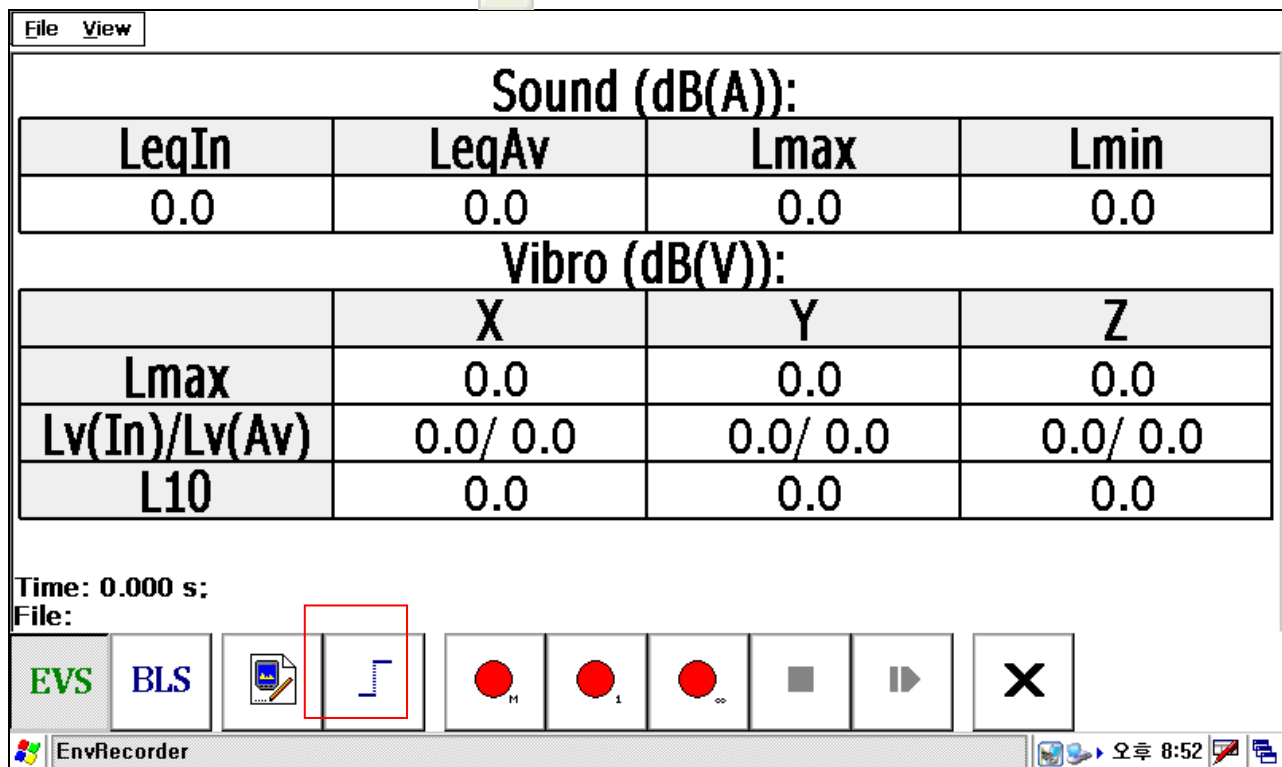
Options Select Folder Memory Info

EnvRecorder 오후 7:43

9. Select “Folder” at the bottom in the “Recording Options”, and select the position to save the file.  
The data has to be saved in the SD Memory by our program.



10. If display measurement window, click the icon at the bottom.





11. Move “Trigger Options” window, and set up “trigger level” with dB by “Vibration RMS”, and select “Recording Time”. You can select “Trigger Level” by 1 dB step from 45dB to 60dB, Recording Time can be selected among 1s, 2s, 3s, 5s, 10s, 1min, 5min, 1hour. Please click “OK”.

### Trigger Options:

OK

Cancel

Trigger Level (Vibration RMS): 51.0 dB

Recording Time :

|      |
|------|
| 47.0 |
| 48.0 |
| 49.0 |
| 50.0 |
| 51.0 |
| 52.0 |
| 53.0 |
| 54.0 |
| 55.0 |
| 56.0 |
| 57.0 |
| 58.0 |
| 59.0 |
| 60.0 |



### Trigger Options:

OK

Cancel

Trigger Level (Vibration RMS): 51.0 dB

Recording Time :

|        |
|--------|
| 1 sec  |
| 2 sec  |
| 3 sec  |
| 5 sec  |
| 10 sec |
| 1 min  |
| 5 min  |
| 1 hour |



12. Click the icon at the bottom in the measurement window again.

The screenshot shows the EnvRecorder software interface. At the top, there are 'File' and 'View' menus. Below them are two tables of measurement data.

**Sound (dB(A)):**

| LeqIn | LeqAv | Lmax | Lmin |
|-------|-------|------|------|
| 0.0   | 0.0   | 0.0  | 0.0  |

**Vibro (dB(V)):**

|               | X        | Y        | Z        |
|---------------|----------|----------|----------|
| Lmax          | 0.0      | 0.0      | 0.0      |
| Lv(In)/Lv(Av) | 0.0/ 0.0 | 0.0/ 0.0 | 0.0/ 0.0 |
| L10           | 0.0      | 0.0      | 0.0      |

Below the tables, it says 'Time: 0.000 s:' and 'File:'. At the bottom, there is a toolbar with several icons. One icon, representing a document with a pencil, is highlighted with a red rectangle. Other icons include a waveform, three red circles labeled H, 1, and ∞, a square, a play button, and a close button (X). The taskbar at the bottom shows 'EnvRecorder' and the system clock '오후 8:52'.

13. Move to “Analyzing Options” window, and set up the options of Sound channel and Vibration channels.

(1) Sound Channel : select “Integration time(F, S)”, “Frequency Weighting (Z, A, B)”, “Time Weighting(S, F, I, U)”. Usually, please select “Fast” for the “Integration time”, and select “A” for the “Frequency Weighting” , and select “Fast” for the “Time Weighting”.

The screenshot shows the 'Analyzing Options' dialog box. It has 'OK' and 'Cancel' buttons at the top right. The dialog is divided into two sections: 'Sound Channel:' and 'Vibro Channels:'.

**Sound Channel:**

- IntegrationTime: F (dropdown menu)
- FreqWeighting: A (dropdown menu)
- TimeWeighting: F (dropdown menu)

**Vibro Channels:**

- IntegrationTime: F (dropdown menu)
- ACC dBRef: 10.000 (dropdown menu) \*10<sup>-6</sup> m/ss

The taskbar at the bottom shows 'EnvRecorder' and the system clock '오후 7:46'.

(2) Vibration Channel : Set up “Integration Time(F, S)” and “dBref” value of vibration. Generally, select “Slow”, and put  $10 * 10^{-6}$  m/ss for ACC dBref value. And click “OK”.

### Analyzing Options:

OK

Cancel

#### Sound Channel:

IntegrationTime: S

FreqWeighting: F

S

TimeWeighting: F

#### Vibro Channels:

IntegrationTime: F

ACC dBRef: 10.000 \*  $10^{-6}$  m/ss



[참조] Sound Channel-Integration Time : S(Slow) integrate every 1 second, F(Fast) integrate every 125ms, and calculate Euivalent Sound Level(Leq).

### Analyzing Options:

OK

Cancel

#### Sound Channel:

IntegrationTime: S

FreqWeighting: A

Z

TimeWeighting: A

B

#### Vibro Channels:

IntegrationTime: F

ACC dBRef: 10.000 \*  $10^{-6}$  m/ss



[Example] Sound Channel-FreqWeighting : Select the frequency weighting among Z, A, B. A frequency weighting is designed to meet with human ear.

Analyzing Options:

OK
Cancel

Sound Channel:

IntegrationTime: S

FreqWeighting: A

TimeWeighting: F

Vibro Channels:

IntegrationTime: I

ACC dBRef: 10.000 \*10^-6 m/ss

EnvRecorder
오후 7:47

[Example] Sound Channel–TimeWeighting : Time weighting is weighted by time F(Fast) is sampled every 125ms, S(Slow) is sampled every 1 sec, I(Impulse)is sampled every 35ms.

Analyzing Options:

OK
Cancel

Sound Channel:

IntegrationTime: S

FreqWeighting: A

TimeWeighting: F

Vibro Channels:

IntegrationTime: F

ACC dBRef: 10.000 \*10^-6 m/ss

EnvRecorder
오후 7:47

[Example] Vibro Channels–IntegrationTime : Set up Integration time for the vibration channels. F(Fast) has 100ms of integration time, S(Slow) has 1 sec of Integration time.

**Analyzing Options:** OK Cancel

**Sound Channel:**

IntegrationTime: S

FreqWeighting: A

TimeWeighting: F

**Vibro Channels:**

IntegrationTime: F

ACC dBRef:  \*10<sup>-6</sup> m/ss

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[Example] Vibro Channels : Please select between 1 and 10, Usually 1 is used in Europe as a vibration reference value, Korea and Japan are used 10.

14. After set up all, do "Configuration Save As" at the file menu. Select the position to be saved the "Configuration file", and write file name using the touch key board at the bottom, and click "Save". To call the saved configuration file, do and call "File-Configuration Open".

**File View**

- Open...
- Save As...
- Export...
- Delete...
- Select Part...
- Properties...
- Transducer Options...
- Configuration Open...
- Configuration Save As...**
- Recording Options...
- Recording Information...
- About...
- Exit

**Sound (dB(A)):**

|  | LeqAv | Lmax | Lmin |
|--|-------|------|------|
|  | 0.0   | 0.0  | 0.0  |

**Vibro (dB(V)):**

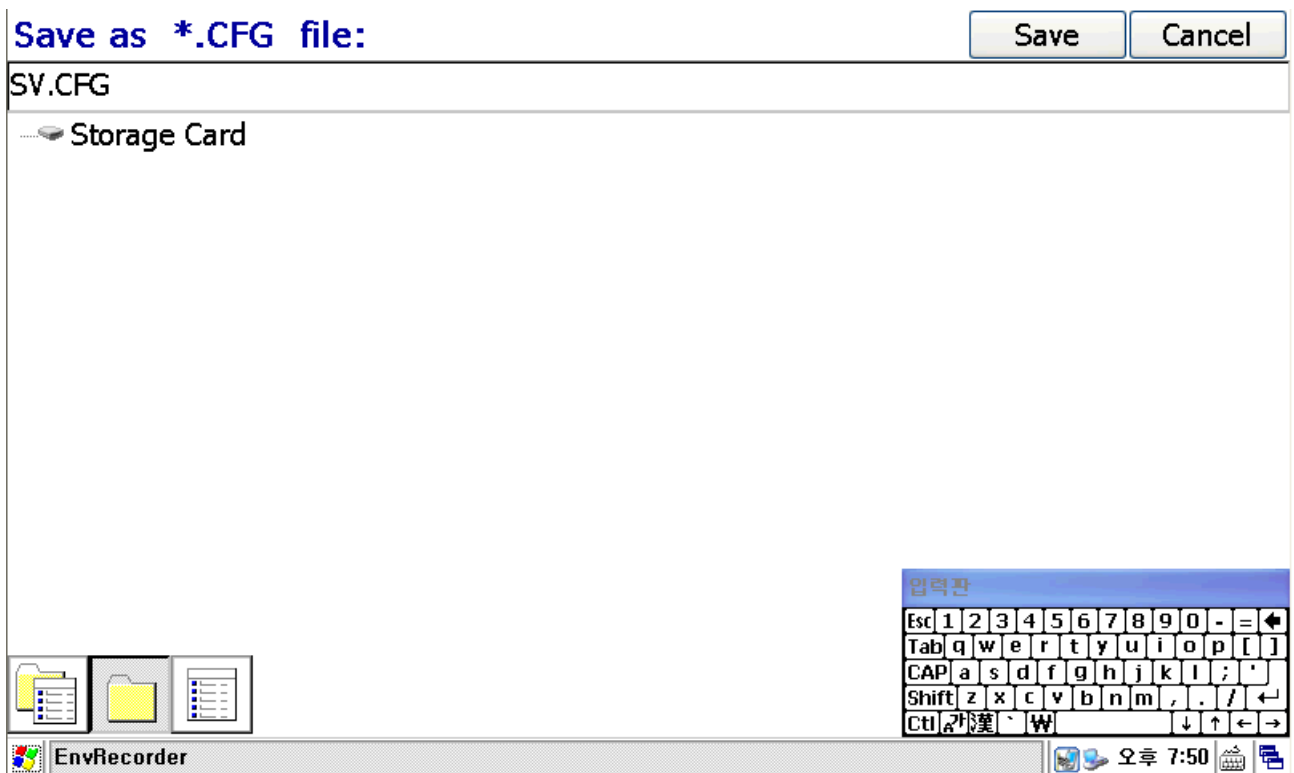
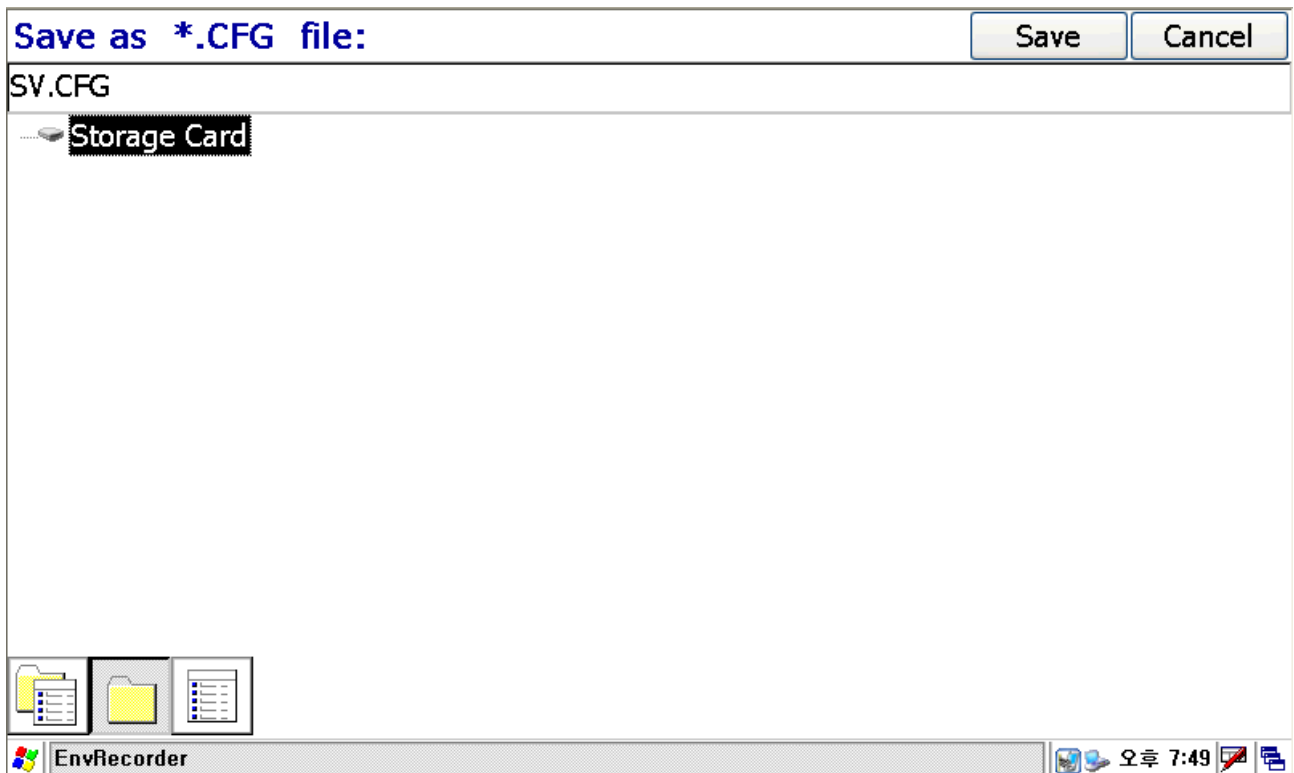
|    | X        | Y        | Z        |
|----|----------|----------|----------|
|    | 0.0      | 0.0      | 0.0      |
| v) | 0.0/ 0.0 | 0.0/ 0.0 | 0.0/ 0.0 |
|    | 0.0      | 0.0      | 0.0      |

**Time: 0.000 s:**

**File:**

**EVS BLS**

EnvRecorder 오후 8:52



[Example] Click Key board Icon at the right side of bottom, to remove the key board icon from the display, select the key board disappear by pressing the key board icon.

**File View**

- Open...
- Save As...
- Export...
- Delete...
- Select Part...
- Properties...
- Transducer Options...
- Configuration Open...**
- Configuration Save As...
- Recording Options...
- Recording Information...
- About...
- Exit

**Sound (dB(A)):**

|  | LeqAv | Lmax | Lmin |
|--|-------|------|------|
|  | 0.0   | 0.0  | 0.0  |

**Vibro (dB(V)):**

|    | X        | Y        | Z        |
|----|----------|----------|----------|
|    | 0.0      | 0.0      | 0.0      |
| v) | 0.0/ 0.0 | 0.0/ 0.0 | 0.0/ 0.0 |
|    | 0.0      | 0.0      | 0.0      |

**Time: 0.000 s:**  
**File:**

**EVS BLS**

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**Open \*.CFG file:** Open Cancel

Storage Card

| Name ▲ | Size | Date       | Time       |
|--------|------|------------|------------|
| SV.CFG | 43K  | 2012-06-07 | 오후 7:36:36 |

EnvRecorder 오후 7:50

15. To do measurement and saving the measured data, use “Red recording” Icon.

(1) Recording M : Click “Manual”. Then you can measure and save till click “Stop”

(2) Recording 1 : with “Single-shot recording option”, it will be measured and saved by the recording time defined at Position 11.

(3) Recording  $\infty$  : If click “recording” Icon, It will start the data acquisition by the trigger level, and stop the data acquisition by defined time, and wait the next Trigger Level. If meet “Trigger Level” signal, it will measure and save the data till you click “Stop”, continuously it will be doing the measurement and save the data repeatedly.

File
View

Sound (dB(A)):

| LeqIn | LeqAv | Lmax | Lmin |
|-------|-------|------|------|
| 0.0   | 0.0   | 0.0  | 0.0  |

Vibro (dB(V)):

|               | X        | Y        | Z        |
|---------------|----------|----------|----------|
| Lmax          | 0.0      | 0.0      | 0.0      |
| Lv(In)/Lv(Av) | 0.0/ 0.0 | 0.0/ 0.0 | 0.0/ 0.0 |
| L10           | 0.0      | 0.0      | 0.0      |

Time: 0.000 s:  
File:

EVS
BLS

EnvRecorder
오후 8:52

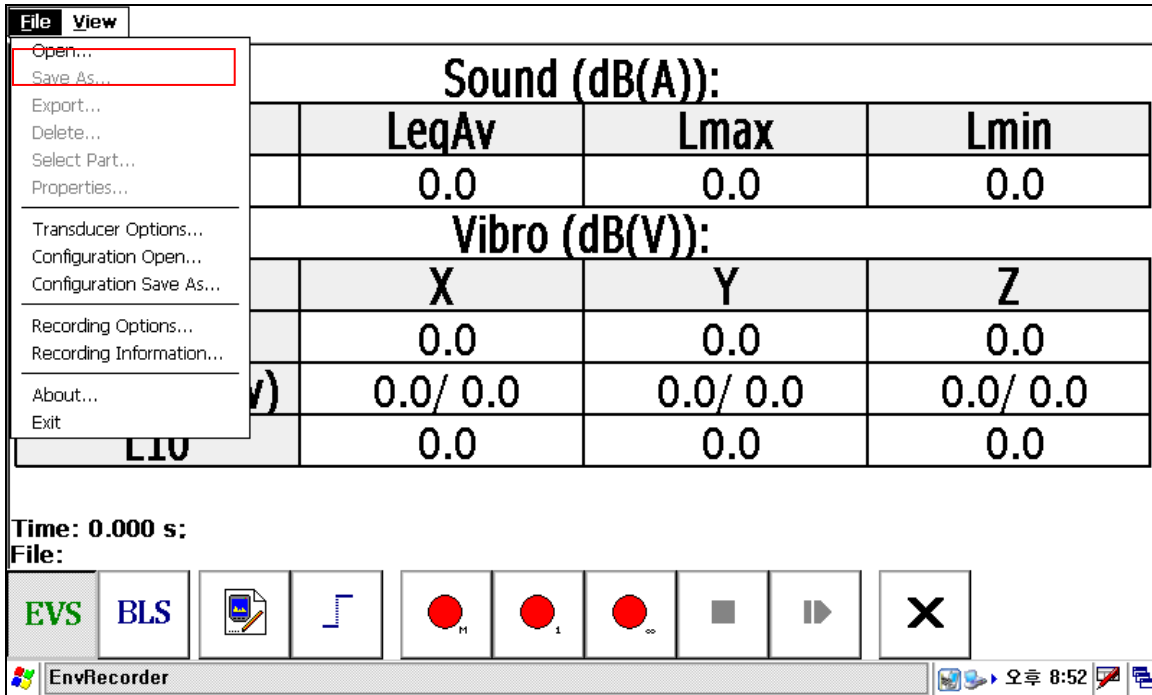
16. The saved data will be stored in the SD memory card, you can move the saved data of the SD memory card to your PC, and you can analyze the data with the PC EVS analysis software.



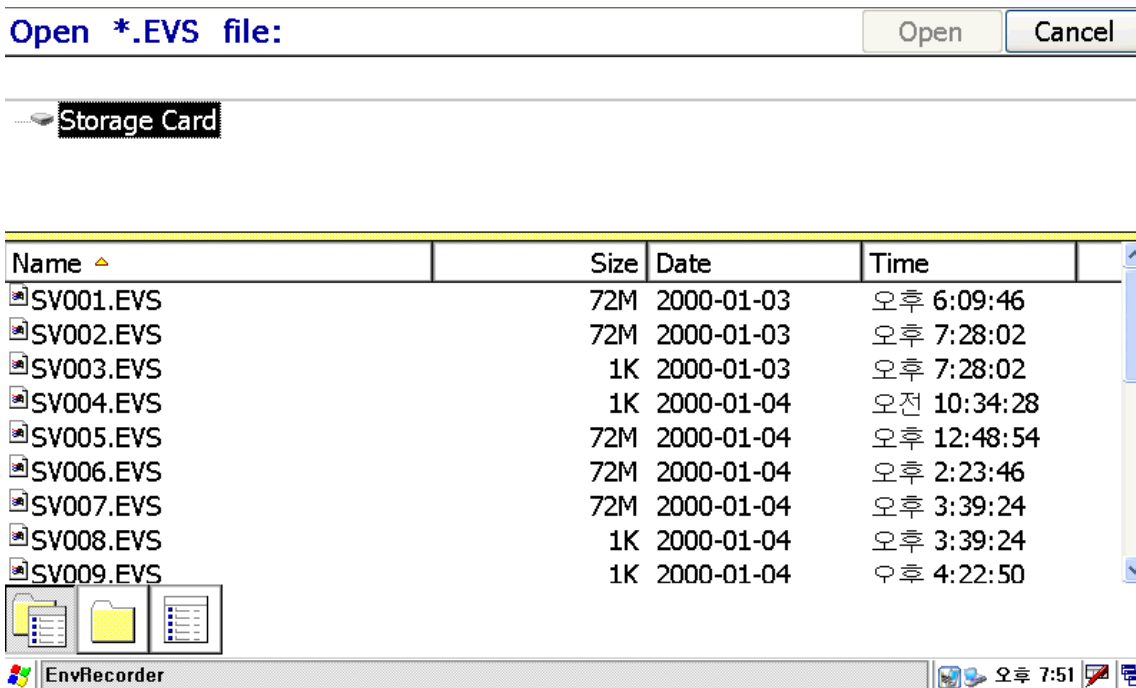
## [Appendix]

1. To open the saved data and to display the file information

(1) Please do "File-Open".



(2) Select the data to be opening, click "Open".



(3) Please do “File-Properties”, you can see the saved file information Open.

**File** **View**

- Open...
- Save As...
- Export...
- Delete...
- Select Part...
- Properties...**
- Transducer Options...
- Configuration Open...
- Configuration Save As...
- Recording Options...
- Recording Information...
- About...
- Exit

| Sound (dB(A)): |       |      |      |
|----------------|-------|------|------|
|                | LeqAv | Lmax | Lmin |
|                | 0.0   | 0.0  | 0.0  |

| Vibro (dB(V)): |          |          |          |
|----------------|----------|----------|----------|
|                | X        | Y        | Z        |
|                | 0.0      | 0.0      | 0.0      |
| v)             | 0.0/ 0.0 | 0.0/ 0.0 | 0.0/ 0.0 |
| L10            | 0.0      | 0.0      | 0.0      |

Time: 0.000 s:  
File:

EVS BLS [Document Icon] [Graph Icon] [H] [1] [∞] [Square] [Play] [X]

EnvRecorder 오후 8:52

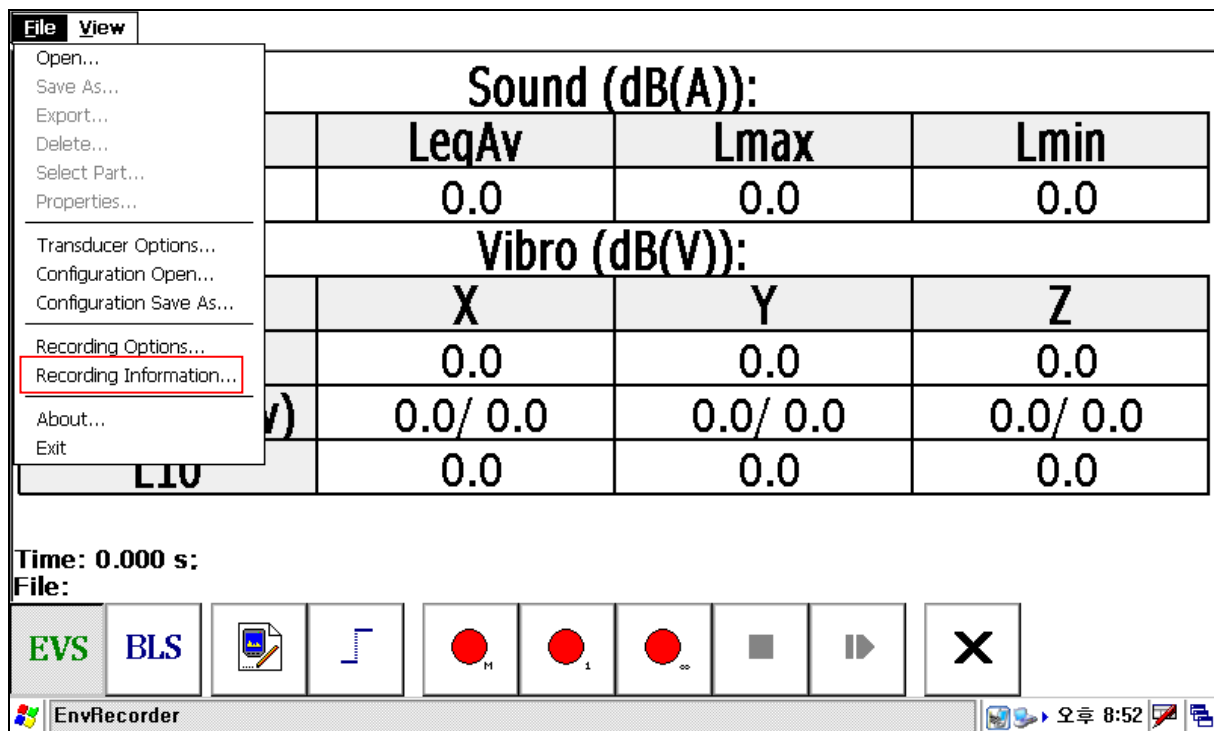
**File Properties:** Close

| Name           | Value                 |
|----------------|-----------------------|
| File           | SV001.WAV             |
| Data           | 2000-01-03            |
| Time           | 16:53:13              |
| Name           | Name                  |
| Object         | Object                |
| Location       | Location              |
| #1 Axis        | x-Axis                |
| #2 Axis        | y-Axis                |
| #3 Axis        | z-Axis                |
| Duration       | 3600.250 seconds      |
| Sample Rate    | 512 Hz                |
| #1 Sensitivity | 800.000 mV/g          |
| Gain           | Amp: x2; Comp: 1.000; |
| #2 Sensitivity | 800.000 mV/g          |
| Gain           | Amp: x2; Comp: 1.000; |
| #3 Sensitivity | 800.000 mV/g          |
| Gain           | Amp: x2; Comp: 1.000; |

EnvRecorder 오후 7:52

## 2. Set up “Recording Information” for the data to be saving

(1) Please do “File-Recording Information”.



(2) Put the saving information for the data. Name of person, Object of measurement, measuring position, Axis direction information of 1,2,3 channels for vibration name.

**Recording Info:**

OK

Cancel

Name:

Date:

Object:

Location:

Direction:

Ch 1:

Ch 2:

Ch 3:

+

-

Taskbar: EnvRecorder, [System Icons], 오후 7:52

### 3. to change the background color of the display

(1) View-Color Schema: If select "Black&White" Background color will be white and letter will be black, if not select it, background will be black and letter will be green. Under shine, it will illegible, So please check the "Black&White".

The screenshot shows the EnvRecorder software interface. The 'View' menu is open, and 'Color Schema: Black&White' is selected. The main display area shows the following data:

| Sound (dB(A)): |      |      |  |
|----------------|------|------|--|
| LeqAv          | Lmax | Lmin |  |
| 0.0            | 0.0  | 0.0  |  |

| Vibro (dB(V)): |     |     |  |
|----------------|-----|-----|--|
| X              | Y   | Z   |  |
| 0.0            | 0.0 | 0.0 |  |

| Lv(In)/Lv(Av) |          |          |  |
|---------------|----------|----------|--|
| 0.0/ 0.0      | 0.0/ 0.0 | 0.0/ 0.0 |  |
| L10           | 0.0      | 0.0      |  |

Time: 0.000 s;  
File:

The interface also includes buttons for 'EVS', 'BLS', and various measurement functions (M, 1, ∞, square, play, and close).

The screenshot shows the EnvRecorder software interface with the 'View' menu open and 'Color Schema: Black&White' selected. The main display area shows the following data:

| Sound (dB(A)): |      |      |  |
|----------------|------|------|--|
| LeqAv          | Lmax | Lmin |  |
| 0.0            | 0.0  | 0.0  |  |

| Vibro (dB(V)): |     |     |  |
|----------------|-----|-----|--|
| X              | Y   | Z   |  |
| 0.0            | 0.0 | 0.0 |  |

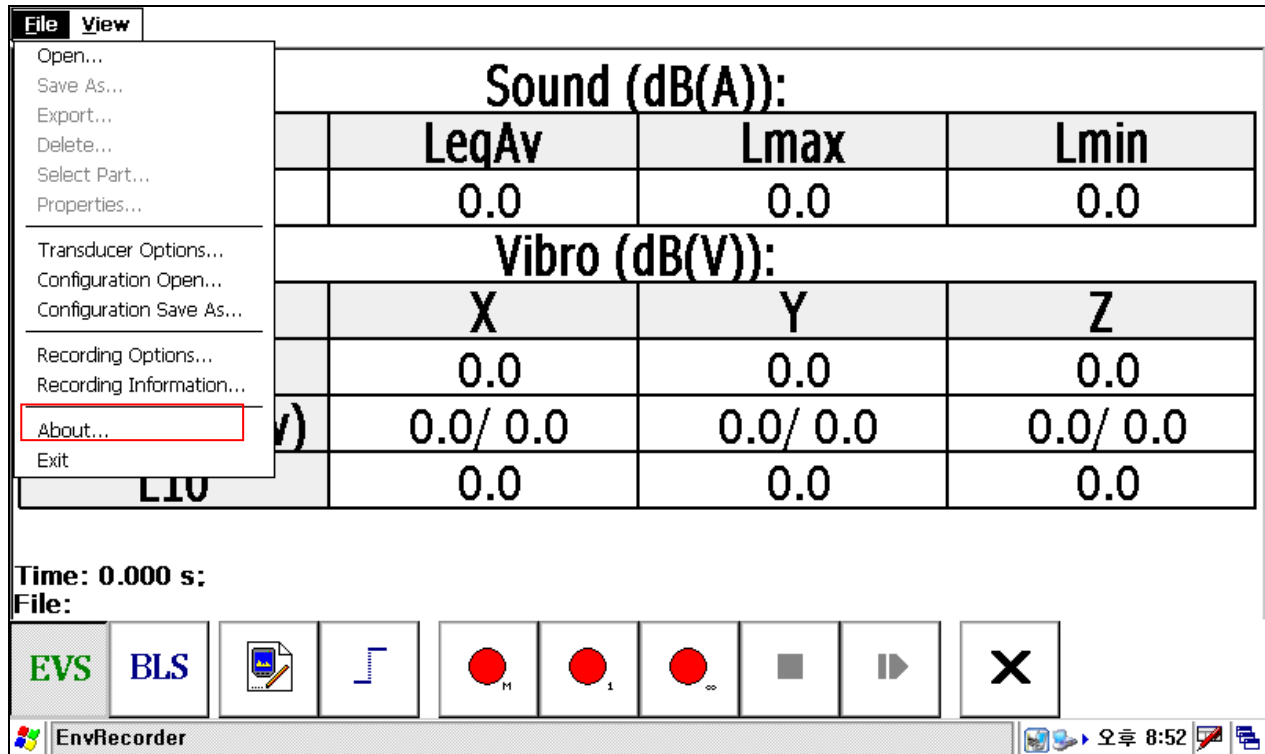
| Lv(In)/Lv(Av) |          |          |  |
|---------------|----------|----------|--|
| 0.0/ 0.0      | 0.0/ 0.0 | 0.0/ 0.0 |  |
| L10           | 0.0      | 0.0      |  |

Time: 0.000 s;  
File:

The interface also includes buttons for 'EVS', 'BLS', and various measurement functions (M, 1, ∞, square, play, and close).

#### 4. Display the information of the measuring system

(1) If do “File–About”, you can find the software version and hardware firmware version of the measuring system.



**File View**

- Open...
- Save As...
- Export...
- Delete...
- Select Part...
- Properties...
- Transducer Options...
- Configuration Open...
- Configuration Save As...
- Recording Options...
- Recording Information...
- About...**
- Exit

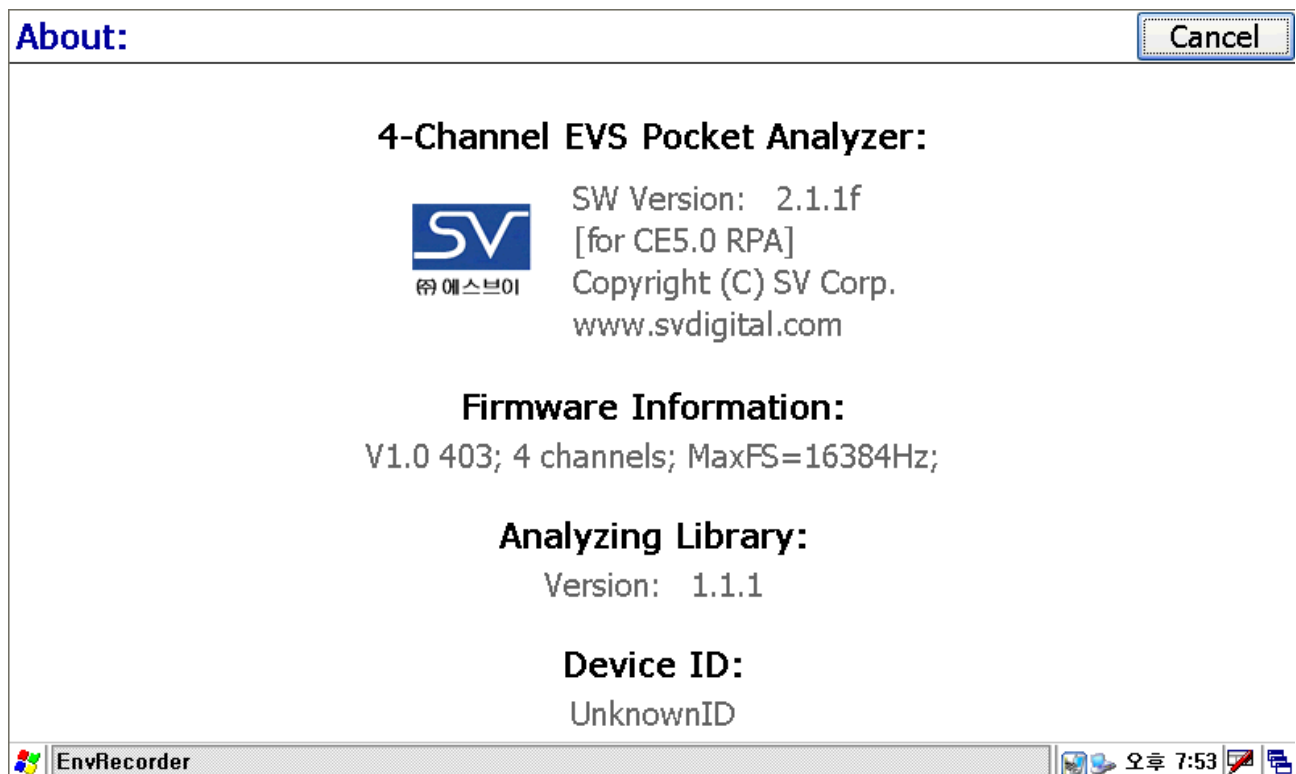
| Sound (dB(A)): |       |      |      |
|----------------|-------|------|------|
|                | LeqAv | Lmax | Lmin |
|                | 0.0   | 0.0  | 0.0  |

| Vibro (dB(V)): |          |          |          |
|----------------|----------|----------|----------|
|                | X        | Y        | Z        |
|                | 0.0      | 0.0      | 0.0      |
| v)             | 0.0/ 0.0 | 0.0/ 0.0 | 0.0/ 0.0 |
|                | 0.0      | 0.0      | 0.0      |

**Time: 0.000 s;**  
**File:**


**EVS BLS** [Icons: File, Plot, M, 1, ∞, Stop, Play, Close]

EnvRecorder [System Tray: Network, Volume, Clock 8:52, Safely Remove Hardware, Help]



**About:** [Cancel]

**4-Channel EVS Pocket Analyzer:**



SW Version: 2.1.1f  
 [for CE5.0 RPA]  
 Copyright (C) SV Corp.  
[www.svdigital.com](http://www.svdigital.com)

**Firmware Information:**  
 V1.0 403; 4 channels; MaxFS=16384Hz;

**Analyzing Library:**  
 Version: 1.1.1

**Device ID:**  
 UnknownID

EnvRecorder [System Tray: Network, Volume, Clock 7:53, Safely Remove Hardware, Help]