

# COMMUNICATION

## Pulsar 33 - PC

# 1. GENERAL

---

## 1.1. USB

The sound level meter is a HID.

The PC sends 16 byte reports to the sound level meter.

The sound level meter sends 64 byte reports to the PC.

Enumeration:

- Vendor ID: 0x1155 (4437)
- Product ID: 0x0002

## 1.2. RS-232

The PC sends reports to the sound level meter with the following structure:

- STX: 2
- 16 bytes
- ETX: 3
- LRC. XOR of all the bytes sent (1 byte).

The sound level meter sends reports to the PC with the following structure:

- STX: 2
- 64 bytes
- ETX: 3
- LRC. XOR of all the bytes sent (1 byte).

Configuration:

- 115200 bits/sec
- 8 bits
- 1 stop bit
- Parity none
- Control flow by hardware (the –RTS and –CTS signals control the transmission)

It is the same as with the USB but it will not wait for ACK when it transmits the contents of the memory.

When a device is connected to the RS-232 port, the sound level meter sends the following character string to configure a modem:

```
+++ATE0S0=1Q1OCR
```

This character string is also sent when opening the serial PC port, the one connected to the sound level meter. When the serial port from the PC is open, wait 3 seconds before starting a transmission to the sound level meter.

## 2. FROM PC TO SOUND LEVEL METER

---

### 2.1. Control codes

It is a report where the first byte is a control code.

- |              |                |   |
|--------------|----------------|---|
| ▪ “0” (48)   | STOP           | Ends the measurement process.   |
| ▪ “1” (49)   | RUN            | Starts a measurement process when it is stopped or continues the process when it is paused. Transmit data to PC.<br>If it is in “reverberation time mode” is equal to OK key. |
| ▪ “2” (50)   | PAUSE          | If it is at RUN stops the measurement process temporally.<br>If it is at STOP starts the recording.   |
| ▪ “H” (72)   | TIME           | Request the time to the sound level meter clock.  |
| ▪ “P” (80)   | PROGRAMATION   | Requests the sound level meter programmation.   |
| ▪ “I” (73)   | IDENTIFICACIÓN | Requests the sound level meter identification.  |
| ▪ “M” (77)   | MEMORY         | Requests the memory contents.   |
| ▪ “ACK” (06) | ACKNOWLEDGE    | It is sent after 100 memory reports by USB.   |
| ▪ “CAN” (24) | CANCELATION    | Cancels the transmission of the memory contents.  |
| ▪ “ESC” (27) | ESCAPE         | Stops temporally the transmission of the memory contents.   |

The following codes are only accepted when it is stopped.

- |             |                |  |
|-------------|----------------|--|
| ▪ “S” (83)  | SLM            | Enter to SLM mode, does not affect to the programmation.   |
| ▪ “O” (79)  | 1/1            | Enter to 1/1 mode, does not affect to the programmation.   |
| ▪ “T” (84)  | 1/3            | Enter to 1/3 mode, does not affect to the programmation.   |
| ▪ “R” (82)  | REVER 1/1      | Enter to reverberation time1/1 mode, does not affect to the programmation.                             |
| ▪ “r” (114) | REVER 1/3      | Enter to reverberation time1/3 mode, does not affect to the programmation.                             |
| ▪ “A” (65)  | VIBRATIONS     | Enter to vibration mode, does not affect to the programmation.   |
| ▪ “E” (69)  | FFT slm        | Enter to sound level meter FFT mode, does not affect to the programmation.                             |
| ▪ “e” (101) | FFT vibrations | Enter to vibration FFT mode, does not affect to the programmation.                                     |
| ▪ “D” (68)  | DOSIMETER      | Enter to dosimeter mode, does not affect to the programmation.   |
| ▪ “B” (66)  | ERASE MEMORY   | Erase memory.  |
| ▪ “3” (51)  | RUN SYNC       | Prepares a measurement process with data transmission to PC. Waits for a RUN to start the measurement. |
| ▪ “4” (52)  | PAUSE SYNC     | Prepares a measurement process with recording. Waits for a RUN to start the measurement.               |

When it is waiting for a RUN in a synchronized measurement, it answers to the IDENTIFICACION and STOP commands.

## 2.2. Time

Just one report with the next format:

- “h” (104)
- year, 2 digit in BCD (1 byte)
- month, 2 digit in BCD (1 byte)
- day, 2 digit in BCD (1 byte)
- day week (1-7), 1 digit in BCD (1 byte)
- hours, 2 digit in BCD (1 byte)
- minutes, 2 digit in BCD (1 byte)
- seconds, 2 digit in BCD (1 byte)

## 2.3. Programming

Two reports with the following format:

- “p” (112)
- 0x00 (1 byte)
- function 1 of sound level meter (2 bytes, HL)
- function 2 of sound level meter (2 bytes, HL)
- function 3 of sound level meter (2 bytes, HL)
- hours time  $L_T$  of sound level meter, 2 digit in BCD (1 byte)
- minutes time  $L_T$  of sound level meter, 2 digit in BCD (1 byte)
- seconds time  $L_T$  of sound level meter, 2 digits in BCD (1 byte)
- hours time  $L_T$  of spectrum analyzer, 2 digits in BCD (1 byte)
- minutes time  $L_T$  spectrum analyzer, 2 digit in BCD (1 byte)
- seconds time  $L_T$  spectrum analyzer, 2 digit in BCD (1 byte)  
(00:00:00 = t)
  
- “p” (112)
- 0x01 (1 byte)
- Output gain AC (0 = 0 dB, 1 = 40 dB) (1 byte)
- language (0 = Spanish, 1 = English, 2 = French, 4 = German, 8 = Italian, 16 = portuguese) (1 byte)
- initial mode (1 = sound level meter, 2 = octaves, 4 = third octave) (1 byte)
- slm initial screen (0 = numerical, 1 = graphic, 2 = statistic, 4=advanced) (1 byte)
- 1/1 initial screen (0 = numerical, 1 = graphic, 2 = nc curve, 4 = statistic) (1 byte)
- Selected octave (0 = 31,5 ... 9 = 16k) (1 byte)
- 1/3 initial screen (0 = numerical, 1 = graphic) (1 byte)
- Selected third octave band (5 = 20 ... 32 = 10k) (1 byte)
- Circular memory (0 = no, 1 = yes) (1 byte)
- Slm recorder (1 byte)
  - 0 = functions 1s
  - 1 = functions 125ms
  - 2 = functions 1s+125ms
  - 3 = f1 each 1s
  - 4 = f1+f2+f3 each 1s
  - 5 = f1+f2+f3 each 1s (+)
  - 6 =  $L_T + L_{IT} +$  percentiles each T
- Spectrum analyzer recorder (1 byte)
  - 0 = functions T
  - 1 = functions 125ms
  - 2 = functions T+125ms
  - 3 =  $L_T$  each T
- Initial time synchronization (0 = no, 1 = yes) (1 byte)
  
- “p” (112)

- 0x02 (1 byte)
- Hours time  $L_T$  of dosimeter, 2 digits in BCD (1 byte)
- Minutes time  $L_T$  of dosimeter, 2 digits in BCD (1 byte)
- Seconds time  $L_T$  of dosimeter, 2 digits in BCD (1 byte)
- Projected time hours of dosimeter, 2 digits in BCD (1 byte)
- Projected time minutes of dosimeter, 2 digits in BCD (1 byte)
- Criterion level of dosimeter (2 bytes, HL)

## **2.4. Continuing transmission of the contents of the memory**

One report with the next format:

- "C" (67)
- Information supplied by the slm at the end of the last transmission (15 bytes)

## 3. FROM SLM TO PC

---

### 3.1. Control codes

It is a report where the first byte is the control code.

- “S” (83) YES Reception, erased or correct test.
- “N” (78) NO Reception, erased or test not correct.

### 3.2. Time

- “h” (104)
- year, 2 digit in BCD (1 byte)
- month, 2 digit in BCD (1 byte)
- day, 2 digit in BCD (1 byte)
- day week (1-7), 1 digit in BCD (1 byte)
- hours, 2 digit in BCD (1 byte)
- minutes, 2 digit in BCD (1 byte)
- seconds, 2 digit in BCD (1 byte)

### 3.3. Programming

Restores the parameters depending on the saved programation and send the next report:

- “P” (80)
- function 1 of sound level meter (2 bytes, HL)
- function 2 of sound level meter (2 bytes, HL)
- function 3 of sound level meter (2 bytes, HL)
- hours time  $L_T$  of sound level meter, 2 digit in BCD (1 byte)
- minutes time  $L_T$  of sound level meter, 2 digit in BCD (1 byte)
- seconds time  $L_T$  of sound level meter, 2 digits in BCD (1 byte)
- hours time  $L_T$  of spectrum analyzer, 2 digits in BCD (1 byte)
- minutes time  $L_T$  spectrum analyzer, 2 digit in BCD (1 byte)
- seconds time  $L_T$  spectrum analyzer, 2 digit in BCD (1 byte)  
(00:00:00 = t)
- Output gain AC (0 = 0 dB, 1 = 40 dB) (1 byte)
- language (0 = Spanish, 1 = English, 2 = French, 4 = German, 8 = Italian, 16 = portuguese) (1 byte)
- initial mode (1 = slm, 2 = octaves, 4 = thirds octave) (1 byte)
- slm initial screen (0 = numerical, 1 = graphic, 2 = statistic, 4=advanced) (1 byte)
- 1/1 initial screen (0 = numerical, 1 = graphic, 2 = nc curve, 4 = statistic) (1 byte)
- Selected octave (0 = 31,5 ... 9 = 16k) (1 byte)
- 1/3 initial screen (0 = numerical, 1 = graphic) (1 byte)
- Selected third octave band (5 = 20 ... 32 = 10k) (1 byte)
- Circular memory (0 = no, 1 = yes) (1 byte)
- Slm recorder (1 byte)
  - 0 = functions 1s
  - 1 = functions 125ms
  - 2 = functions 1s+125ms
  - 3 = fl each 1s

- 4 = f1+f2+f3 each 1s
- 5 = f1+f2+f3 each 1s (+)
- 6 = L<sub>T</sub> + L<sub>IT</sub> + percentiles each T
- Spectrum analyzer recorder (1 byte)
  - 0 = functions T
  - 1 = functions 125ms
  - 2 = functions T+125ms
  - 3 = L<sub>T</sub> each T
- Initial time synchronization (0 = no, 1 = yes) (1 byte)
- Hours time L<sub>T</sub> of dosimeter, 2 digits in BCD (1 byte)
- Minutes time L<sub>T</sub> of dosimeter, 2 digits in BCD (1 byte)
- Seconds time L<sub>T</sub> of dosimeter, 2 digits in BCD (1 byte)
- Projected time hours of dosimeter, 2 digits in BCD (1 byte)
- Projected time minutes of dosimeter, 2 digits in BCD (1 byte)
- Criterion level of dosimeter (2 bytes, HL)

### 3.4. Identification

- “T” (73).
- model: 6 characters ASCII (PU-33 ) (6 bytes)
- firmware version: 3 digit in ASCII (083 = 08.3) (3 bytes)
- serial number, 6 digit BCD (6 bytes)
- activated options (1 byte)
- mode (1 byte)
 

0x01	sound level meter
0x02	1/1
0x04	1/3
0x05	1/3 EXTENDED
0x06	FFT slm
0x07	FFT vibrations
0x20	Reverberation time 1/1
0x40	Reverberation time 1/3
0x80	Vibrations
0x81	Dosimeter
- run / stop / pause ( 0 = run, 1 = stop, 2 = pause ) (1 byte)
- recording ( 0 = no, 1 = yes ) (1 byte)

### 3.5. Initial report of run

- Report type: 17
- mode (1 byte)
 

1	sound level meter
2	1/1
4	1/3
5	1/3 EXTENDED
6	FFT slm
7	FFT vibrations
128	vibrations
129	dosimeter
- hours of T, 2 digit in BCD (1 byte)
- minutes of T, 2 digit in BCD (1 byte)
- seconds of T, 2 digit in BCD (1 byte)

### **3.6. SLM reports of 125ms**

4 reports.

Report 1:

- Report type: 41 (1 byte)
- Report number: 1 (1 byte)
- 125ms n° 1:
  - $L_{Z125ms}$ , in binary (2 bytes, HL)
  - $L_{ZF}$ , in binary (2 bytes, HL)
  - $L_{ZS}$ , in binary (2 bytes, HL)
  - $L_{ZI}$ , in binary (2 bytes, HL)
  - $L_{Zpeak}$ , in binary (2 bytes, HL)
  - $L_{C125ms}$ , in binary (2 bytes, HL)
  - $L_{CF}$ , in binary (2 bytes, HL)
  - $L_{CS}$ , in binary (2 bytes, HL)
  - $L_{CI}$ , in binary (2 bytes, HL)
  - $L_{Cpeak}$ , in binary (2 bytes, HL)
  - $L_{A125ms}$ , in binary (2 bytes, HL)
  - $L_{AF}$ , in binary (2 bytes, HL)
  - $L_{AS}$ , in binary (2 bytes, HL)
  - $L_{AI}$ , in binary (2 bytes, HL)
  - $L_{Apeak}$ , in binary (2 bytes, HL)
- 125ms n° 2 (30 bytes, HL)

Report 2:

- Report type: 41 (1 byte)
- Report number: 2 (1 byte)
- 125ms n° 3 (30 bytes, HL)
- 125ms n° 4 (30 bytes, HL)

Report 3:

- Report type: 41 (1 byte)
- Report number: 3 (1 byte)
- 125ms n° 5 (30 bytes, HL)
- 125ms n° 6 (30 bytes, HL)

Report 4:

- Report type: 41 (1 byte)
- Report number: 4 (1 byte)
- 125ms n° 7 (30 bytes, HL)
- 125ms n° 8 (30 bytes, HL)

### **3.7. SLM reports of second**

3 reports.

Report 1:

- Report type: 20 (1 byte)
- Report number: 1 (1 byte)
- hours of the total measurement time, 4 digit in BCD (2 bytes, HL)



- minutes of the total measurement time, 2 digit en BCD (1 byte)
- seconds of the total measurement time, 2 digits en BCD (1 byte)
- Hours of the partial measurement time, 2 digits en BCD (1 byte)
- Minutes of the partial measurement time, 2 digits en BCD (1 byte)
- Seconds of the partial measurement time, 2 digits en BCD (1 byte)
- $L_{Z1''}$ , in binary (2 bytes, HL)
- $L_{Zt}$ , in binary (2 bytes, HL)
- $L_{ZE}$ , in binary (2 bytes, HL)
- $L_{ZT}$ , in binary (2 bytes, HL)
- $L_{ZTmax}$ , in binary (2 bytes, HL)
- $L_{ZTmin}$ , in binary (2 bytes, HL)
- $L_{ZF}$ , in binary (2 bytes, HL)
- $L_{ZFmax}$ , in binary (2 bytes, HL)
- $L_{ZFmax,max}$ , in binary (2 bytes, HL)
- $L_{ZFmin}$ , in binary (2 bytes, HL)
- $L_{ZFmin,min}$ , in binary (2 bytes, HL)
- $L_{ZS}$ , in binary (2 bytes, HL)
- $L_{ZSmax}$ , in binary (2 bytes, HL)
- $L_{ZSmax,max}$ , in binary (2 bytes, HL)
- $L_{ZSmin}$ , in binary (2 bytes, HL)
- $L_{ZSmin,min}$ , in binary (2 bytes, HL)
- $L_{Zi}$ , in binary (2 bytes, HL)
- $L_{Zimax}$ , in binary (2 bytes, HL)
- $L_{Zimax,max}$ , in binary (2 bytes, HL)
- $L_{Zimin}$ , in binary (2 bytes, HL)
- $L_{Zimin,min}$ , in binary (2 bytes, HL)
- $L_{Zpeak}$ , in binary (2 bytes, HL)
- $L_{Zpeak,max}$ , in binary (2 bytes, HL)
- $L_{C1''}$ , in binary (2 bytes, HL)
- $L_{Ct}$ , in binary (2 bytes, HL)
- $L_{CE}$ , in binary (2 bytes, HL)
- $L_{CT}$ , in binary (2 bytes, HL)

## Report 2:

- Report type: 20 (1 byte)
- Report number: 2 (1 byte)
- $L_{CTmax}$ , in binary (2 bytes, HL)
- $L_{CTmin}$ , in binary (2 bytes, HL)
- $L_{CF}$ , in binary (2 bytes, HL)
- $L_{CFmax}$ , in binary (2 bytes, HL)
- $L_{CFmax,max}$ , in binary (2 bytes, HL)
- $L_{CFmin}$ , in binary (2 bytes, HL)
- $L_{CFmin,min}$ , in binary (2 bytes, HL)
- $L_{CS}$ , in binary (2 bytes, HL)
- $L_{CSmax}$ , in binary (2 bytes, HL)
- $L_{CSmax,max}$ , in binary (2 bytes, HL)
- $L_{CSmin}$ , in binary (2 bytes, HL)
- $L_{CSmin,min}$ , in binary (2 bytes, HL)
- $L_{Ci}$ , in binary (2 bytes, HL)
- $L_{Cimax}$ , in binary (2 bytes, HL)
- $L_{Cimax,max}$ , in binary (2 bytes, HL)
- $L_{Cimin}$ , in binary (2 bytes, HL)
- $L_{Cimin,min}$ , in binary (2 bytes, HL)
- $L_{Cpeak}$ , in binary (2 bytes, HL)
- $L_{Cpeak,max}$ , in binary (2 bytes, HL)
- $L_{A1''}$ , in binary (2 bytes, HL)
- $L_{At}$ , in binary (2 bytes, HL)
- $L_{AE}$ , in binary (2 bytes, HL)
- $L_{AT}$ , in binary (2 bytes, HL)
- $L_{ATmax}$ , in binary (2 bytes, HL)

- $L_{ATmin}$ , in binary (2 bytes, HL)
- $L_{AF}$ , in binary (2 bytes, HL)
- $L_{AFmax}$ , in binary (2 bytes, HL)
- $L_{AFmax,max}$ , in binary (2 bytes, HL)
- $L_{AFmin}$ , in binary (2 bytes, HL)
- $L_{AFmin,min}$ , in binary (2 bytes, HL)
- $L_{AS}$ , in binary (2 bytes, HL)

### Report 3:

- Report type: 20 (1 byte)
- Report number: 3 (1 byte)
- $L_{ASmax}$ , in binary (2 bytes, HL)
- $L_{ASmax,max}$ , in binary (2 bytes, HL)
- $L_{ASmin}$ , in binary (2 bytes, HL)
- $L_{ASmin,min}$ , in binary (2 bytes, HL)
- $L_{AI}$ , in binary (2 bytes, HL)
- $L_{AImax}$ , in binary (2 bytes, HL)
- $L_{AImax,max}$ , in binary (2 bytes, HL)
- $L_{AImin}$ , in binary (2 bytes, HL)
- $L_{AImin,min}$ , in binary (2 bytes, HL)
- $L_{Apeak}$ , in binary (2 bytes, HL)
- $L_{Apeak,max}$ , in binary (2 bytes, HL)
- $L_{ZIt}$ , in binary (2 bytes, HL)
- $L_{CIt}$ , in binary (2 bytes, HL)
- $L_{AIIt}$ , in binary (2 bytes, HL)
- $L_{ZIT}$ , in binary (2 bytes, HL)
- $L_{CIT}$ , in binary (2 bytes, HL)
- $L_{AIT}$ , in binary (2 bytes, HL)
- Percentiles of T
  - L1, in binary (2 bytes, HL)
  - L5, in binary (2 bytes, HL)
  - L10, in binary (2 bytes, HL)
  - L50, in binary (2 bytes, HL)
  - L90, in binary (2 bytes, HL)
  - L95, in binary (2 bytes, HL)
  - L99, in binary (2 bytes, HL)

## **3.8. Final report of sound level meter**

- Report type: 21
- percentiles of t
  - L1, in binary (2 bytes, HL)
  - L5, in binary (2 bytes, HL)
  - L10, in binary (2 bytes, HL)
  - L50, in binary (2 bytes, HL)
  - L90, in binary (2 bytes, HL)
  - L95, in binary (2 bytes, HL)
  - L99, in binary (2 bytes, HL)

### **3.9. 1/1 reports of 125 ms**

8 reports.

Report 1:

- Report type: 55 (1 byte)
- Report number: 1 (1 byte)
- 125ms n° 1:
  - $L_{Z125ms}$ , in binary (2 bytes, HL)
  - $L_{C125ms}$ , in binary (2 bytes, HL)
  - $L_{A125ms}$ , in binary (2 bytes, HL)
  - octave 31,5, in binary (2 bytes, HL)
  - octave 63, in binary (2 bytes, HL)
  - octave 125, in binary (2 bytes, HL)
  - octave 250, in binary (2 bytes, HL)
  - octave 500, in binary (2 bytes, HL)
  - octave 1k, in binary (2 bytes, HL)
  - octave 2k, in binary (2 bytes, HL)
  - octave 4k, in binary (2 bytes, HL)
  - octave 8k, in binary (2 bytes, HL)
  - octave 16k, in binary (2 bytes, HL)
  - $L_{Zpeak}$ , in binary (2 bytes, HL)
  - $L_{Cpeak}$ , in binary (2 bytes, HL)
  - $L_{Apeak}$ , in binary (2 bytes, HL)

Report 2:

- Report type: 55 (1 byte)
- Report number: 2 (1 byte)
- 125ms n° 2 (32 bytes, HL)

Report 3:

- Report type: 55 (1 byte)
- Report number: 3 (1 byte)
- 125ms n° 3 (32 bytes, HL)

Report 4:

- Report type: 55 (1 byte)
- Report number: 4 (1 byte)
- 125ms n° 4 (32 bytes, HL)

Report 5:

- Report type: 55 (1 byte)
- Report number: 5 (1 byte)
- 125ms n° 5 (32 bytes, HL)

Report 6:

- Report type: 55 (1 byte)
- Report number: 6 (1 byte)
- 125ms n° 6 (32 bytes, HL)

Report 7:

- Report type: 55 (1 byte)
- Report number: 7 (1 byte)
- 125ms n° 7 (32 bytes, HL)

Report 8:

- Report type: 55 (1 byte)
- Report number: 8 (1 byte)
- 125ms n° 8 (32 bytes, HL)

### **3.10. 1/1 report of second**

4 reports.

Report 1:

- Report type: 56
- Report number: 1 (1 byte)
- Hours of the partial measurement time, 2 digits en BCD (1 byte)
- Minutes of the partial measurement time, 2 digits en BCD (1 byte)
- Seconds of the partial measurement time, 2 digits en BCD (1 byte)
- $L_{ZT}$ , in binary (2 bytes, HL)
- $L_{CT}$ , in binary (2 bytes, HL)
- $L_{AT}$ , in binary (2 bytes, HL)
- octave 31,5, in binary (2 bytes, HL)
- octave 63, in binary (2 bytes, HL)
- octave 125, in binary (2 bytes, HL)
- octave 250, in binary (2 bytes, HL)
- octave 500, in binary (2 bytes, HL)
- octave 1k, in binary (2 bytes, HL)
- octave 2k, in binary (2 bytes, HL)
- octave 4k, in binary (2 bytes, HL)
- octave 8k, in binary (2 bytes, HL)
- octave 16k, in binary (2 bytes, HL)
- $L_{Zpeak}$ , in binary (2 bytes, HL)
- $L_{Cpeak}$ , in binary (2 bytes, HL)
- $L_{Apeak}$ , in binary (2 bytes, HL)

Report 2:

- report type: 56
- report number: 2 (1 byte)
- percentiles A
  - L1
  - L5
  - L10
  - L50
  - L90
  - L95
  - L99
- percentiles octave 31,5 (14 bytes, HL)
- percentiles octave 63 (14 bytes, HL)
- percentiles octave 125 (14 bytes, HL)

Report 3:

- report type: 56
- report number: 3 (1 byte)
- percentiles octave 250 (14 bytes, HL)
- percentiles octave 500 (14 bytes, HL)
- percentiles octave 1k (14 bytes, HL)
- percentiles octave 2k (14 bytes, HL)

Report 4:

- report type: 56
- report number: 4 (1 byte)
- percentiles octave 4k (14 bytes, HL)
- percentiles octave 8k (14 bytes, HL)
- percentiles octave 16k (14 bytes, HL)

### **3.11. 1/1 final report**

- Report type: 19

### **3.12. 1/3 Reports of 125ms**

8 reports.

Report 1:

- Report type: 43 (1 byte)
- Report number: 1 (1 byte)
- 125ms n° 1:
  - third octave 20, in binary (2 bytes, HL)
  - third octave 25, in binary (2 bytes, HL)
  - third octave 31,5, in binary (2 bytes, HL)
  - third octave 40, in binary (2 bytes, HL)
  - third octave 50, in binary (2 bytes, HL)
  - third octave 63, e in binary (2 bytes, HL)
  - third octave 80, in binary (2 bytes, HL)
  - third octave 100, in binary (2 bytes, HL)
  - third octave 125, in binary (2 bytes, HL)
  - third octave 160, in binary (2 bytes, HL)
  - third octave 200, in binary (2 bytes, HL)
  - third octave 250, in binary (2 bytes, HL)
  - third octave 315, in binary (2 bytes, HL)
  - third octave 400, in binary (2 bytes, HL)
  - third octave 500, in binary (2 bytes, HL)
  - third octave 630, in binary (2 bytes, HL)
  - third octave 800, in binary (2 bytes, HL)
  - third octave 1k, in binary (2 bytes, HL)
  - third octave 1,25k, in binary (2 bytes, HL)
  - third octave 1,6k, in binary (2 bytes, HL)
  - third octave 2k, in binary (2 bytes, HL)
  - third octave 2,5k, in binary (2 bytes, HL)
  - third octave 3,15k, in binary (2 bytes, HL)
  - third octave 4k, in binary (2 bytes, HL)
  - third octave 5k, in binary (2 bytes, HL)

- third octave 6,3k, in binary (2 bytes, HL)
- third octave 8k, in binary (2 bytes, HL)
- third octave 10k, in binary (2 bytes, HL)

Report 2:

- report type: 43 (1 byte)
- report number: 2 (1 byte)
- 125ms n° 2 (56 bytes, HL)

Report 3:

- Report type: 43 (1 byte)
- Report number: 3 (1 byte)
- 125ms n° 3 (56 bytes, HL)

Report 4:

- Report type: 43 (1 byte)
- Report number: 4 (1 byte)
- 125ms n° 4 (56 bytes, HL)

Report 5:

- Report type: 43 (1 byte)
- Report number: 5 (1 byte)
- 125ms n° 5 (56 bytes, HL)

Report 6:

- Report type: 43 (1 byte)
- Report number 6 (1 byte)
- 125ms n° 6 (56 bytes, HL)

Report 7:

- Report type: 43 (1 byte)
- Report number: 7 (1 byte)
- 125ms n° 7 (56 bytes, HL)

Report 8:

- Report type: 43 (1 byte)
- Report number t: 8 (1 byte)
- 125ms n° 8 (56 bytes, HL)

### **3.13. 1/3 report of second**

- Report type: 44
- Hours of the partial measurement time, 2 digits en BCD (1 byte)
- Minutes of the partial measurement time, 2 digits en BCD (1 byte)
- Seconds of the partial measurement time, 2 digits en BCD (1 byte)
- third octave 20, in binary (2 bytes, HL)
- third octave 25, in binary (2 bytes, HL)
- third octave 31,5, in binary (2 bytes, HL)

- third octave 40, in binary (2 bytes, HL)
- third octave 50, in binary (2 bytes, HL)
- third octave 63, e in binary (2 bytes, HL)
- third octave 80, in binary (2 bytes, HL)
- third octave 100, in binary (2 bytes, HL)
- third octave 125, in binary (2 bytes, HL)
- third octave 160, in binary (2 bytes, HL)
- third octave 200, in binary (2 bytes, HL)
- third octave 250, in binary (2 bytes, HL)
- third octave 315, in binary (2 bytes, HL)
- third octave 400, in binary (2 bytes, HL)
- third octave 500, in binary (2 bytes, HL)
- third octave 630, in binary (2 bytes, HL)
- third octave 800, in binary (2 bytes, HL)
- third octave 1k, in binary (2 bytes, HL)
- third octave 1,25k, in binary (2 bytes, HL)
- third octave 1,6k, in binary (2 bytes, HL)
- third octave 2k, in binary (2 bytes, HL)
- third octave 2,5k, in binary (2 bytes, HL)
- third octave 3,15k, in binary (2 bytes, HL)
- third octave 4k, in binary (2 bytes, HL)
- third octave 5k, in binary (2 bytes, HL)
- third octave 6,3k, in binary (2 bytes, HL)
- third octave 8k, in binary (2 bytes, HL)
- third octave 10k, in binary (2 bytes, HL)

### **3.14. 1/3 EXTENDED reports of 125ms**

16 reports.

Report 1:

- Report type: 62 (1 byte)
- Report number: 1 (1 byte)
- 125ms n° 1 a:
  - third octave 10, in binary (2 bytes, HL)
  - third octave 12,5, in binary (2 bytes, HL)
  - third octave 16, in binary (2 bytes, HL)
  - third octave 20, in binary (2 bytes, HL)
  - third octave 25, in binary (2 bytes, HL)
  - third octave 31,5, in binary (2 bytes, HL)
  - third octave 40, in binary (2 bytes, HL)
  - third octave 50, in binary (2 bytes, HL)
  - third octave 63, e in binary (2 bytes, HL)
  - third octave 80, in binary (2 bytes, HL)
  - third octave 100, in binary (2 bytes, HL)
  - third octave 125, in binary (2 bytes, HL)
  - third octave 160, in binary (2 bytes, HL)
  - third octave 200, in binary (2 bytes, HL)
  - third octave 250, in binary (2 bytes, HL)
  - third octave 315, in binary (2 bytes, HL)
  - third octave 400, in binary (2 bytes, HL)
  - third octave 500, in binary (2 bytes, HL)
  - third octave 630, in binary (2 bytes, HL)
  - third octave 800, in binary (2 bytes, HL)
  - third octave 1k, in binary (2 bytes, HL)
  - third octave 1,25k, in binary (2 bytes, HL)
  - third octave 1,6k, in binary (2 bytes, HL)
  - third octave 2k, in binary (2 bytes, HL)

- third octave 2,5k, in binary (2 bytes, HL)
- third octave 3,15k, in binary (2 bytes, HL)
- third octave 4k, in binary (2 bytes, HL)

Report 2:

- report type: 62 (1 byte)
- report number: 2 (1 byte)
- 125ms n° 1 b:
  - third octave 5k, in binary (2 bytes, HL)
  - third octave 6,3k, in binary (2 bytes, HL)
  - third octave 8k, in binary (2 bytes, HL)
  - third octave 10k, in binary (2 bytes, HL)
  - third octave 12,5k, in binary (2 bytes, HL)
  - third octave 16k, in binary (2 bytes, HL)
  - third octave 20k, in binary (2 bytes, HL)
  - $L_{AT}$ , in binary (2 bytes, HL)
  - $L_{CT}$ , in binary (2 bytes, HL)
  - $L_{ZT}$ , in binary (2 bytes, HL)
  - $L_{AIT}$ , in binary (2 bytes, HL)
  - $L_{AFmax}$ , in binary (2 bytes, HL)
  - $L_{ASmax}$ , in binary (2 bytes, HL)
  - $L_{Almax}$ , in binary (2 bytes, HL)

Report 3:

- Report type: 62 (1 byte)
- Report number: 3 (1 byte)
- 125ms n° 2 a (54 bytes, HL)

Report 4:

- Report type: 62 (1 byte)
- Report number: 4 (1 byte)
- 125ms n° 2 b (28 bytes, HL)

Report 5:

- Report type: 62 (1 byte)
- Report number: 5 (1 byte)
- 125ms n° 3 a (54 bytes, HL)

Report 6:

- Report type: 62 (1 byte)
- Report number: 6 (1 byte)
- 125ms n° 3 b (28 bytes, HL)

Report 7:

- Report type: 62 (1 byte)
- Report number: 7 (1 byte)
- 125ms n° 4 a (54 bytes, HL)



Report 8:

- Report type: 62 (1 byte)
- Report number: 8 (1 byte)
- 125ms n° 4 b (28 bytes, HL)

Report 9:

- report type: 62 (1 byte)
- report number: 9 (1 byte)
- 125ms n° 5 a (54 bytes, HL)

Report 10:

- report type: 62 (1 byte)
- report number: 10 (1 byte)
- 125ms n° 5 b (28 bytes, HL)

Report 11:

- report type: 62 (1 byte)
- report number: 11 (1 byte)
- 125ms n° 6 a (54 bytes, HL)

Report 12:

- report type: 62 (1 byte)
- report number: 12 (1 byte)
- 125ms n° 6 b (28 bytes, HL)

Report 13:

- report type: 62 (1 byte)
- report number: 13 (1 byte)
- 125ms n° 7 a (54 bytes, HL)

Report 14:

- report type: 62 (1 byte)
- report number: 14 (1 byte)
- 125ms n° 7 b (28 bytes, HL)

Report 15:

- report type: 62 (1 byte)
- report number: 15 (1 byte)
- 125ms n° 8 a (54 bytes, HL)

Report 16:

- report type: 62 (1 byte)
- report number: 16 (1 byte)
- 125ms n° 8 b (28 bytes, HL)

### **3.15. 1/3 EXTENDED report of second**

2 reports.

Report 1:

- Report type: 61
- Report number: 1 (1 byte)
- Hours of the partial measurement time, 2 digits en BCD (1 byte)
- Minutes of the partial measurement time, 2 digits en BCD (1 byte)
- Seconds of the partial measurement time, 2 digits en BCD (1 byte)
- third octave 10, in binary (2 bytes, HL)
- third octave 12,5, in binary (2 bytes, HL)
- third octave 16, in binary (2 bytes, HL)
- third octave 20, in binary (2 bytes, HL)
- third octave 25, in binary (2 bytes, HL)
- third octave 31,5, in binary (2 bytes, HL)
- third octave 40, in binary (2 bytes, HL)
- third octave 50, in binary (2 bytes, HL)
- third octave 63, e in binary (2 bytes, HL)
- third octave 80, in binary (2 bytes, HL)
- third octave 100, in binary (2 bytes, HL)
- third octave 125, in binary (2 bytes, HL)
- third octave 160, in binary (2 bytes, HL)
- third octave 200, in binary (2 bytes, HL)
- third octave 250, in binary (2 bytes, HL)
- third octave 315, in binary (2 bytes, HL)
- third octave 400, in binary (2 bytes, HL)
- third octave 500, in binary (2 bytes, HL)
- third octave 630, in binary (2 bytes, HL)
- third octave 800, in binary (2 bytes, HL)
- third octave 1k, in binary (2 bytes, HL)
- third octave 1,25k, in binary (2 bytes, HL)
- third octave 1,6k, in binary (2 bytes, HL)
- third octave 2k, in binary (2 bytes, HL)
- third octave 2,5k, in binary (2 bytes, HL)
- third octave 3,15k, in binary (2 bytes, HL)
- third octave 4k, in binary (2 bytes, HL)

Report 2:

- report type: 61
- report number: 2 (1 byte)
- third octave 5k, in binary (2 bytes, HL)
- third octave 6,3k, in binary (2 bytes, HL)
- third octave 8k, in binary (2 bytes, HL)
- third octave 10k, in binary (2 bytes, HL)
- third octave 12,5k, in binary (2 bytes, HL)
- third octave 16k, in binary (2 bytes, HL)
- third octave 20k, in binary (2 bytes, HL)
- $L_{AT}$ , in binary (2 bytes, HL)
- $L_{CT}$ , in binary (2 bytes, HL)
- $L_{ZT}$ , in binary (2 bytes, HL)
- $L_{AIT}$ , in binary (2 bytes, HL)
- $L_{AFmax}$ , in binary (2 bytes, HL)
- $L_{ASmax}$ , in binary (2 bytes, HL)
- $L_{Almax}$ , in binary (2 bytes, HL)

### **3.16. 1/3 final report**

- Report type: 45

### **3.17. VIBRATIONS reports of 125ms**

8 reports.

Report 1:

- Report type: 50 (1 byte)
- Report number: 1 (1 byte)
- 125ms n° 1:
  - third octave 1, in binary (2 bytes, HL)
  - third octave 1.25, in binary (2 bytes, HL)
  - third octave 1.6, in binary (2 bytes, HL)
  - third octave 2, in binary (2 bytes, HL)
  - third octave 2.5, in binary (2 bytes, HL)
  - third octave 3.15, in binary (2 bytes, HL)
  - third octave 4.0, in binary (2 bytes, HL)
  - third octave 5.0, in binary (2 bytes, HL)
  - third octave 6.3, in binary (2 bytes, HL)
  - third octave 8, in binary (2 bytes, HL)
  - third octave 10, in binary (2 bytes, HL)
  - third octave 12.5, in binary (2 bytes, HL)
  - third octave 16, in binary (2 bytes, HL)
  - third octave 20, in binary (2 bytes, HL)
  - third octave 25, in binary (2 bytes, HL)
  - third octave 31.5, in binary (2 bytes, HL)
  - third octave 40, in binary (2 bytes, HL)
  - third octave 50, in binary (2 bytes, HL)
  - third octave 63, in binary (2 bytes, HL)
  - third octave 80, in binary (2 bytes, HL)
  - “a” without weighting, in binary (2 bytes, HL)
  - $a_{wm}$ , in binary (2 bytes, HL)
  - peak, in binary (2 bytes, HL)
  - MTVV, in binary (2 bytes, HL)

Report 2:

- Report type: 50 (1 byte)
- Report number: 2 (1 byte)
- 125ms n° 2 (48 bytes, HL)

Report 3:

- Report type: 50 (1 byte)
- Report number: 3 (1 byte)
- 125ms n° 3 (48 bytes, HL)

Report 4:

- Report type: 50 (1 byte)
- Report number: 4 (1 byte)
- 125ms n° 4 (48 bytes, HL)

Report 5:

- Report type: 50 (1 byte)
- Report number: 5 (1 byte)
- 125ms n° 5 (48 bytes, HL)

Report 6:

- Report type: 50 (1 byte)
- Report number: 6 (1 byte)
- 125ms n° 6 (48 bytes, HL)

Report 7:

- Report type: 50 (1 byte)
- Report number: 7 (1 byte)
- 125ms n° 7 (48 bytes, HL)

Report 8:

- Report type: 50 (1 byte)
- Report number: 8 (1 byte)
- 125ms n° 8 (48 bytes, HL)

### **3.18. VIBRATIONS report of second**

- Report type: 51
- Hours of the partial measurement time, 2 digits en BCD (1 byte)
- Minutes of the partial measurement time, 2 digits en BCD (1 byte)
- Seconds of the partial measurement time, 2 digits en BCD (1 byte)
  - third octave 1, in binary (2 bytes, HL)
  - third octave 1.25, in binary (2 bytes, HL)
  - third octave 1.6, in binary (2 bytes, HL)
  - third octave 2, in binary (2 bytes, HL)
  - third octave 2.5, in binary (2 bytes, HL)
  - third octave 3.15, in binary (2 bytes, HL)
  - third octave 4.0, in binary (2 bytes, HL)
  - third octave 5.0, in binary (2 bytes, HL)
  - third octave 6.3, in binary (2 bytes, HL)
  - third octave 8, in binary (2 bytes, HL)
  - third octave 10, in binary (2 bytes, HL)
  - third octave 12.5, in binary (2 bytes, HL)
  - third octave 16, in binary (2 bytes, HL)
  - third octave 20, in binary (2 bytes, HL)
  - third octave 25, in binary (2 bytes, HL)
  - third octave 31.5, in binary (2 bytes, HL)
  - third octave 40, in binary (2 bytes, HL)
  - third octave 50, in binary (2 bytes, HL)
  - third octave 63, in binary (2 bytes, HL)

- third octave 80, in binary (2 bytes, HL)
- “a” without weighting, in binary (2 bytes, HL)
- $a_{wm}$ , in binary (2 bytes, HL)
- peak, in binary (2 bytes, HL)
- MTVV, in binary (2 bytes, HL)
- CF, in binary (2 bytes, HL)
- VDV, in binary (2 bytes, HL)
- Factor K, in binary (2 bytes, HL)

### **3.19. VIBRATIONS final report**

- Report type: 52

### **3.20. FFT slm report of second**

14 reports.

Report 1:

- Report type: 57 (1 byte)
- Report number: 1 (1 byte)
- Hours of the partial measurement time, 2 digits en BCD (1 byte)
- Minutes of the partial measurement time, 2 digits en BCD (1 byte)
- Seconds of the partial measurement time, 2 digits en BCD (1 byte)
- 0-28 points of the fft (2 bytes, HL)

Report 2:

- Report type: 57 (1 byte)
- Report number: 2 (1 byte)
- 29-59 points of the fft (2 bytes, HL)

Report 3:

- Report type: 57 (1 byte)
- Report number: 3 (1 byte)
- 60-90 points of the fft (2 bytes, HL)

Report 4:

- Report type: 57 (1 byte)
- Report number: 4 (1 byte)
- 91-121 points of the fft (2 bytes, HL)

Report 5:

- Report type: 57 (1 byte)
- Report number: 5 (1 byte)
- 122-152 points of the (2 bytes, HL)

Report 6:

- Report type: 57 (1 byte)
- Report number: 6 (1 byte)
- 153-183 points of the (2 bytes, HL)

Report 7:

- report type: 57 (1 byte)
- report number: 7 (1 byte)
- 184-214 points of the fft (2 bytes, HL)

Report 8:

- report type: 57 (1 byte)
- report number: 8 (1 byte)
- 215-245 points of the fft (2 bytes, HL)

Report 9:

- report type: 57 (1 byte)
- report number: 9 (1 byte)
- 246-276 points of the fft (2 bytes, HL)

Report 10:

- report type: 57 (1 byte)
- report number: 10 (1 byte)
- 277-307 points of the fft (2 bytes, HL)

Report 11:

- report type: 57 (1 byte)
- report number: 11 (1 byte)
- 308-338 points of the fft (2 bytes, HL)

Report 12:

- report type: 57 (1 byte)
- report number: 12 (1 byte)
- 339-369 points of the fft (2 bytes, HL)

Report 13:

- report type: 57 (1 byte)
- report number: 13 (1 byte)
- 370-400 points of the fft (2 bytes, HL)

Report 14:

- report type: 57 (1 byte)
- report number: 14 (1 byte)
- 401-429 points of the fft (2 bytes, HL)

### **3.21. FFT slm final report**

- report type: 58

### **3.22. FFT vibrations second report**

14 reports.

Report 1:

- Report type: 59 (1 byte)
- Report number: 1 (1 byte)
- Hours of the partial measurement time, 2 digits en BCD (1 byte)
- Minutes of the partial measurement time, 2 digits en BCD (1 byte)
- Seconds of the partial measurement time, 2 digits en BCD (1 byte)
- 0-28 points of the fft (2 bytes, HL)

Report 2:

- Report type: 59 (1 byte)
- Report number: 2 (1 byte)
- 29-59 points of the fft (2 bytes, HL)

Report 3:

- Report type: 59 (1 byte)
- Report number: 3 (1 byte)
- 60-90 points of the fft (2 bytes, HL)

Report 4:

- Report type: 59 (1 byte)
- Report number: 4 (1 byte)
- 91-121 points of the fft (2 bytes, HL)

Report 5:

- Report type: 59 (1 byte)
- Report number: 5 (1 byte)
- 122-152 points of the (2 bytes, HL)

Report 6:

- Report type: 59 (1 byte)
- Report number: 6 (1 byte)
- 153-183 points of the (2 bytes, HL)

Report 7:

- report type: 59 (1 byte)
- report number: 7 (1 byte)
- 184-214 points of the fft (2 bytes, HL)

Report 8:

- report type: 59 (1 byte)
- report number: 8 (1 byte)
- 215-245 points of the fft (2 bytes, HL)

Report 9:

- report type: 59 (1 byte)
- report number: 9 (1 byte)
- 246-276 points of the fft (2 bytes, HL)

Report 10:

- report type: 59 (1 byte)
- report number: 10 (1 byte)
- 277-307 points of the fft (2 bytes, HL)

Report 11:

- report type: 59 (1 byte)
- report number: 11 (1 byte)
- 308-338 points of the fft (2 bytes, HL)

Report 12:

- report type: 59 (1 byte)
- report number: 12 (1 byte)
- 339-369 points of the fft (2 bytes, HL)

Report 13:

- report type: 59 (1 byte)
- report number: 13 (1 byte)
- 370-400 points of the fft (2 bytes, HL)

Report 14:

- report type: 59 (1 byte)
- report number: 14 (1 byte)
- 401-429 points of the fft (2 bytes, HL)

### **3.23. FFT vibrations final report**

- Report type: 60



### **3.24. Final report of PAUSE**

- Report type: 22
- PAUSE time:
  - hours, 2 digit en BCD (1 byte)
  - minutes, 2 digit en BCD (1 byte)
  - seconds, 2 digit en BCD (1 byte)

### **3.25. Second report of PAUSE**

- Report type: 23
- PAUSE time:
  - hours, 2 digit en BCD (1 byte)
  - minutes, 2 digit en BCD (1 byte)
  - seconds, 2 digit en BCD (1 byte)

### **3.26. “1/1 reverberation time” report of second, noise level**

- Report type: 24
- octave 63, in binary (2 bytes, HL)
- octave 125, in binary (2 bytes, HL)
- octave 250, in binary (2 bytes, HL)
- octave 500, in binary (2 bytes, HL)
- octave 1k, in binary (2 bytes, HL)
- octave 2k, in binary (2 bytes, HL)
- octave 4k, in binary (2 bytes, HL)

### **3.27. “1/1 reverberation time” report of second, maximum level**

- Report type: 25
- octave 63, in binary (2 bytes, HL)
- octave 125, in binary (2 bytes, HL)
- octave 250, in binary (2 bytes, HL)
- octave 500, in binary (2 bytes, HL)
- octave 1k, in binary (2 bytes, HL)
- octave 2k, in binary (2 bytes, HL)
- octave 4k, in binary (2 bytes, HL)

### **3.28. “1/1 reverberation time” final report**

Report 1:

- Report type: 26
- T<sub>30</sub> octave 63, in binary (2 bytes, HL)
- T<sub>30</sub> octave 125, in binary (2 bytes, HL)
- T<sub>30</sub> octave 250, in binary (2 bytes, HL)
- T<sub>30</sub> octave 500, in binary (2 bytes, HL)
- T<sub>30</sub> octave 1k, in binary (2 bytes, HL)
- T<sub>30</sub> octave 2k, in binary (2 bytes, HL)
- T<sub>30</sub> octave 4k, in binary (2 bytes, HL)
- T<sub>20</sub> octave 63, in binary (2 bytes, HL)
- T<sub>20</sub> octave 125, in binary (2 bytes, HL)

- T<sub>20</sub> octave 250, in binary (2 bytes, HL)
- T<sub>20</sub> octave 500, in binary (2 bytes, HL)
- T<sub>20</sub> octave 1k, in binary (2 bytes, HL)
- T<sub>20</sub> octave 2k, in binary (2 bytes, HL)
- T<sub>20</sub> octave 4k, in binary (2 bytes, HL)

If there are results:

Reports 2-21:

- Report type: 27
- Report number: 1-20
- Time history octave 63, 31 points (62 bytes, HL). (600 points)

Reports 22-41:

- Report type: 28
- Report number: 1-20
- Time history octave 125, 31 points (62 bytes, HL). (600 points)

Reports 42-61:

- Report type: 29
- Report number: 1-20
- Time history octave 250, 31 points (62 bytes, HL). (600 points)

Reports 62-81:

- Report type: 30
- Report number: 1-20
- Time history octave 500, 31 points (62 bytes, HL). (600 points)

Reports 82-101:

- Report type: 31
- Report number: 1-20
- Time history octave 1k, 31 points (62 bytes, HL). (600 points)

Reports 102-121:

- Report type: 32
- Report number: 1-20
- Time history octave 2k, 31 points (62 bytes, HL). (600 points)

Reports 122-141:

- Report type: 33
- Report number: 1-20
- Time history octave 4k, 31 points (62 bytes, HL). (600 points)

### **3.29. “1/3 reverberation time” report of second, noise level**

- Report type: 100
- 1/3 octave 50, in binary (2 bytes, HL)
- ...
- 1/3 octave 5k, in binary (2 bytes, HL)

### **3.30. “1/3 reverberation time” report of second, maximum level**

- Report type: 101
- 1/3 octave 50, in binary (2 bytes, HL)
- ...
- 1/3 octave 5k, in binary (2 bytes, HL)

### **3.31. “1/3 reverberation time” final report**

Report 1:

- Report type: 102
- $T_{30}$  1/3 octave 50, in binary (2 bytes, HL)
- ...
- $T_{30}$  1/3 octave 5k, in binary (2 bytes, HL)

Report 2:

- Report type: 103
- $T_{20}$  1/3 octave 50, in binary (2 bytes, HL)
- ...
- $T_{20}$  1/3 octave 5k, in binary (2 bytes, HL)

If there are results:

Reports 3-22:

- Report type: 104
- Report number: 1-20
- Time history 1/3 octave, 50, 31 points (62 bytes, HL). (600 points)

...

Reports 403-422:

- Report type: 124
- Report number: 1-20
- Time history 1/3 octave, 5k, 31 points (62 bytes, HL). (600 points)

### **3.32. Dosimeter report of second**

- Report type: 64 (1 byte)
- Hours of total measurement time, 4 digits in BCD (2 bytes, HL)
- Minutes of total measurement time, 2 digits in BCD (1 byte)
- Seconds of total measurement time, 2 digits in BCD (1 byte)
- Hours of partial measurement time, 2 digits in BCD (1 byte)
- Minutes of partial measurement time, 2 digits in BCD (1 byte)

- $L_{CT}$ , in binary (2 bytes, HL)
- $L_{AT}$ , in binary (2 bytes, HL)
- octave 63 (t), in binary (2 bytes, HL)
- octave 125 (t), in binary (2 bytes, HL)
- octave 250 (t), in binary (2 bytes, HL)
- octave 500 (t), in binary (2 bytes, HL)
- octave 1k (t), in binary (2 bytes, HL)
- octave 2k (t), in binary (2 bytes, HL)
- octave 4k (t), in binary (2 bytes, HL)
- octave 8k (t), in binary (2 bytes, HL)
- $L_{Cpeak}$  (t), in binary (2 bytes, HL)
- $L_{EX,8h}$ , in binary (2 bytes, HL)
- $L_{CT}$ , in binary (2 bytes, HL)
- $L_{AT}$ , in binary (2 bytes, HL)
- octave 63 (T), in binary (2 bytes, HL)
- octave 125 (T), in binary (2 bytes, HL)
- octave 250 (T), in binary (2 bytes, HL)
- octave 500 (T), in binary (2 bytes, HL)
- octave 1k (T), in binary (2 bytes, HL)
- octave 2k (T), in binary (2 bytes, HL)
- octave 4k (T), in binary (2 bytes, HL)
- octave 8k (T), in binary (2 bytes, HL)
- $L_{Cpeak}$  (T), in binary (2 bytes, HL)

### **3.33. Dosimeter final report**

- Report type: 65

### **3.34. Memory**

Every 100 reports sent to the PC, it should sent an ACKNOWLEDGE control code.

The slm has a counter of the sent reports. Each time that receives an ACKNOWLEDGE it subtracts 100. If it reached 400 it will stopped until it receives an ACKNOWLEDGE.

Reports with memory contents:

- Report type: Memory "M" (77)
- Report number: 0-255
- Memory piece (62 bytes)

Final Report:

- Report type: Final memory. "c" (99)
- Information to continue the memory transmission (15 bytes)

## 4. MEMORY PACKET

---

### 4.1. Slm initial packet

- Packet type: 0x90
- Register number (2 bytes, HL)
- Initial time:
  - year, 2 digit in BCD (1 byte)
  - month, 2 digit in BCD (1 byte)
  - day, 2 digit in BCD (1 byte)
  - hours, 2 digit in BCD (1 byte)
  - minutes, 2 digit in BCD (1 byte)
  - seconds, 2 digit in BCD (1 byte)
- Function 1 of sound level meter (2 bytes, HL)
- Function 2 of sound level meter (2 bytes, HL)
- Function 3 of sound level meter (2 bytes, HL)
- T:
  - hours, 2 digit in BCD (1 byte)
  - minutes, 2 digit in BCD (1 byte)
  - seconds, 2 digit in BCD (1 byte)

### 4.2. Packet of SLM 1s functions

- Packet type: 0x50
- 75 functions of second in binary (2 bytes, HL)
- Percentiles of T
  - L1, in binary (2 bytes, HL)
  - L5, in binary (2 bytes, HL)
  - L10, in binary (2 bytes, HL)
  - L50, in binary (2 bytes, HL)
  - L90, in binary (2 bytes, HL)
  - L95, in binary (2 bytes, HL)
  - L99, in binary (2 bytes, HL)

### 4.3. Packet of SLM 125ms functions

- Packet type: 0x51
- 120 functions of 125ms in binary (2 bytes, HL)

### 4.4. Packet of slm 1s + 125 ms functions

- Packet type: 0x52
- 120 functions of 125ms in binary (2 bytes, HL)
- 75 functions of second in binary (2 bytes, HL)
- Percentiles of T
  - L1, in binary (2 bytes, HL)
  - L5, in binary (2 bytes, HL)

- L10, in binary (2 bytes, HL)
- L50, in binary (2 bytes, HL)
- L90, in binary (2 bytes, HL)
- L95, in binary (2 bytes, HL)
- L99, in binary (2 bytes, HL)

#### **4.5. Packet of f1 each 1s of slm**

- Packet type: 0x53
- F1, in binary (2 bytes, HL)

#### **4.6. Packet of f1+f2+f3 each 1s of slm**

- Packet type: 0x54
- F1, in binary (2 bytes, HL)
- F2, in binary (2 bytes, HL)
- F3, in binary (2 bytes, HL)

#### **4.7. Packet of f1+f2+f3 each 1s (+) of slm**

- Packet type: 0x56
- Functions of 125ms:
  - $L_{A125ms}$ , in binary (2 bytes, HL)
  - $L_{AF}$ , in binary (2 bytes, HL)
  - $L_{A125ms}$ , in binary (2 bytes, HL)
  - $L_{AF}$ , in binary (2 bytes, HL)
  - $L_{A125ms}$ , in binary (2 bytes, HL)
  - $L_{AF}$ , in binary (2 bytes, HL)
  - $L_{A125ms}$ , in binary (2 bytes, HL)
  - $L_{AF}$ , in binary (2 bytes, HL)
  - $L_{A125ms}$ , in binary (2 bytes, HL)
  - $L_{AF}$ , in binary (2 bytes, HL)
  - $L_{A125ms}$ , in binary (2 bytes, HL)
  - $L_{AF}$ , in binary (2 bytes, HL)
  - $L_{A125ms}$ , in binary (2 bytes, HL)
  - $L_{AF}$ , in binary (2 bytes, HL)
  - $L_{A125ms}$ , in binary (2 bytes, HL)
  - $L_{AF}$ , in binary (2 bytes, HL)
- Functions of 1s:
  - $L_{Cpeak}$ , in binary (2 bytes, HL)
  - F1, in binary (2 bytes, HL)
  - F2, in binary (2 bytes, HL)
  - F3, in binary (2 bytes, HL)

#### **4.8. Packet of $L_T+L_{IT}$ +percentiles each T of slm**

- Packet type: 0x55
- $L_{ZT}$  in binary (2 bytes, HL)
- $L_{CT}$  in binary (2 bytes, HL)
- $L_{AT}$  in binary (2 bytes, HL)
- $L_{ZIT}$  in binary (2 bytes, HL)
- $L_{CIT}$  in binary (2 bytes, HL)

- L<sub>AIT</sub> in binary (2 bytes, HL)
- Percentiles of T
  - L1, in binary (2 bytes, HL)
  - L5, in binary (2 bytes, HL)
  - L10, in binary (2 bytes, HL)
  - L50, in binary (2 bytes, HL)
  - L90, in binary (2 bytes, HL)
  - L95, in binary (2 bytes, HL)
  - L99, in binary (2 bytes, HL)

#### **4.9. Final packet of slm**

- Packet type: 0x30
- Register number (2 bytes, HL)
- 75 functions in binary (2 bytes, HL)
- Percentiles of T
  - L1, in binary (2 bytes, HL)
  - L5, in binary (2 bytes, HL)
  - L10, in binary 2 bytes, HL)
  - L50, in binary (2 bytes, HL)
  - L90, in binary (2 bytes, HL)
  - L95, in binary (2 bytes, HL)
  - L99, in binary (2 bytes, HL)
- Percentiles of t
  - L1, in binary (2 bytes, HL)
  - L5, in binary (2 bytes, HL)
  - L10, in binary 2 bytes, HL)
  - L50, in binary (2 bytes, HL)
  - L90, in binary (2 bytes, HL)
  - L95, in binary (2 bytes, HL)
  - L99, in binary (2 bytes, HL)
- T:
  - hours, 2 digit in BCD (1 byte)
  - minutes, 2 digit in BCD (1 byte)
  - seconds, 2 digit in BCD (1 byte)
- total measurement time:
  - hours, 4 digit in BCD (2 bytes, HL)
  - minutes, 2 digit in BCD (1 byte)
  - seconds, 2 digit in BCD (1 byte)
- partial measurement time:
  - hours, 2 digit in BCD (1 byte)
  - minutes, 2 digit in BCD (1 byte)
  - seconds, 2 digit in BCD (1 byte)

#### **4.10. 1/1 initial packet**

- Packet type: 0x80
- Register number (2 bytes, HL)
- Initial time:
  - year, 2 digit in BCD (1 byte)
  - month, 2 digit in BCD (1 byte)
  - day, 2 digit in BCD (1 byte)
  - hours, 2 digit in BCD (1 byte)
  - minutes, 2 digit in BCD (1 byte)
  - seconds, 2 digit in BCD (1 byte)

- T:
  - hours, 2 digit in BCD (1 byte)
  - minutes, 2 digit in BCD (1 byte)
  - seconds, 2 digit in BCD (1 byte)

#### **4.11. Packet T functions of 1/1**

- Packet type: 0x7B
- L<sub>ZT</sub>, in binary (2 bytes, HL)
- L<sub>CT</sub>, in binary (2 bytes, HL)
- L<sub>AT</sub>, in binary (2 bytes, HL)
- 10 octaves, in binary (2 bytes, HL)
- L<sub>Zpeak</sub>, in binary (2 bytes, HL)
- L<sub>Cpeak</sub>, in binary (2 bytes, HL)
- L<sub>Apeak</sub>, in binary (2 bytes, HL)
- 7 percentiles frequency weighting A (2 bytes, HL)
- 7 percentiles octave 31,5 (2 bytes, HL)
- 7 percentiles octave 63 (2 bytes, HL)
- 7 percentiles octave 125 (2 bytes, HL)
- 7 percentiles octave 250 (2 bytes, HL)
- 7 percentiles octave 500 (2 bytes, HL)
- 7 percentiles octave 1k (2 bytes, HL)
- 7 percentiles octave 2k (2 bytes, HL)
- 7 percentiles octave 4k (2 bytes, HL)
- 7 percentiles octave 8k (2 bytes, HL)
- 7 percentiles octave 16k (2 bytes, HL)

#### **4.12. Packet 125ms functions of 1/1**

- Packet type: 0x7C
- 104 functions of 125ms in binary (2 bytes, HL)

#### **4.13. Packet T+125ms functions of 1/1**

- Packet type: 0x7D
- 104 functions of 125ms in binary (2 bytes, HL)
- 16 functions of T in binary (2 bytes, HL)
- 77 percentiles of T (2 bytes, HL)

#### **4.14. Packet L<sub>T</sub> (+) each T of 1/1**

- Packet type: 0x7E
- L<sub>ZT</sub>, in binary (2 bytes, HL)
- L<sub>CT</sub>, in binary (2 bytes, HL)
- L<sub>AT</sub>, in binary (2 bytes, HL)
- 10 octaves, in binary (2 bytes, HL)
- L<sub>Zpeak</sub>, in binary (2 bytes, HL)
- L<sub>Cpeak</sub>, in binary (2 bytes, HL)
- L<sub>Apeak</sub>, in binary (2 bytes, HL)



#### **4.15. Final packet of 1/1**

- Packet type: 0x7F
- Register number (2 bytes, HL)
- 16 functions of T in binary (2 bytes, HL)
- 77 percentiles of T (2 bytes, HL)
- T:
  - hours, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)
- partial measurement time:
  - hours, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)

#### **4.16. Initial packet of 1/3**

- Packet type: 0x43
- Register number (2 bytes, HL)
- Initial time:
  - year, 2 digits in BCD (1 byte)
  - month, 2 digits in BCD (1 byte)
  - day, 2 digits in BCD (1 byte)
  - hours, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)
- T:
  - hours, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)

#### **4.17. Packet T functions of 1/3**

- Packet type: 0x44
- third octave 20, in binary (2 bytes, HL)
- third octave 25, in binary (2 bytes, HL)
- third octave 31,5, in binary (2 bytes, HL)
- third octave 40, in binary (2 bytes, HL)
- third octave 50, in binary (2 bytes, HL)
- third octave 63, e in binary (2 bytes, HL)
- third octave 80, in binary (2 bytes, HL)
- third octave 100, in binary (2 bytes, HL)
- third octave 125, in binary (2 bytes, HL)
- third octave 160, in binary (2 bytes, HL)
- third octave 200, in binary (2 bytes, HL)
- third octave 250, in binary (2 bytes, HL)
- third octave 315, in binary (2 bytes, HL)
- third octave 400, in binary (2 bytes, HL)
- third octave 500, in binary (2 bytes, HL)
- third octave 630, in binary (2 bytes, HL)
- third octave 800, in binary (2 bytes, HL)
- third octave 1k, in binary (2 bytes, HL)
- third octave 1,25k, in binary (2 bytes, HL)
- third octave 1,6k, in binary (2 bytes, HL)
- third octave 2k, in binary (2 bytes, HL)
- third octave 2,5k, in binary (2 bytes, HL)

- third octave 3,15k, in binary (2 bytes, HL)
- third octave 4k, in binary (2 bytes, HL)
- third octave 5k, in binary (2 bytes, HL)
- third octave 6,3k, in binary (2 bytes, HL)
- third octave 8k, in binary (2 bytes, HL)
- third octave 10k, in binary (2 bytes, HL)

#### **4.18. Packet 125 ms functions of 1/3**

- Packet type: 0x45
- 224 functions of 125ms in binary (2 bytes, HL)

#### **4.19. Packet T+125ms functions of 1/3**

- Packet type: 0x46
- 224 functions of 125ms in binary (2 bytes, HL)
- 28 functions of T in binary (2 bytes, HL)

#### **4.20. Final packet of 1/3**

- Packet type: 0x47
- Register number (2 bytes, HL)
- 28 functions of T in binary (2 bytes, HL)
- T:
  - hours, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)
- partial measurement time:
  - hours, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)

#### **4.21. 1/3 EXTENDED initial packet**

- Packet type: 0x76
- Register number (2 bytes, HL)
- Initial time:
  - year, 2 digits in BCD (1 byte)
  - month, 2 digits in BCD (1 byte)
  - day, 2 digits in BCD (1 byte)
  - hours, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)
- T:
  - hours, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)

#### **4.22. Packet T functions of 1/3 EXTENDED**

- Packet type: 0xB5
- third octave 10, in binary (2 bytes, HL)
- third octave 12.5, in binary (2 bytes, HL)
- third octave 16, in binary (2 bytes, HL)
- third octave 20, in binary (2 bytes, HL)
- third octave 25, in binary (2 bytes, HL)
- third octave 31,5, in binary (2 bytes, HL)
- third octave 40, in binary (2 bytes, HL)
- third octave 50, in binary (2 bytes, HL)
- third octave 63, e in binary (2 bytes, HL)
- third octave 80, in binary (2 bytes, HL)
- third octave 100, in binary (2 bytes, HL)
- third octave 125, in binary (2 bytes, HL)
- third octave 160, in binary (2 bytes, HL)
- third octave 200, in binary (2 bytes, HL)
- third octave 250, in binary (2 bytes, HL)
- third octave 315, in binary (2 bytes, HL)
- third octave 400, in binary (2 bytes, HL)
- third octave 500, in binary (2 bytes, HL)
- third octave 630, in binary (2 bytes, HL)
- third octave 800, in binary (2 bytes, HL)
- third octave 1k, in binary (2 bytes, HL)
- third octave 1.25k, in binary (2 bytes, HL)
- third octave 1.6k, in binary (2 bytes, HL)
- third octave 2k, in binary (2 bytes, HL)
- third octave 2.5k, in binary (2 bytes, HL)
- third octave 2.5k, in binary (2 bytes, HL)
- third octave 3.15k, in binary (2 bytes, HL)
- third octave 4k, in binary (2 bytes, HL)
- third octave 5k, in binary (2 bytes, HL)
- third octave 6.3k, in binary (2 bytes, HL)
- third octave 8k, in binary (2 bytes, HL)
- third octave 10k, in binary (2 bytes, HL)
- third octave 12.5k, in binary (2 bytes, HL)
- third octave 16k, in binary (2 bytes, HL)
- third octave 20k, in binary (2 bytes, HL)
- L<sub>AT</sub>, in binary (2 bytes, HL)
- L<sub>CT</sub>, in binary (2 bytes, HL)
- L<sub>ZT</sub>, in binary (2 bytes, HL)
- L<sub>AIT</sub>, in binary (2 bytes, HL)
- L<sub>AFmax</sub>, in binary (2 bytes, HL)
- L<sub>ASmax</sub>, in binary (2 bytes, HL)
- L<sub>Almax</sub>, in binary (2 bytes, HL)

#### **4.23. Packet 125ms functions of 1/3 EXTENDED**

- Packet type: 0xB8
- 328 functions (41x8) of 125ms in binary (2 bytes, HL)

#### **4.24. Packet T+125ms functions of 1/3 EXTENDED**

- Packet type: 0xB6
- 328 functions (41x8) of 125ms in binary (2 bytes, HL)
- 41 functions of T in binary (2 bytes, HL)

#### **4.25. 1/3 EXTENDED final packet**

- Packet type: 0xB7
- Register number (2 bytes, HL)
- 41 functions of T in binary (2 bytes, HL)
- T:
  - hours, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)
- partial measurement time:
  - hours, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)

#### **4.26. Vibrations initial packet**

- Tipo de Paquete: 0x70
- Register number (2 bytes, HL)
- Initial time:
  - year, 2 digit in BCD (1 byte)
  - month, 2 digit in BCD (1 byte)
  - day, 2 digit in BCD (1 byte)
  - hours, 2 digit in BCD (1 byte)
  - minutes, 2 digit in BCD (1 byte)
  - seconds, 2 digit in BCD (1 byte)
- T:
  - hours, 2 digit in BCD (1 byte)
  - minutes, 2 digit in BCD (1 byte)
  - seconds, 2 digit in BCD (1 byte)

#### **4.27. Packet T functions of vibrations**

- Packet type: 0x71
- third octave 1, in binary (2 bytes, HL)
- third octave 1.25, in binary (2 bytes, HL)
- third octave 1.6, in binary (2 bytes, HL)
- third octave 2, in binary (2 bytes, HL)
- third octave 2.5, in binary (2 bytes, HL)
- third octave 3.15, in binary (2 bytes, HL)
- third octave 4.0, in binary (2 bytes, HL)
- third octave 5.0, in binary (2 bytes, HL)
- third octave 6.3, in binary (2 bytes, HL)
- third octave 8, in binary (2 bytes, HL)
- third octave 10, in binary (2 bytes, HL)
- third octave 12.5, in binary (2 bytes, HL)
- third octave 16, in binary (2 bytes, HL)
- third octave 20, in binary (2 bytes, HL)
- third octave 25, in binary (2 bytes, HL)
- third octave 31.5, in binary (2 bytes, HL)
- third octave 40, in binary (2 bytes, HL)
- third octave 50, in binary (2 bytes, HL)
- third octave 63, in binary (2 bytes, HL)
- third octave 80, in binary (2 bytes, HL)

- “a” without weighting, in binary (2 bytes, HL)
- $a_{wm}$ , in binary (2 bytes, HL)
- peak, in binary (2 bytes, HL)
- MTVV, in binary (2 bytes, HL)
- CF, in binary (2 bytes, HL)
- VDV, in binary (2 bytes, HL)
- Factor K, in binary (2 bytes, HL)

#### **4.28. Packet 125ms functions of vibrations**

- Packet type: 0x72
- 192 functions of 125ms in binary (2 bytes, HL)

#### **4.29. Packet T+125ms functions of vibrations**

- Packet type: 0x73
- 192 functions of 125ms in binary (2 bytes, HL)
- 27 functions of T in binary (2 bytes, HL)

#### **4.30. Packet LT each T of vibrations**

- Packet type: 0x74
- 20 1/3 octave, in binary (2 bytes, HL)
- “a” without weighting, in binary (2 bytes, HL)
- $a_{wm}$ , in binary (2 bytes, HL)

#### **4.31. Final packet of vibrations**

- Packet type: 0x75
- Register number (2 bytes, HL)
- 27 functions of T in binary (2 bytes, HL)
- T:
  - hours, 2 digit in BCD (1 byte)
  - minutes, 2 digit in BCD (1 byte)
  - seconds, 2 digit in BCD (1 byte)
- partial measurement time:
  - hours, 2 digit in BCD (1 byte)
  - minutes, 2 digit in BCD (1 byte)
  - seconds, 2 digit in BCD (1 byte)

#### **4.32. FFT slm initial packet**

- Packet type: 0xB0
- Register number (2 bytes, HL)
- Initial time:
  - year, 2 digits in BCD (1 byte)
  - month, 2 digits in BCD (1 byte)
  - day, 2 digits in BCD (1 byte)
  - hour, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)

- T:
  - hours, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)

### **4.33. FFT sound level meter packet functions of T**

- Packet type: 0xB1
- 430 points of the FFT in binary (2 bytes, HL)

### **4.34. FFT final packet**

- Packet type: 0xB2
- Register number (2 bytes, HL)
- 430 points of FFT in binary (2 bytes, HL)
- T:
  - hours, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)
- partial measurement time:
  - hours, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)

### **4.35. FFT vibrations initial packet**

- Packet type: 0xA5
- Register number (2 bytes, HL)
- Initial time:
  - year, 2 digits in BCD (1 byte)
  - month, 2 digits in BCD (1 byte)
  - day, 2 digits in BCD (1 byte)
  - hour, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)
- T:
  - hours, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)

### **4.36. FFT vibrations packet functions of T**

- Packet type: 0xA6
- 430 points of FFT in binary (2 bytes, HL)

### **4.37. FFT vibrations final packet**

- Packet type: 0xA7
- Register number (2 bytes, HL)
- 430 points of FFT in binary (2 bytes, HL)

- T:
  - hours, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)
- partial measurement time:
  - hours, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)

#### **4.38. Initial packet of 1/1 reverberation time**

- Packet type: 0xC0
- Register number (2 bytes, HL)
- Initial time:
  - year, 2 digits in BCD (1 byte)
  - month, 2 digits in BCD (1 byte)
  - day, 2 digits in BCD (1 byte)
  - hour, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)

#### **4.39. Time history packet of 1/1 reverberation time**

- Packet type: 0xC1
- Time history octave 63 (1200 bytes, HL)
- Time history octave 125 (1200 bytes, HL)
- Time history octave 250 (1200 bytes, HL)
- Time history octave 500 (1200 bytes, HL)
- Time history octave 1k (1200 bytes, HL)
- Time history octave 2k (1200 bytes, HL)
- Time history octave 4k (1200 bytes, HL)

#### **4.40. Final packet of 1/1 reverberation time**

- Packet type: 0xC2
- Register number (2 bytes, HL)
- Noise level of octave 63, in binary (2 bytes, HL)
- Noise level of octave 125, in binary (2 bytes, HL)
- Noise level of octave 250, in binary (2 bytes, HL)
- Noise level of octave 500 (2 bytes, HL)
- Noise level of octave 1k, in binary (2 bytes, HL)
- Noise level of octave 2k, in binary (2 bytes, HL)
- Noise level of octave 4k, in binary (2 bytes, HL)
- Maximum level of octave 63, in binary (2 bytes, HL)
- Maximum level of octave 125, in binary (2 bytes, HL)
- Maximum level of octave 250, in binary (2 bytes, HL)
- Maximum level of octave 500 (2 bytes, HL)
- Maximum level of octave 1k, in binary (2 bytes, HL)
- Maximum level of octave 2k, in binary (2 bytes, HL)
- Maximum level of octave 4k, in binary (2 bytes, HL)
- $T_{30}$  of octave 63, in binary (2 bytes, HL)
- $T_{30}$  of octave 125, in binary (2 bytes, HL)
- $T_{30}$  of octave 250, in binary (2 bytes, HL)
- $T_{30}$  of octave 500 (2 bytes, HL)

- $T_{30}$  of octave 1k, in binary (2 bytes, HL)
- $T_{30}$  of octave 2k, in binary (2 bytes, HL)
- $T_{30}$  of octave 4k, in binary (2 bytes, HL)
- $T_{20}$  of octave 63, in binary (2 bytes, HL)
- $T_{20}$  of octave 125, in binary (2 bytes, HL)
- $T_{20}$  of octave 250, in binary (2 bytes, HL)
- $T_{20}$  of octave 500 (2 bytes, HL)
- $T_{20}$  of octave 1k, in binary (2 bytes, HL)
- $T_{20}$  of octave 2k, in binary (2 bytes, HL)
- $T_{20}$  of octave 4k, in binary (2 bytes, HL)

#### **4.41. Initial packet of 1/1 reverberation time**

- Packet type: 0xC3
- Register number (2 bytes, HL)
- Initial time:
  - year, 2 digits in BCD (1 byte)
  - month, 2 digits in BCD (1 byte)
  - day, 2 digits in BCD (1 byte)
  - hour, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)

#### **4.42. Time history packet of 1/3 reverberation time**

- Packet type: 0xC4
- Time history 1/3 octave 50 (1200 bytes, HL)
- ...
- Time history 1/3 octave 5k (1200 bytes, HL)

#### **4.43. Final packet of 1/3 reverberation time**

- Packet type: 0xC5
- Register number (2 bytes, HL)
- Noise level of 1/3 octave 50, in binary (2 bytes, HL)
- ...
- Noise level of 1/3 octave 5k, in binary (2 bytes, HL)
- Maximum level of 1/3 octave 50, in binary (2 bytes, HL)
- ...
- Maximum level of 1/3 octave 5k, in binary (2 bytes, HL)
- $T_{30}$  of 1/3 octave 50, in binary (2 bytes, HL)
- ...
- $T_{30}$  of 1/3 octave 5k, in binary (2 bytes, HL)
- $T_{20}$  of 1/3 octave 50, in binary (2 bytes, HL)
- ...
- $T_{20}$  of 1/3 octave 5k, in binary (2 bytes, HL)

#### **4.44. Dosimeter initial packet**

- Packet type: 0xB3
- Register number (2 bytes, HL)
- Initial time:



- year, 2 digits in BCD (1 byte)
- month, 2 digits in BCD (1 byte)
- day, 2 digits in BCD (1 byte)
- hours, 2 digits in BCD (1 byte)
- minutos, 2 digits in BCD (1 byte)
- seconds, 2 digits in BCD (1 byte)
- T:
  - hours, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)

#### **4.45. Packet of T functions of dosimeter**

- Packet type: 0xB4
- $L_{CT}$ , in binary (2 bytes, HL)
- $L_{AT}$ , in binary (2 bytes, HL)
- octave 63 (T), in binary (2 bytes, HL)
- octave 125 (T), in binary (2 bytes, HL)
- octave 250 (T), in binary (2 bytes, HL)
- octave 500 (T), in binary (2 bytes, HL)
- octave 1k (T), in binary (2 bytes, HL)
- octave 2k (T), in binary (2 bytes, HL)
- octave 4k (T), in binary (2 bytes, HL)
- octave 8k (T), in binary (2 bytes, HL)
- $L_{Cpeak}$  (T), in binary (2 bytes, HL)

#### **4.46. Final packet of dosimeter**

- Packet type: 0xB9
- Register number (2 bytes, HL)
- $L_{Ct}$ , in binary (2 bytes, HL)
- $L_{At}$ , in binary (2 bytes, HL)
- octave 63 (t), in binary (2 bytes, HL)
- octave 125 (t), in binary (2 bytes, HL)
- octave 250 (t), in binary (2 bytes, HL)
- octave 500 (t), in binary (2 bytes, HL)
- octave 1k (t), in binary (2 bytes, HL)
- octave 2k (t), in binary (2 bytes, HL)
- octave 4k (t), in binary (2 bytes, HL)
- octave 8k (t), in binary (2 bytes, HL)
- $L_{Cpeak}$  (t), in binary (2 bytes, HL)
- $L_{EX,Sh}$ , in binary (2 bytes, HL)
- $L_{CT}$ , in binary (2 bytes, HL)
- $L_{AT}$ , in binary (2 bytes, HL)
- octave 63 (T), in binary (2 bytes, HL)
- octave 125 (T), in binary (2 bytes, HL)
- octave 250 (T), in binary (2 bytes, HL)
- octave 500 (T), in binary (2 bytes, HL)
- octave 1k (T), en binary (2 bytes, HL)
- octave 2k (T), en binary (2 bytes, HL)
- octave 4k (T), en binary (2 bytes, HL)
- octave 8k (T), en binary (2 bytes, HL)
- $L_{Cpeak}$  (T), en binary (2 bytes, HL)
- T:
  - hours, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)

- total measurement time:
  - hours, 4 digits in BCD (2 bytes, HL)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)
- partial measurement time:
  - hours, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)

#### **4.47. Final packet of PAUSE**

- Packet type: 0x0F
- Time of PAUSE:
  - hours, 2 digits in BCD (1 byte)
  - minutes, 2 digits in BCD (1 byte)
  - seconds, 2 digits in BCD (1 byte)

#### **4.48. Time packet of the first information (for the circular memories)**

- Packet type: 0xF0
- Passed seconds from “play”, binary (4 bytes, H..L)

# 5. FORMATS

---

## 5.1. Data

- If it is 0x1000, there is no result.
- If it is 0x0000, “under range”.
- If bit 15 (most weight) = 1, overload
  
- In T<sub>30</sub> and T<sub>20</sub>, if it is 0x0FFF, indicates that can not be calculated (“---“ from display).
  
- In NC curves, if it is 0, there are no results and if it is 71, is bigger than 70 (“-- “ from display)

## 5.2. SLM function

- bits 14, 13 and 12:  
001 = minimum  
010 = maximum  
100 = normal
  
- bits 10, 9 and 8:  
001 = Z frequency weighting  
010 = C frequency weighting  
100 = A frequency weighting
  
- bits 6, 5, 4, 3, 2, 1 and 0:  
0000001 = L<sub>F</sub>  
0000010 = L<sub>S</sub>  
0000100 = L<sub>I</sub>  
0001000 = L<sub>T</sub>  
0010000 = L<sub>t</sub>  
0100000 = L<sub>E</sub>  
1000000 = L<sub>Peak</sub>