

## 9 CALCULATION OF DOSE PARAMETERS - AUXILIARY FUNCTIONS

In order to open the **AUXILIARY FUNCTIONS** list the user has to:

- press the **<Menu>** push-button,
- select from the main list, using the **<▲>**, **<▼>** (or **<<<>**, **>>>>**) push-buttons, the **AUXILIARY FUNCTIONS** text (highlight it inversely),
- press finely the **<ENTER>** push-button.

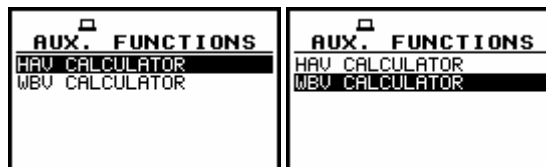
Pressing the **<Shift>** and **<▲>** (or **<Shift>** and **<<<>**) results in a movement to the first position of the opened list and pressing the **<Shift>** and **<▼>** (or **<Shift>** and **>>>>**) results in a movement to the last position of the opened list.



Main list with **AUXILIARY FUNCTIONS** text highlighted (displayed inversely)

The **AUXILIARY FUNCTIONS** list is used to calculate the various parameters, which are mainly dedicated for the control of the vibration measurements. This sub-list contains two positions: **HAV CALCULATOR** and **WBV CALCULATOR**, which are used to calculate the characteristic parameters for these measurements. It enables to calculate the **HAV** and **WBV** value, **PARTIAL RESULTS (PARTIAL EXPOSURE)** and **DAILY RESULTS (DAILY EXPOSURE)**.

In order to confirm the selection the **<ENTER>** push-button has to be pressed. After this confirmation, the opened window or list is closed. In order to ignore any changes made in the opened window or list the user has to press the **<ESC>** push-button.



**AUXILIARY FUNCTIONS** windows

### 9.1 Selection of the calculation results - HAV CALCULATOR

The **HAV CALCULATOR** (*path: MENU / AUXILIARY FUNCTIONS / HAV CALCULATOR*) is used to calculate the various **HAND-ARM** parameters which are mainly dedicated for the control of the vibration dose. There are calculated: the **PARTIAL EAV/ELV**, **PARTIAL EXPOSURE** and **DAILY EXPOSURE** of vibration. All results are counted according to the standard selected in the **STANDARD** (*path: MENU / INPUT / AUXILIARY SETUP / HAV/WBV DOSE SETUP / STANDARDS*). In order to enter the sub-list the user has to select the **HAV CALCULATOR** text in the **AUXILIARY FUNCTIONS** list, using the **<▲>**, **<▼>** (or **<<<>**, **>>>>**) push-buttons and press the **<ENTER>** one. The selection of a parameter which level has to be set is done by means of the **<▲>**, **<▼>** push-buttons.

This function is available only in **VLM** mode.

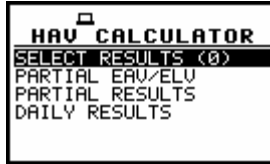
In the **HAV CALCULATOR** list, the following items are available:

- SELECT RESULTS** that enables the user to select files with measurement's results with **HAND-ARM** data;
- PARTIAL EAV/ELV** that displays the partial result of dose;

**PARTIAL RESULTS** that displays the result of exposure;

**DAILY RESULTS** that displays the result of daily exposure.

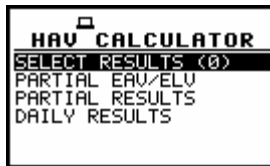
The user can select available position from the main list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons, the display text is highlighted inversely. In order to confirm the selection the <ENTER> push-button has to be pressed. After this confirmation, the opened window or list is closed. In order to ignore any changes made in the opened window or list the user has to press the <ESC> push-button.



HAV CALCULATOR window

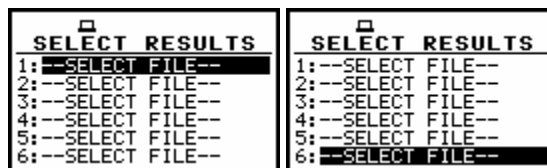
### 9.1.1 Selection of the file with result of measurement - SELECT RESULTS

The **SELECT RESULT** (path: MENU / AUXILIARY FUNCTIONS / HAV CALCULATOR / SELECT RESULTS) is used to load data file from the FLASH DISC (memory of the instrument). User selects which files of measurement should be used to determine results of measurements. It is possible to select 6 files, which include measurement's results with **HAND-ARM** data. The position is opened after pressing the <ENTER> push-button when the **SELECT RESULTS** text in the **HAV CALCULATOR** list is displayed inversely (selected using the <▲>, <▼> (or <◀>, <▶>) push-buttons). The return to the **AUXILIARY FUNCTIONS** list is possible after pressing the <ESC> push-button.

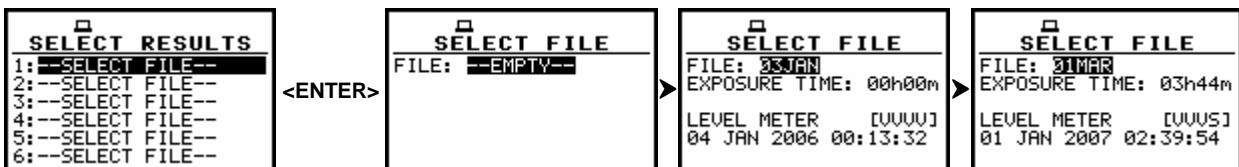


HAV CALCULATOR window with SELECT RESULTS text highlighted (displayed inversely)

After pressing the <ENTER> push-button the window is closed and the instrument opens new sub-list. It consists of six positions. In order to enter the file the user has to select it using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>.



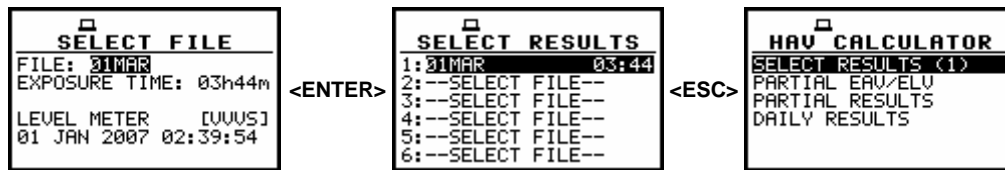
SELECT RESULTS list



Displays during the selection of the files

The current file is displayed in the first line. The **EXPOSURE TIME** is displayed in the second line. The change of the current file with the unit step can be done after pressing the <◀>, <▶> push-buttons. After pressing the <◀> with <Shift> push-button the first file is available and after pressing the <▶> with <Shift> push-button - the last one is displayed.

The name of the file is accepted and the file is loaded after pressing the **<ENTER>** push-button. The name of this file appears in a list as it is presented below.



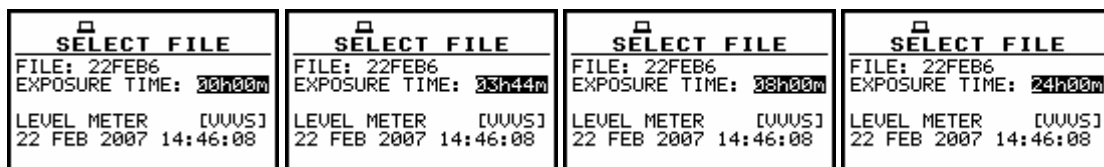
Display with the selecting file and after the execution of the operation

The figure in the brackets on the right side of the **SELECT RESULTS** indicates the number of selected files.

The message is displayed when the selected file does not include **HAND-ARM** data. The instrument waits for the reaction of the user until pressing any push-button except the **<Shift>** and **<Alt>**. After that, it returns to the **SELECT RESULTS** list.



Display after checking the contents of the file without **HAND-ARM** data

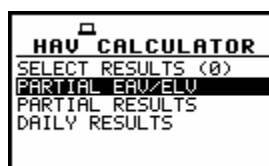


**SELECT FILE** windows during the execution of the setting **EXPOSURE TIME** operation

The **EXPOSURE TIME** defines the period during that the measurement results are extrapolated. The required parameter can be set by means of the **<<>**, **<>>** and confirmed by the **<ENTER>** push-button. The integration time (**EXPOSURE TIME**) can be set (from **00h00m** to **24h00m** with **1m** step by pressing the **<<>**, **<>>** push-buttons or with **30m** step by pressing **<Shift>** with **<<>**, **<>>** push-buttons). The user can set the **EXPOSURE TIME** for each file separately.

### 9.1.2 Selection of the partial results - **PARTIAL EAV/ELV**

The **PARTIAL EAV/ELV** (path: **MENU / AUXILIARY FUNCTIONS / HAV CALCULATOR / PARTIAL EAV/ELV**) is used to display partial results, for each file separately. The results are displayed in two columns – the first column for **EAV** results and the second for **ELV** results. The position is opened after pressing the **<ENTER>** push-button when the **PARTIAL EAV/ELV** text in the **HAV CALCULATOR** sub-list is displayed inversely (selected using the **<^>**, **<v>** (or **<<>**, **<>>**) push-buttons). The return to the **HAV CALCULATOR** sub-list is possible after pressing the **<ESC>** push-button.



**HAV CALCULATOR** window with **PARTIAL EAV/ELV** text highlighted (displayed inversely)

EAV		ELU	
1:	---	---	---
2:	---	---	---
3:	---	---	---
4:	---	---	---
5:	---	---	---
6:	---	---	---

SELECT RESULTS		
1:	HAV9	08:00
2:	HAV3	05:45
3:	--SELECT FILE--	
4:	HAV3	03:00
5:	@HAV13	08:00
6:	--SELECT FILE--	

EAV		ELU	
1:	00:03	>>24:00	
2:	00:05	00:22	
3:	---	---	
4:	00:05	00:22	
5:	00:31	02:04	
6:	---	---	

Displays with the empty partial result list (a), the selecting file in SELECT RESULTS window (b) and PARTIAL EAV/ELV results for selected files (c)

### 9.1.3 Selection of the partial results - PARTIAL RESULTS

The **PARTIAL RESULTS** (*path: MENU / AUXILIARY FUNCTIONS / HAV CALCULATOR / PARTIAL RESULTS.*) is used to display **EXPOSURE** results, separately for each selected file. The results are displayed in one column; there are six lines - one for each file. The window is opened after pressing the **<ENTER>** push-button when the **PARTIAL RESULTS** text in the **HAV CALCULATOR** sub-list is displayed inversely (selected using the **<▲>**, **<▼>** (or **<<>**, **<>>**) push-buttons). The return to the **HAV CALCULATOR** sub-list is possible after pressing the **<ESC>** push-button.

WBV CALCULATOR	
SELECT RESULTS (0)	
PARTIAL EAV/ELV	
<b>PARTIAL RESULTS</b>	
DAILY RESULTS	

HAV CALCULATOR window with PARTIAL RESULTS text highlighted (displayed inversely)

The return to the **HAV CALCULATOR** window is possible after pressing the **<ESC>** push-button.

EXPOSURE	
1:	2.23 m/s <sup>2</sup>
2:	19.7 m/s <sup>2</sup>
3:	---
4:	14.2 m/s <sup>2</sup>
5:	9.83 m/s <sup>2</sup>
6:	---

EXPOSURE results for selected files

### 9.1.4 Selection of the daily exposure - DAILY RESULTS

The **DAILY RESULTS** (*path: MENU / AUXILIARY FUNCTIONS / HAV CALCULATOR / DAILY RESULTS*) is used to display **DAILY EXPOSURE** results for all selected files. The result is counted relatively to **EXPOSURE TIME**. The window is opened after pressing the **<ENTER>** push-button when the **DAILY RESULTS** text in the **HAV CALCULATOR** list is displayed inversely (selected using the **<▲>**, **<▼>** (or **<<>**, **<>>**) push-buttons). The return to the **HAV CALCULATOR** sub-list is possible after pressing the **<ESC>** push-button.

HAV CALCULATOR	
SELECT RESULTS (0)	
PARTIAL EAV/ELV	
PARTIAL RESULTS	
<b>DAILY RESULTS</b>	

HAV CALCULATOR window with DAILY RESULTS text highlighted (displayed inversely)



**DAILY RESULTS** window with the result for selected files

## 9.2 Selection of the calculation results - WBV CALCULATOR

The **WBV CALCULATOR** (*path: MENU / AUXILIARY FUNCTIONS / WBV CALCULATOR*) is available in **VLM** mode and used to calculate the various **WBV** parameters. It enables to analyse results based on data saved in files. There are calculated the **PARTIAL EAV/ELV**, **PARTIAL EXPOSURE**, **DAILY EXPOSURE** and **DAILY DOSE** of vibration. All results are calculated according to the standard selected in **STANDARD** (*path: MENU / INPUT / AUXILIARY SETUP / HAV/WBW DOSE SETUP / STANDARDS*).

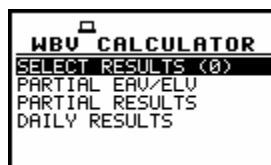
In order to enter this sub-list the user has to select the **WBV CALCULATOR** text in the **HAV/WBV CALC.** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>. The selection of a parameter which level has to be set is done by means of the <▲>, <▼> push-buttons.

In the **WBV CALCULATOR** sub-list, the following items are available:

- SELECT RESULTS** that enables the user to select files with measurement results;
- PARTIAL EAV/ELV** that displays the partial result of dose;
- PARTIAL RESULTS** that displays the result of partial exposure;
- DAILY RESULTS** that displays the results of daily exposure and daily dose.

The user can select available position select from the main list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons, the display text is highlighted inversely. In order to confirm the selection the <ENTER> push-button has to be pressed. After this confirmation, the opened window is closed.

In order to ignore any changes made in the opened window or list the user has to press the <ESC> push-button.

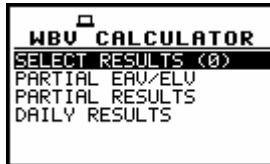


**WBV CALCULATOR** window

### 9.2.1 Selection of the file with result of measurement - SELECT RESULTS

The **SELECT RESULTS** (*path: MENU / AUXILIARY FUNCTIONS / WBV CALCULATOR / SELECT RESULTS.*) is used to load data file from the FLASH DISC. User selects which data files should be used to determine results of measurements. It is possible to select up to 6 files, which include measurements results with **WBV** data.

The window is opened after pressing the <ENTER> push-button when the **SELECT RESULTS** text in the **WBV CALCULATOR** list is displayed inversely (selected using the <▲>, <▼> (or <◀>, <▶>) push-buttons). The return to the **AUXILIARY FUNCTIONS** list is possible after pressing the <ESC> push-button.



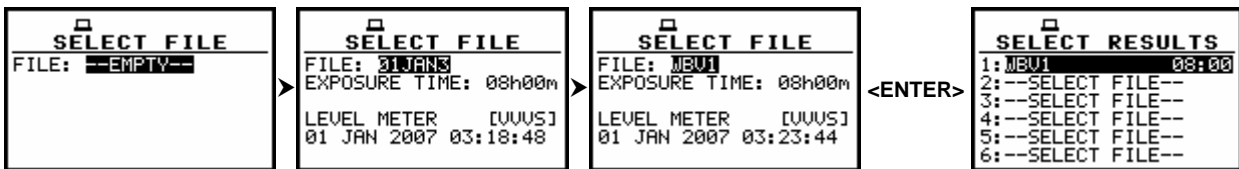
**WBV CALCULATOR window with SELECT RESULTS text highlighted (displayed inversely)**

After pressing the <ENTER> push-button the window is closed and the instrument opens new sub-list. It consists of six positions. The user can rewind the list using the <▲>, <▼> (or <◀>, <▶>) push-buttons and select the position after pressing <ENTER>.



**Displays in the SELECT RESULTS list**

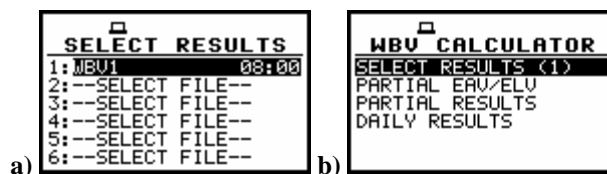
In order to enter the file the user has to select it using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>.



**SELECT FILE windows with the selection of the file**

The current file is displayed in the first line. The name of the file is displayed inversely in the second line. The change of the current file with the unit step can be done after pressing the <◀>, <▶> push-buttons. After pressing the <◀> with <Shift> push-button the first file is available and after pressing the <▶> with <Shift> push-button - the last one is displayed.

The name of the file is accepted and the file is loaded after pressing the <ENTER> push-button. The name of this file appears in a list presented below.



**Displays with the selected file (a) and after the execution of the operation (b)**

The figure in the brackets on the right side of the **SELECT RESULTS** indicates number of selected files. The message below is displayed when the selected file does not include **WBV** data. After pressing any push-button except the <Shift> one it returns to the **SELECT RESULTS** sub-list.



**Display after the execution of loading a file without WBV data**

<b>SELECT FILE</b> FILE: WBV1 EXPOSURE TIME: <b>00h00m</b> LEVEL METER [UUUS] 01 JAN 2007 03:23:44	<b>SELECT FILE</b> FILE: WBV1 EXPOSURE TIME: <b>02h30m</b> LEVEL METER [UUUS] 01 JAN 2007 03:23:44	<b>SELECT FILE</b> FILE: WBV1 EXPOSURE TIME: <b>05h52m</b> LEVEL METER [UUUS] 01 JAN 2007 03:23:44	<b>SELECT FILE</b> FILE: WBV1 EXPOSURE TIME: <b>24h00m</b> LEVEL METER [UUUS] 01 JAN 2007 03:23:44
--	--	--	--

Displays during the execution of the setting EXPOSURE TIME operation

The **EXPOSURE TIME** defines the period for the extrapolation of measurement results. The required parameters can be set by means of the <<>, <>> and confirmed by the <ENTER> push-button. The integration time (**EXPOSURE TIME**) can be chosen from **00h00m** to **24h00m** with **1m** step by pressing the <<>, <>> push-buttons or with **30m** step by pressing <Shift> with <<>, <>> push-buttons. The user can set the **EXPOSURE TIME** for each file separately.

### 9.2.2 Selection of the partial results - PARTIAL EAV/ELV

The **PARTIAL EAV/ELV** (*path: MENU / AUXILIARY FUNCTIONS / WBV CALCULATOR / PARTIAL EAV/ELV*) is used to display partial results, for each file separately. The results are displayed in two columns – the first column for **EAV** results and the second for **ELV** results. The position is opened after pressing the <ENTER> push-button when the **PARTIAL EAV/ELV** text in the **WBV CALCULATOR** sub-list is displayed inversely (selected using the <▲>, <▼> (or <<>, <>>) push-buttons). The return to the **WBV CALCULATOR** sub-list is possible after pressing the <ESC> push-button.

<b>WBV CALCULATOR</b> SELECT RESULTS (0) <b>PARTIAL EAV/ELV</b> PARTIAL RESULTS DAILY RESULTS
---

WBV CALCULATOR window with PARTIAL EAV/ELV text highlighted (displayed inversely)

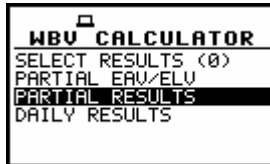
<table border="1"> <thead> <tr> <th></th> <th>EAV</th> <th>ELV</th> </tr> </thead> <tbody> <tr><td>1:</td><td>---</td><td>---</td></tr> <tr><td>2:</td><td>---</td><td>---</td></tr> <tr><td>3:</td><td>---</td><td>---</td></tr> <tr><td>4:</td><td>---</td><td>---</td></tr> <tr><td>5:</td><td>---</td><td>---</td></tr> <tr><td>6:</td><td>---</td><td>---</td></tr> </tbody> </table>		EAV	ELV	1:	---	---	2:	---	---	3:	---	---	4:	---	---	5:	---	---	6:	---	---	<table border="1"> <thead> <tr> <th colspan="3">SELECT RESULTS</th> </tr> </thead> <tbody> <tr><td>1:</td><td>0WBUS</td><td>02:00</td></tr> <tr><td>2:</td><td>07MAR</td><td>12:30</td></tr> <tr><td>3:</td><td>07MARS</td><td>08:00</td></tr> <tr><td>4:</td><td>--SELECT FILE--</td><td></td></tr> <tr><td>5:</td><td>0WBUS3</td><td>08:00</td></tr> <tr><td>6:</td><td>0WBUS4</td><td>02:30</td></tr> </tbody> </table>	SELECT RESULTS			1:	0WBUS	02:00	2:	07MAR	12:30	3:	07MARS	08:00	4:	--SELECT FILE--		5:	0WBUS3	08:00	6:	0WBUS4	02:30	<table border="1"> <thead> <tr> <th></th> <th>EAV</th> <th>ELV</th> </tr> </thead> <tbody> <tr><td>1:</td><td>00:00</td><td>01:37</td></tr> <tr><td>2:</td><td>00:12</td><td>06:38</td></tr> <tr><td>3:</td><td>00:00</td><td>00:07</td></tr> <tr><td>4:</td><td>---</td><td>---</td></tr> <tr><td>5:</td><td>00:00</td><td>01:37</td></tr> <tr><td>6:</td><td>00:00</td><td>00:00</td></tr> </tbody> </table>		EAV	ELV	1:	00:00	01:37	2:	00:12	06:38	3:	00:00	00:07	4:	---	---	5:	00:00	01:37	6:	00:00	00:00
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Displays with the empty partial result list (a), the selecting file in SELECT RESULT sub-list (b) and PARTIAL EAV/ELV results for selected files (c)

The user can rewind the **SELECT RESULTS** sub-list and **PARTIAL EAV/ELV** list using the <▲>, <▼> push-buttons. The return to the **WBV CALCULATOR** sub-list is possible after pressing the <ESC> push-button.

### 9.2.3 Selection of the partial results - PARTIAL RESULTS

The **PARTIAL RESULTS** (*path: MENU / AUXILIARY FUNCTIONS / WBV CALCULATOR / PARTIAL RESULTS*) is used to display **PARTIAL EXPOSURE** results. The results are displayed in one column and represented by six positions for each file separately. The window is opened after pressing the <ENTER> push-button when the **PARTIAL EXP.** text in the **WBV CALCULATOR** sub-list is displayed inversely (selected using the <▲>, <▼> (or <<>, <>>) push-buttons). The return to the **WBV CALCULATOR** window is possible after pressing the <ESC> push-button.



WBV CALCULATOR window with PARTIAL RESULTS text highlighted (displayed inversely)

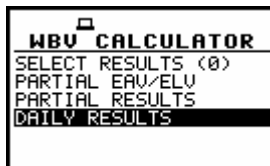
	EXPOSURE	DOSE
1:	0.59 m/s <sup>2</sup>	9.42 m/s <sup>1.1</sup>
2:	1.55 m/s <sup>2</sup>	24.9 m/s <sup>1.1</sup>
3:	2.28 m/s <sup>2</sup>	39.9 m/s <sup>1.1</sup>
4:	3.99 m/s <sup>2</sup>	84.2 m/s <sup>1.1</sup>
5:	12.6mm/s <sup>2</sup>	0.22 m/s <sup>1.1</sup>
6:	14.7 m/s <sup>2</sup>	403 m/s <sup>1.1</sup>

PARTIAL RESULTS with EXPOSURE DOSE for selected files

The return to the WBV CALCULATOR window is possible after pressing the <ESC> push-button.

#### 9.2.4 Selection of the daily results - DAILY RESULTS

The **DAILY RESULTS** (*path: MENU / AUXILIARY FUNCTIONS / WBV CALCULATOR / DAILY RESULTS*) is used to display **DAILY EXPOSURE** and **DAILY DOSE** results for all selected files. The result is calculated relatively to **EXPOSURE TIME**. The window is opened after pressing the <ENTER> push-button when the **DAILY RESULTS** text in the **WBV CALCULATOR** sub-list is displayed inversely (selected using the <▲>, <▼> (or <◀>, <▶>)) push-buttons). The return to the **WBV CALCULATOR** window is possible after pressing the <ESC> push-button.



WBV CALCULATOR window with DAILY RESULTS text highlighted (displayed inversely)

```

DAILY RESULTS
DAILY EXPOSURE
  15.5 m/s2
DAILY DOSE
  403 m/s1.1
    
```

DAILY EXPOSURE and DAILY DOSE results for selected file