B. DATA FILE STRUCTURES (v3.21)

B.1. Structure of the SVAN 106 file

Each file containing data from the SVAN instrument consists of several groups of words. In the case of the **SVAN 106** there are some different types of files that contain:

- the measurement results from the **L**evel **M**eter mode (cf. App. B.3.1.);
- the results from the **L**evel **M**eter mode stored in the file in the instrument's logger (cf. App. B.3.1. and App. B.4);
- the setup data of the instrument (cf. App.B.3.3);
- the results from **1/1 OCTAVE** analysis (cf. App. B.3.4.);
- the results from **1/3 OCTAVE** analysis (cf. App. B.3.5.);
- the results from **1/1 OCTAVE** or **1/3 OCTAVE** analysis stored in the file in the instrument's logger (cf. App. B.4 and App. B.3.6);

Each file has the following elements:

- a file header (cf. Tab. B.1.1);
- the unit and internal software specification (cf. Tab. B.1.2);
- the marker for the end of the file (cf. Tab. B.1.11).

The other elements of the file structure are not obligatory for each file type stated above. They depend on the file type (**LM**, **1/1 OCTAVE**, **1/3 OCTAVE**, file from the logger, setup file). These elements are as follows:

- the parameters and global settings, common for all channels (cf. Tab. B.1.3);
- the hardware settings for channels (cf. Tab. B.1.4);
- the software settings for channels (cf. Tab. B.1.5);
- the **VECTOR** measurement settings (cf. Tab. B.1.6);
- the hand-arm and whole-body vibration dose measurement settings (cf. Tab. B.1.7);
- the main results (cf. Tab. B.1.8);
- the logger header (cf. Tab. B.1.9);
- the data stored during the measurements in the logger (cf. Tab. B.1.10);
- the setup data of the instrument (cf. Tab. B.1.12);
- the trigger settings (cf. Tab. B.1.13, Tab.B.1.14);
- event recording settings(cf. Tab.B.1.15);
- the **1/1 OCTAVE** or **1/3 OCTAVE** analysis header (cf. Tab. B.1.16);
- the results coming from **1/1 OCTAVE** analysis (cf. Tab. B.1.17);
- the results coming from **1/3 OCTAVE** analysis (cf. Tab. B.1.18);
- the totals description in **1/1 OCTAVE** or **1/3 OCTAVE** analysis (cf. Tab. B.1.19);
- the user-defined filter description (cf. Tab. B.1.21);
- the **1/1 OCTAVE** or **1/3 OCTAVE** logger header (cf. Tab. B.1.22);
- the Max results coming from **1/1 OCTAVE** analysis (cf. Tab. B.1.23);
- the Min results coming from **1/1 OCTAVE** analysis (cf. Tab. B.1.24);
- the Max results coming from **1/3 OCTAVE** analysis (cf. Tab. B.1.25);
- the Min results coming from **1/3 OCTAVE** analysis (cf. Tab. B.1.26);
- the **SEAT** measurements settings (cf. Tab. B.1.27);

Below, all file structure groups are described separately in Tab. B.1.1 ÷ Tab. B.1.27. The format used in the columns, named **Comment** with the square parenthesis (**[xx**, **yy]**), means the contents of the word with **xx** is the most significant byte (MSB) and **yy** the least significant byte (LSB) of the word. The format **0xnnnn** means that the **nnnn** is four-digit number in hexadecimal form.

Table B.1.1. File header

Word number	Name / Value	Comment
0	0xnn01	[01, nn=header_length]
1..4	FileName	file or logger name (8 characters) if the name starts with two '@' characters, following 6 bytes contain measurement date and time coded as BCD (each saved digit is increased by one)
5	FileType	0x0000 - file containing results from logger's file 0x01nn - file containing measurements results 0x0200 - file containing instrument's setup data 0x4000 - file containing time-domain signal
6	CurrentDate	file creation date
7	CurrentTime	file creation time
8..11	AssBufFileName	name of the associated logger or file (8 bytes)
…	…	…

Table B.1.2. Unit and software specification

Word number	Name / Value	Comment
0	0xnn02	[02, nn=specification_length]
1	UnitNumber	unit number
2	UnitType	unit type: 106
3	SoftwareVersion	software version * 100
4	SoftwareIssueDate	software issue date
5	UnitSubtype	unit subtype: 1
6	FilesystemVersion	file system version * 100
7	reserved	Reserved
8	0xmmcc	[mm=software minor version, cc=software subversion]
…	…	…

Table B.1.3. Parameters and global settings

Word number	Name / Value	Comment
0	0xnn04	[04, nn=block_length]
1	CycleStartDate	measurement cycle start date
2	CycleStartTime	measurement cycle start time
3	DeviceFunction	1 - **LEVEL METER**, 2 - **1/1 OCTAVE** analyser, 3 - **1/3 OCTAVE** analyser, 4 - sound **DOSE METER**, 6 - **FFT** analyser, 8 - **RT60** meter, 13 - **FFT CROSS-SPECTRUM**, 14 - **SOUND INTENSITY**, 17 - **WAVERECORDER**

4	UnitFlags	flags word (16 bits): b15 ... b3 b2 b1 b0
		b0 - if set to 1: calibration coefficient is used
		b1 - if set to 1: overload occurred
		b2 - if set to 1: "Human vibrations" excluded (0 - means "Human vibrations" included and then **VDV** result is present)
		b5,b4,b3: type of the result Result[p][7] (p = 1,2,3,4)
		    000 - **Lden** result is not available
		    001 - **Ld** result
		    010 - **Le** result
		    011 - **Lde** result
		    100 - **Ln** result
		    101 - **Lnd** result
		    110 - **Len** result
		    111 - **Lden** result
		b6 - if set to 1: overload occurred in the 6th channel
		b7 - if set to 1: overload occurred in the 5th channel
		b8 - if set to 1: overload occurred in the 4th channel
		b9 - if set to 1: overload occurred in the 3rd channel
		b10 - if set to 1: overload occurred in the 2nd channel
		b11 - if set to 1: overload occurred in the 1st channel
		b12, ..., b15 - reserved

5	RepCycle	0 - infinity nnnn - number of repetitions $\in (1 \div 1000)$
6	StartDelay	start delay time specified in milliseconds $\in (1 \div 60000)$
7..8	IntTimeSec	0 - infinity integration time specified in seconds
9	MeasureTriggerChannel	source channel of the triggering signal: 0 (the 1st channel) .. 5 (the 6th channel)
10	MeasureTriggerMode	trigger mode: 0 - **OFF**, 1 - **SLOPE+**, 2 - **SLOPE–**, 3 - **LEVEL+**, 4 - **LEVEL–**, 6 - **GRADIENT+**, 7 - **RTC**

11	MeasureTriggerSource	source of the triggering signal:
		    0 - the **VEC 1-3** result
		    1 - the **VEC 4-6** result
		    4 - the **RMS(1)** result from the selected channel
		    5 - the External trigger

12	MeasureTriggerLev	level of triggering: 60..200 dB in the case of source channel in Vibration Meter mode
13	MeasureVecTriggerLev	level of triggering for **VEC** result: 60..200 dB
14	LoggerTriggerPre	number of the records taken into account before the fulfilment of the triggering condition $\in (1 \div 20)$
15	LoggerTriggerPost	number of the records taken into account after the fulfilment of the triggering condition $\in (1 \div 200)$
16	LeqInt	detector's type in the **LEQ** function: 0 - **LINEAR**, 1 - **EXPONENTIAL**
17	Reserved	Reserved
18	RefLev_a	reference level for acceleration given in $\mu ms^{-2} \in (1 \div 100)$
19	RefLev_v	reference level for velocity given in $nms^{-1} \in (1 \div 100)$
20	RefLev_d	reference level for displacement given in pm $\in (1 \div 100)$
21	NofChannels	number of channels (6)
22	NofProfiles	number of profiles (12)
23	NotSpect	number of spectrum
24	reserved	Reserved

25	CalibrType	calibration type: 0 - calibration not performed 1 - calibration by measurement 2 - calibration by sensitivity
26	CalibrDate	date of the last calibration
27	CalibrTime	time of the last calibration
28	MeasureTriggerGrad	the gradient level for gradient trigger mode
29	reserved	Reserved
30	reserved	Reserved
31	reserved	Reserved
32	reserved	Reserved
33	reserved	Reserved
34	reserved	Reserved
35	reserved	Reserved
36	CycleMeasurementStartDate	measure start date
37..38	CycleMeasurementStartTime	measure start time
39	enabledChannels	Channels used for measurement as bitfield: b0 - channel 1 enabled b1 - channel 2 enabled .. b5 - channel 6 enabled
…	…	…

Table B.1.4. Hardware settings for channels

Word number	Name / Value	Comment
0	0xnn05	[05, nn=block_length]
1	0xkk06	[06, kk=sub-block_length]
2	ChannelMode[1]	mode of the 1st channel 0 - Vibration Level Meter / Analyser
3	CalibrFactor[1]	calibration factor (*10 dB) in the 1st channel
4	Reserved	always 1
5	Reserved	Reserved
6	Reserved	Reserved
7	Reserved	Reserved
8	Reserved	Reserved
9	RangeDB[1]	Range in the 1st channel as dB*100
…	…	…
kk*5 + 1	0xkk06	[06, kk=sub-block_length]
kk*5 + 2	ChannelMode[6]	mode of the 6th channel: 0 - Vibration Level Meter / Analyser
kk*5 + 3	CalibrFactor[6]	calibration factor (*10 dB) in the 6th channel
kk*5 + 4	Reserved	always 1
kk*5 + 5	Reserved	Reserved
kk*5 + 6	Reserved	Reserved
kk*5 + 7	Reserved	Reserved
kk*5 + 8	Reserved	Reserved
kk*5 + 9	RangeDB[6]	Range in the 6th channel as dB*100

	force_flags1	flags word (16 bits): b15 ... b3 b2 b1 b0
		    b0 - if set to 1: 1st force channel results have been calculated
		    b1 ... b15 – reserved

	force_buffer1	logger contents in the 1st force channel defined as a sum of:
		    1 - for **PEAK** results,
		    2 - for **MAX** results,
		    4 - for **MIN** results,
		    8 - for **AVER** results,

	force_flags2	flags word (16 bits): b15 ... b3 b2 b1 b0
		    b0 - if set to 1: 2nd force channel results have been calculated
		    b1 ... b15 - reserved

	force_buffer2	logger contents in the 2nd force channel defined as a sum of:
		    1 - for **PEAK** results,
		    2 - for **MAX** results,
		    4 - for **MIN** results,
		    8 - for **AVER** results,

…	…	…

Table B.1.5. Software settings for channels

Word number	Name / Value	Comment
0	0xnn07	[07, nn=block_length]
1	0x040C	[used_channel, used profile]
2..7	ProfileSett[1]	the 1st profile settings for the 1st channel, defined in the case of **VLM** mode - in Table **B.1.5_VLM**
8..13	ProfileSett[2]	the 1st profile settings for the 2nd channel, defined in the case of **VLM** mode - in Table **B.1.5_VLM**
14..19	ProfileSett[3]	the 1st profile settings for the 3rd channel, defined in the case of **VLM** mode - in Table **B.1.5_VLM**
20..25	ProfileSett[4]	the 1st profile settings for the 4th channel, defined in the case of **VLM** mode - in Table **B.1.5_VLM**
26..31	ProfileSett[5]	the 1st profile settings for the 5th channel, defined in the case of **VLM** mode - in Table **B.1.5_VLM**
32..37	ProfileSett[6]	the 1st profile settings for the 6th channel, defined in the case of **VLM** mode - in Table **B.1.5_VLM**
38..43	ProfileSett[7]	the 2nd profile settings for the 1st channel, defined in the case of **VLM** mode - in Table **B.1.5_VLM**
44..49	ProfileSett[8]	the 2nd profile settings for the 2nd channel, defined in the case of **VLM** mode - in Table **B.1.5_VLM**
50..55	ProfileSett[9]	the 2nd profile settings for the 3rd channel, defined in the case of **VLM** mode - in Table **B.1.5_VLM**
56..61	ProfileSett[10]	the 2nd profile settings for the 4th channel, defined in the case of **VLM** mode - in Table **B.1.5_VLM**
62..67	ProfileSett[11]	the 2nd profile settings for the 5th channel, defined in the case of **VLM** mode - in Table **B.1.5_VLM**

68..73	ProfileSett[12]	the 2nd profile settings for the 6th channel, defined in the case of **VLM** mode - in Table **B.1.5_VLM**
…	…	…

Table B.1.5_VLM. Software settings for a channel in the case of VLM mode

Word number	Name / Value	Comment
0	0xnn08	[08, nn=sub-block_length]
1	ChannelNo	channel number: 0 - the 1st channel
2	FilterP	filter type in the channel: 0 - **HP**, 5 - **VEL3**, 16 - **Wk**, 17 - **Wd**, 18 - **Wc**, 19 - **Wj**, 20 - **Wm**, 21 - **Wh**, 22 - **Wg**, 23 - **Wb**, 24 - **Wf**, 116 - **BL Wk**, 117 - **BL Wd**, 118 - **BL Wc**, 119 - **BL Wj**, 120 - **BL Wm**, 121 - **BL Wh**, 122 - **BL Wg**, 123 - **BL Wb**, 124 - **BL Wf**
3	DetectorP	detector type in the channel: 0 - **100 ms**, 1 - **125 ms**, 2 - **200 ms**, 3 - **500 ms**, 4 - **1 s**, 5 - **2 s**, 6 - **5 s**, 7 - **10 s**
4	BufferP	logger contents in the channel defined as a sum of: 1 - for **PEAK** results, 2 - for **P–P** results, 4 - for **MAX** results, 8 - for **RMS** results, 16 - for **VDV** results
5	ProfileFlags	flags word (16 bits): b15 ... b3 b2 b1 b0 b0 - if set to 1: profile results have been calculated b1 ... b15 - reserved
…	…	…

Table B.1.6. Vector measurement settings

Word number	Name / Value	Comment
0	0xnn38	[1E, nn=sub-block_length]
1	vecNo	Vector id: 0 - **VEC 1-3**, 1 - **VEC 4-6**
2	vecChMask	Channels used for vector calculation: b0 - if set to 1: channel 1 was used for calculation b1 - if set to 1: channel 2 was used for calculation b2 - if set to 1: channel 3 was used for calculation b3 - if set to 1: channel 4 was used for calculation b4 - if set to 1: channel 5 was used for calculation b5 - if set to 1: channel 6 was used for calculation
3	Buffer	vector result logging: 0 - **OFF**, 8 – **RMS**
4	VectorCoeff[1]	vector coefficient for the RMS value from the 1st channel (*100)
5	VectorCoeff[2]	vector coefficient for the RMS value from the 2nd channel (*100)
6	VectorCoeff [3]	vector coefficient for the RMS value from the 3rd channel (*100)
7	VectorCoeff [4]	vector coefficient for the RMS value from the 4th channel (*100)

8	VectorCoeff [5]	vector coefficient for the RMS value from the 5th channel (*100)
9	VectorCoeff [6]	vector coefficient for the RMS value from the 6th channel (*100)
10	type	vector type: 0 - RMS vector, 1 - MTVV, 2 - PPV
…	…	…

Table B.1.7. Settings for vibration dose measurement

Word number	Name / Value	Comment
0	0xnn1F	[1F, nn=block_length]
1	doseIdx	0 - dosimeter 1-3 1 - dosimeter 4-6
2	doseType	type of dosimeter: 1 - Hand-Arm measurement, 2 - Whole-Body measurement
3	xAxis	channel of x axis
4	yAxis	channel of y axis
5	zAxis	channel of z axis
6	ExposureTime	exposure time in minutes
7	Standard	standard: 0 - **UK**, 1 - **Italy**, 2 - **Poland**, 3 - **French**, 4 - **User**, 5 - **German**
8	HAV_EAV_X	Hand-Arm x-axis action value*100
8	HAV_EAV_Y	Hand-Arm y-axis action value*100
8	HAV_EAV_Z	Hand-Arm z-axis action value*100
9	HAV_ELV_X	Hand-Arm x-axis limit value*100
9	HAV_ELV_Y	Hand-Arm y-axis limit value*100
9	HAV_ELV_Z	Hand-Arm z-axis limit value*100
10	WBV_EAV_X	Whole-Body x-axis action value*100
10	WBV_EAV_Y	Whole-Body y-axis action value*100
10	WBV_EAV_Z	Whole-Body z-axis action value*100
11	WBV_ELV_X	Whole-Body x-axis limit value*100
11	WBV_ELV_Y	Whole-Body y-axis limit value*100
11	WBV_ELV_Z	Whole-Body z-axis limit value*100
12	Unit[1]	type of HAV_EAV value (0 - RMS based, 1-VDV based)
13	Unit[2]	type of HAV_ELV value (0 - RMS based, 1-VDV based)
14	Unit[3]	type of WBV_EAV value (0 - RMS based, 1-VDV based)
15	Unit[4]	type of WBV_ELV value (0 - RMS based, 1-VDV based)
…	…	…

Table B.1.8. Main results

Word number	Name / Value	Comment
0	0xnn0D	[0D, nn=sub-block_length]
1	0x040C	[used_channel, used profiles]
2..15	MainResults[1]	main results from the 1st profile of the 1st channel, defined in the case of **VLM** mode - in Table **B.1.8_VLM**
16..29	MainResults[2]	main results from the 1st profile of the 2nd channel, defined in the case of **VLM** mode - in Table **B.1.8_VLM**
30..43	MainResults[3]	main results from the 1st profile of the 3rd channel, defined in the case of **VLM** mode - in Table **B.1.8_VLM**

44..57	MainResults[4]	main results from the 1st profile of the 4th channel, defined in the case of **VLM** mode - in Table **B.1.8_VLM**
58..71	MainResults[5]	main results from the 1st profile of the 5th channel, defined in the case of **VLM** mode - in Table **B.1.8_VLM**
72..85	MainResults[6]	main results from the 1st profile of the 6th channel, defined in the case of **VLM** mode - in Table **B.1.8_VLM**
86..99	MainResults[7]	main results from the 2nd profile of the 1st channel, defined in the case of **VLM** mode - in Table **B.1.8_VLM**
100..113	MainResults[8]	main results from the 2nd profile of the 2nd channel, defined in the case of **VLM** mode - in Table **B.1.8_VLM**
114..127	MainResults[9]	main results from the 2nd profile of the 3rd channel, defined in the case of **VLM** mode - in Table **B.1.8_VLM**
128..141	MainResults[10]	main results from the 2nd profile of the 4th channel, defined in the case of **VLM** mode - in Table **B.1.8_VLM**
142..155	MainResults[11]	main results from the 2nd profile of the 5th channel, defined in the case of **VLM** mode - in Table **B.1.8_VLM**
156..169	MainResults[12]	main results from the 2nd profile of the 6th channel, defined in the case of **VLM** mode - in Table **B.1.8_VLM**
170	Vec13	**RMS** value of vector **VEC 1-3** (*100 dB)
171	Vec46	**RMS** value of vector **VEC 4-6** (*100 dB)
172..	Force13	main results from the 1st force channel
	Force46	main results from the 2nd force channel
...	...	...

Table B.1.8_VLM. One-profile main results in the case of VLM mode

Word number	Name / Value	Comment
0	0xnn0E	[0E, nn=sub-block_length]
1..2	MeasureTime	time of the measurement in the channel (if the 1st profile in channel) overload time in the channel (if second profile in channel)
3	Result[1]	**PEAK** value in the profile (*100 dB)
4	Result[2]	**P–P** value in the profile (*100 dB)
5	Result[3]	reserved
6	Result[4]	reserved
7	Result[5]	**MTVV** (or **MAX**) value in the profile (*100 dB)
8	Result[6]	**VDV** value in the profile (if UnitFlags bit b2 is set to 0) (*100 dB)
9	Result[7]	**RMS** value in the profile (*100 dB)
10	Result[8]	reserved
11	Result[9]	reserved
12	Result[10]	reserved
13	Result[11]	reserved
…	…	…

Table B.1.8_FORCE. One force channel main results

Word number	Name / Value	Comment
0	0xnn49	[49, nn=sub-block_length]
1	Result[1]	**PEAK** force value (*100 N)
2	Result[2]	**MIN** force value (*100 N)

3	Result[3]	**MAX** force value (*100 N)
4	Result[4]	**AVERAGE** force value (*100 N)
…	…	…

Table B.1.9. Header of the file from the logger

Word number	Name / Value	Comment
0	0xnn18	[18, nn=header_length]
1	BufResOffs	position of the first saved result
2	BuffTSec	logger time-step - full seconds part
3	BuffTMilisec	logger time-step - milliseconds part
4..5	BuffLength	logger length (bytes)
6..7	RecsInBuff	number of records in the logger
8..9	RecsInObserv	number of records in the observation period equal to: number of records in the logger + number of records not saved
10..11	AudioRecs	number of audio records in the logger
…	…	…

> ⚠ **Note:** *The current logger time step in seconds can be obtained from the formulae:*
> **T = BuffTSec + BuffTMilisec / 1000**.

Table B.1.10. Contents of the file from the logger

Word number	Name / Value	Comment
0..(BuffLength/2-1)		result#1, result#2, ... result#(BuffLength/2-1)

Table B.1.11. File end marker

Word number	Name / Value	Comment
0	0xFFFF	file end marker

Table B.1.12. Data block of instrument's setup

Word number	Name / Value	Comment
0	0x0020	[20, 00=block length in the next word]
1	BlockLength	block length
2..BlockLength-1	SetupData	saved setup values
…	…	…

Table B.1.13. Trigger settings

Word number	Name / Value	Comment
0	0x0031	[31, 00=block length in the next word]
1	BlockLen	block length
2	NProfileTriggers	number of trigger conditions per profile
3	NSpectTriggers	number of trigger conditions per spectrum channel
4	NVectTriggers	number of trigger conditions per vector
5	Vector13Condidtion	vector 1-3 trigger block (table B.1.14)
...	Vector46Condidtion	vector 4-6 trigger block (table B.1.14)
…	ProfTriggCond1	trigger condition block for the 1st profile (table B.1.14)
…	…	…
...	ProfTrigCondN	trigger condition block for the last profile (table B.1.14)
...	SpectTriggCond1	trigger condition block for the first spectrum (table B.1.14)
...	...	
...	SpectTriggCondN	trigger condition block for the last spectrum (table B.1.14)
…	AlarmCond	alarm trigger (table B.1.28)
…	LoggerCond	logger trigger (table B.1.28)
…	WaveCond	wave recording trigger (table B.1.28)
…	SMSCond	SMS alert trigger (table B.1.28)
…	MailCond	E-mail alert trigger (table B.1.28)
…	EventCond	event recording trigger (table B.1.28)
…	…	…

Table B.1.14. Trigger condition block

Word number	Name / Value	Comment
0	0xnn32	[32, nn=block length]
1..2	Flags	b1 - logger integration step b2 - 100ms integration step b3 - 1s integration step b4 - current time integration step b9 - trigger action: alarm b12 - trigger action: logger b15 - integration period step b17 - trigger action: wave b19 - trigger action: SMS b21 - trigger action: E-MAIL b23 - trigger action: event recorder
3	Mode	0 - **OFF**, 1 - **LEVEL -**, 2 - **LEVEL +**, 3 - **SLOPE -**, 4 - **SLOPE +**, 5 - **GRADIENT -**, 6 - **GRADIENT +**, 7 - **DECAY**
4	Source	0 - **VECTOR RMS**, 1 - **PEAK**, 2 - **P-P**, 3 - **MAX**, 4 - **MIN**, 5 - **RMS**, 6 - **VDV**, 7 - **PEAK**, 8 - **MAX**, 9 - **MIN**, 10 - **RMS**
5	primaryLevel	triggering level in dB*100
6	secondaryLevel	in the case of **GRADIENT** mode: gradient level in dB*100 in the case of **DECAY** mode: signal drop level in dB*100
…	…	…

Table B.1.15. Event Recording Settings

Word number	Name / Value	Comment
0	0xnn39	[39, nn=block length]
1	eventSampleRate	sampling rate: 0 - 6kHz

2	eventChannel	recorded channels mask:
		    b0 - 1st channel
		    b1 - 2nd channel
		    ...
		    b5 - 6th channel

3	event16b	1 - 16 bits per sample
4	eventGain	0 - signal gain +0dB
5	triggerEventTime	time constant for triggerEventTimeLimit in seconds
6	triggerEventTimeLimit	0 - unlimited recording time 1 - fixed length 2 - maximum length
…	…	…

Table B.1.16. Octave analysis header

Word number	Name / Value	Comment
0	0xnn09	[09, nn=block_length]
1	0xkknn	[nn=spectrum_mask, kk=used_spectrum]
2..5	OctaveHead[1]	header of the first enabled octave analysis, defined in Table **B.1.16_VLM**
…	…	…
2+4*used_spectrum.. 5+4*used_spectrum	OctaveHead[used_spectrum]	header of the last enabled octave analysis, defined in Table **B.1.16_VLM**
…	…	…

Table B.1.16_VLM. Octave analysis header entry

Word number	Name / Value	Comment
0	0xnn0A	[0A, nn=sub-block length]
1	SpectrumChannel	spectrum channel
2	SpectrumFilter	**1/1** or **1/3 OCTAVE** analysis filter: 0 - **HP**
3	SpectrumBuff	**1/1** or **1/3 OCTAVE** logging: 1 - **ON**, 0 - **OFF**
…	…	…

Table B.1.17. One-channel 1/1 OCTAVE analysis results

Word number	Name / Value	Comment
0	0xnn0F	[0F, nn=block_length]
1	LowestFreq	the lowest **1/1 OCTAVE** frequency (*100 Hz)
2	Noct	number of **1/1 OCTAVE** values
3	NoctTot	number of **TOTAL** values = 3
4… block_length	Octave[i]	1/1 octave[i] value (*100 dB); i=1..NOct+NOctTot
…	…	…

⚠ **Note:** The **TOTAL** values, correspond to the **HP**, **Profile 1** and **Profile 2** filters – respectively.

Table B.1.18. One-channel 1/3 OCTAVE analysis results

Word number	Name / Value	Comment
0	0xnn10	[10, nn=block_length]
1	LowestFreq	the lowest **1/3 OCTAVE** frequency (*100 Hz)
2	Nter	number of **1/3 OCTAVE** values
3	NterTot	number of **TOTAL** values = 3
4... block_length	Tercje[I]	1/3 octave[i] value (*100 dB); i=1..NTer+NTerTot
…	…	…

⚠ **Note:** The **TOTAL** values, correspond to the **HP**, **Profile 1** and **Profile 2** filters – respectively.

Table B.1.19. TOTALS description

Word number	Name / Value	Comment
0	0xnn1A	[1A, nn=block_length = 1+(1 + Ntotal*4)*k (words)]
1... 1+4*Ntotal	OneChnlTotDesc[1]	one-channel totals description block for the first channel with **TOTALS** in user filters (Table **B.1.20.**)
…	…	…
	OneChnlTotDesc[k]	one-channel totals description block for the last channel with **TOTALS** in user filters (Table **B.1.20.**)
…	…	…

⚠ **Note:** This data block is created only in the case when the file was saved for **1/1 OCTAVE** or **1/3 OCTAVE** analysis and the **TOTAL** values were calculated for the filters selected by the user (**USER FILTERS**). The **TOTAL** values corresponding to those filters are given in the TotValue positions and the definitions of the proper filters are presented in the Table B.1.20.

Table B.1.20. One-channel TOTALS description

Word number	Name / Value	Comment
0	0xnn1B	[1B, nn=block_length = 1 + Ntotal*4 (words)]
1	SpectChannel	spectrum channel
2	FilterNo[1]	logical filter no. for the first total value 0, 1, 2 - standard filters 3,… - user-defined filters
3	FilterType[1]	for sound: 0 for vibration: 0 - **ACC**., 1 - **VEL**., 2 - **DIL**.
4	calFactor[1]	calibration factor used to modify the computed **TOTAL** value
5	TotValue[1]	**TOTAL** value computed for the filter with logical no. FilterNo or zero value for standard filter
…	…	…
nn-4	FilterNo[Ntotal]	logical filter no. for the last total value 0, 1, 2 - standard filters 3,… - user-defined filters
nn-3	FilterType[Ntotal]	0 - **ACC**., 1 - **VEL**., 2 - **DIL**.
nn-2	calFactor[Ntotal]	calibration factor used to modify the computed **TOTAL** value
nn-1	TotValue[Ntotal]	**TOTAL** value computed for the filter with logical no. FilterNo or zero value for standard filter
…	…	…

Table B.1.21. Description of user-defined filter

Word number	Name / Value	Comment
0	0xnn1D	[1D, nn=block_length = 5 + NTer (words)]
1	FilterNo	FilterNo as saved in one-channel description (Table **B.1.20**)
2..4	FilterName	filter name (up to 5 letters, zero-ending string)
5..49	FilterVal[i]	filter value (*10 dB) corresponding to the 1/3 octave[i] position; i=1..NTer (1..45)
…	…	…

⚠ **Note:** *Such data block is created for each filter with the logical number FilterNo greater or equal to 3, expressed in the TOTALS DESCRIPTION block (cf. Tab. B.1.19 and Tab B.1.20). The description of the filter with the logical number FilterNo is given only once, disregarding the number of FilterNo repetition in Tab. B.1.20.*

Table B.1.22. Spectrum header of the file from the logger

Word number	Name / Value	Comment
0	0xnn21	[21, nn=block_length=1+4*NumberOfBufferedSpectrums]
1	ChannelNo	channel number of the first logged spectrum minus 1

2	LowestFreq	the lowest **1/1 OCTAVE** or **1/3 OCTAVE** frequency (*100 Hz) of the first logged spectrum
3	NSpectRes	number of **1/1 OCTAVE** or **1/3 OCTAVE** results of the first logged spectrum
4	NTotal	number of **TOTAL** values of the first logged spectrum
…	…	…
block_length-4	ChannelNo	channel number of the last logged spectrum minus 1
block_length-3	LowestFreq	the lowest **1/1 OCTAVE** or **1/3 OCTAVE** frequency (*100 Hz) of the last logged spectrum
block_length-2	NSpectRes	number of **1/1 OCTAVE** or **1/3 OCTAVE** results of the last logged spectrum
block_length-1	NTotal	number of **TOTAL** values of the last logged spectrum
…	…	…

Table B.1.23. Maximum results of 1/3 OCTAVE analysis in one channel

Word number	Name / Value	Comment
0	0xnn2D	[2D, nn=block length]
1	LowestFreq	the lowest **1/1 OCTAVE** frequency (*100 Hz)
2	Noct	number of **1/1 OCTAVE** values
3	NoctTot	number of **TOTAL** values = 3
…	…	…
4 - length block	MaxOctave[i]	maximum result of the 1/1 octave analysis (*100 dB); i = 1…NOct + NOctTot
…	…	…

Note: The **TOTAL** values, correspond to the **HP**, **Profile 1** and **Profile 2** filters – respectively.

Table B.1.24. Minimum results of 1/1 OCTAVE analysis in one channel

Word number	Name / Value	Comment
0	0xnn2E	[2E, nn=block length]
1	LowestFreq	the lowest **1/1 OCTAVE** frequency (*100 Hz)
2	Noct	number of **1/1 OCTAVE** values
3	NoctTot	number of **TOTAL** values = 3
…	…	…
4 - length block	MinOctave[i]	minimum result of the 1/1 octave analysis (*100 dB); i = 1…NOct + NOctTot
…	…	…

⚠ **Note:** *The* **TOTAL** *values, correspond to the* **HP**, **Profile 1** *and* **Profile 2** *filters – respectively.*

Table B.1.25. Maximum results of 1/3 OCTAVE analysis in one channel

Word number	Name / Value	Comment
0	0xnn2F	[2F, nn=block length]
1	LowestFreq	the lowest **1/3 OCTAVE** frequency (*100 Hz)
2	Nter	number of **1/3 OCTAVE** values
3	NterTot	number of **TOTAL** values = 3
…	…	…
4 - length block	MaxTercje[I]	maximum result of the 1/3 octave analysis (*100 dB); i = 1…NTer + NterTot
…	…	…

⚠ **Note:** *The* **TOTAL** *values, correspond to the* **HP**, **Profile 1** *and* **Profile 2** *filters – respectively.*

Table B.1.26. Minimum results of 1/3 OCTAVE analysis in one channel

Word number	Name / Value	Comment
0	0xnn30	[30, nn=block length]
1	LowestFreq	the lowest **1/3 OCTAVE** frequency (*100 Hz)
2	Nter	number of **1/3 OCTAVE** values
3	NterTot	number of **TOTAL** values = 3
…	…	…
4 - length block	MinTercje[I]	minimum result of the 1/3 octave analysis (*100 dB); i = 1…NTer + NterTot
…	…	…

⚠ **Note:** *The* **TOTAL** *values, correspond to the* **HP**, **Profile 1** *and* **Profile 2** *filters – respectively.*

Table B.1.27. Seat measurement

Word number	Name / Value	Comment
0	0xnn2C	[2C, nn=block length]
1	SEATBase	base channels: 0 - channels 1-3, 1 - channels 4-6
2	SEATSeat	seating channels: 0 - channels 1-3, 1 - channels 4-6
…	…	…

Table B.1.28. Trigger condition block

Word number	Name / Value	Comment
0	0xnn4C	[4C, nn=block length]
1..2	Flags	b1 - logger integration step b2 - 100ms integration step b3 - 1s integration step b4 - current time integration step b9 - trigger action: alarm b12 - trigger action: logger b15 - integration period step b17 - trigger action: wave b19 - trigger action: SMS b21 - trigger action: E-MAIL b23 - trigger action: event recorder
3	Mode	0 - **OFF**, 1 - **LEVEL -**, 2 - **LEVEL +**, 3 - **SLOPE -**, 4 - **SLOPE +**, 5 - **GRADIENT -**, 6 - **GRADIENT +**, 7 - **DECAY**
4	Source	0 - **VECTOR RMS**, 1 - **PEAK**, 2 - **P-P**, 3 - **MAX**, 4 - **MIN**, 5 - **RMS**, 6 - **VDV**, 7 - **PEAK**, 8 - **MAX**, 9 - **MIN**, 10 - **RMS**
5	primaryLevel	triggering level in dB*100

6	secondaryLevel	in the case of **GRADIENT** mode:
		    gradient level in dB*100
		in the case of **DECAY** mode:
		    signal drop level in dB*100

7	srcIndex	in case of **VECTOR** Source:
		    0 - channels 1-3
		    1 - channels 4-6
		other cases:
		    channel No + 1

8	srcType	Trigger source 0 - vector 1 - profile 2 - spectrum
…	…	…

Table B.1.29. TEDS data block

Word number	Name / Value	Comment
0	0xnn4A	[4A, nn=block length]
1	TEDSCnt	Number of TEDS data blocks
2	FORCECnt	Number of force inputs
3	TEDSBlock1	first TEDS data block (cf. Tab B.1.30)
...	...	
...	TEDSBlockN	last TEDS data block (cf. Tab B.1.30)
k	valid[1]	0 - channel 1 data is valid 1 - channel 1 data is invalid
…	…	…
k+ChannelsCount-1	valid[ChannelsCount]	0 - last channel data is valid 1 - last channel data is invalid
k+ChannelsCount	validF[1]	0 - force channel 1 data is valid 1 - force channel 1 data is invalid

...	...	
k+ChannelsCount+FORCECnt-1	validF[FORCECnt]	0 - last force channel data is valid 1 - last force channel data is invalid
k+ChannelsCount+FORCECnt	calFact[1]	calibration factor read from TEDS for the first channel in dB*100
...	...	
k+2*ChannelsCount+FORCECnt-1	calFact[ChannelsCount]	calibration factor read from TEDS for the last channel in dB*100
k+2*ChannelsCount+FORCECnt	reserved	
...	...	
k+2*ChannelsCount+2*FORCECnt-1	reserved	

B.2. Structure of the block with meteorological data

In the case when the instrument is working in a monitoring station which contains also the components for the meteorological measurements (temperature, pressure, humidity, wind speed and its direction), the data coming from them are added by SvanPC+ software to all files with the data from SVAN 106. The structure of such data block is presented in the Tab. B.2.1.

Table B.2.1. METEO data from monitoring station

Word number	Name / Value	Comment
0	0x0033	[33, 00=block length in the next word]
1	BlockLen	block length
2	UnitNumber	unit number
3	UnitType	type of the unit: 211 or 210 (SV 211 or SV 210)
4	SoftVersion	software version
5..6	IntTimeSec	integration time specified in seconds
7	Temperature	temperature [*10°C]
8	Pressure	pressure [hPa]
9	Humidity	humidity [*10%]
10	AvgWindSpeed	Average wind speed [*10m/s^2]
11	WindDirection	wind direction for max wind speed [degrees]. 0xFFFF if direction is unavailable
12	MaxWindSpeed	max wind speed [*10 m/s] (ignored if WindDirection is unavailable)
13..14	WindDirTotalPuffs	number of total wind puffs in distribution vector of wind direction
15	NofWindDir	number of elements in distribution vector of wind direction

16.. 16+NofWindDir-1	WindDir[i]	WindDir[i] value [*10 %]
16+NofWindDir	NofWindMax	number of elements in distribution vector of max wind speed
17+NofWindDir.. 17+NofWindDir+ NofWindMax-1	WindMax[i]	WindMax[i] value [*10 m/s]
17+NofWindDir+ NofWindMax	NofWindAvg	number of elements in distribution vector of avg wind speed
18+NofWindDir+ NofWindMax... 18+NofWindDir+ NofWindMax+ NofWindAvg-1	WindAvg[i]	WindAvg[i] value [*10 m/s]
18+NofWindDir+ NofWindMax+ NofWindAvg	RainDetection	Rain detection flag
…	…	…

B.3.1. Structure of the file with the results from Level Meter Mode

File header - cf. Tab. B.1.1.
Unit and software specification - cf. Tab. B.1.2.
Parameters and global settings - cf. Tab. B.1.3.
Hardware settings for channels - cf. Tab. B.1.4.
Software settings for channels - cf. Tab. B.1.5.
Trigger settings (cf. Tab. B.1.13, Tab.B.1.14).
Vector measurement settings - cf. Tab. B.1.6.
Settings for vibration dose measurement (the presence depends on the **MEASURE DOSE** and channel filter settings) - cf. Tab. B.1.7.
Main results - cf. Tab. B.1.8.
File end marker - cf. Tab. B.1.11.

B.3.2. Structure of the file containing LM results from logger's file

File header - cf. Tab. B.1.1.
Unit and software specification - cf. Tab. B.1.2.
Parameters and global settings - cf. Tab. B.1.3.
Hardware settings for channels - cf. Tab. B.1.4.
Software settings for channels - cf. Tab. B.1.5.
Trigger settings (cf. Tab. B.1.13, Tab.B.1.14).
Vector measurement settings - cf. Tab. B.1.6.
Event Recording settings - cf. Tab. B.1.15.
Header of the file from the logger - cf. Tab.B.1.9.
Contents of the file from the logger - cf. Tab.B.1.10.
File end marker - cf. Tab. B.1.11.

B.3.3. Structure of the file containing saved instrument's setup

File header - cf. Tab. B.1.1.
Unit and software specification - cf. Tab. B.1.2.
Data block of instrument's setup - cf. Tab.B.1.12.
File end marker - cf. Tab. B.1.11.

B.3.4. Structure of the file with 1/1 OCTAVE analysis results

File header - cf. Tab. B.1.1.
Unit and software specification - cf. Tab. B.1.2.
Parameters and global settings - cf. Tab. B.1.3.
Hardware settings for channels - cf. Tab. B.1.4.
Software settings for channels - cf. Tab. B.1.5.
Trigger settings (cf. Tab. B.1.13, Tab.B.1.14).
Vector measurement settings - cf. Tab. B.1.6.
Octave analysis header - cf. Tab.B.1.16.
The hand-arm and whole-body vibration dose measurement settings - cf. Tab. B.1.7.
Main results - cf. Tab. B.1.8.
One-channel 1/1 Octave analysis results (one for each channel with spectrum analysis enabled) - cf. Tab. B.1.17.
TOTALS description (if needed) - cf. Tab. B.1.19.
Description of user-defined filter (if needed) - cf. Tab. B.1.21.
Maximum 1/1 Octave analysis results in one channel (one for each channel with spectrum analysis enabled, presence depends on the **MAX. SPECT.** setting) - cf. Tab. B.1.23.
Minimum 1/1 Octave analysis results in one channel (one for each channel with spectrum analysis enabled, presence depends on the **MIN. SPECT.** setting) - cf. Tab. B.1.24.
File end marker - cf. Tab. B.1.11.

B.3.5. Structure of the file with 1/3 OCTAVE analysis results

File header - cf. Tab. B.1.1.
Unit and software specification - cf. Tab. B.1.2.
Parameters and global settings - cf. Tab. B.1.3.
Hardware settings for channels - cf. Tab. B.1.4.
Software settings for channels - cf. Tab. B.1.5.
Trigger settings (cf. Tab. B.1.13, Tab.B.1.14).
Vector measurement settings - cf. Tab. B.1.6.
Octave analysis header - cf. Tab.B.1.16.
The hand-arm and whole-body vibration dose measurement settings - cf. Tab. B.1.7.
Main results - cf. Tab. B.1.8.
One-channel 1/3 OCTAVE analysis results (one for each channel with spectrum analysis enabled) - cf. Tab. B.1.18.
Maximum 1/3 OCTAVE analysis results in one channel (one for each channel with spectrum analysis enabled, presence depends on the **MAX. SPECT.** setting) - cf. Tab. B.1.25.
Minimum 1/3 OCTAVE analysis results in one channel (one for each channel with spectrum analysis enabled, presence depends on the **MIN. SPECT.** setting) - cf. Tab. B.1.26.
TOTALS description (if needed) - cf. Tab. B.1.19.
Description of user-defined filter (if needed) - cf. Tab. B.1.21.
File end marker - cf. Tab. B.1.11.

B.3.6. Structure of the file containing 1/1 or 1/3 OCTAVE analysis results from logger's file

File header - cf. Tab. B.1.1.
Unit and software specification - cf. Tab. B.1.2.
Parameters and global settings - cf. Tab. B.1.3.
Hardware settings for channels - cf. Tab. B.1.4.
Software settings for channels - cf. Tab. B.1.5.
Trigger settings (cf. Tab. B.1.13, Tab.B.1.14).
Vector measurement settings - cf. Tab. B.1.6.
Header of the file from the logger - cf. Tab.B.1.9.
Octave analysis header - cf. Tab.B.1.16.
Spectrum analysis header of the file from the logger - cf. Tab.B.1.22.
Contents of the file from the logger - cf. Tab.B.1.10.
File end marker - cf. Tab. B.1.11.

B.4.   Contents of the file in the logger

The records with the results and the records with the state of the markers as well as the records with the breaks in the results registration are saved in the files in the logger.

B.4.1. Record with the results

The contents of the record with the results depends on the measurement function, selected channels modes, values set in the **Logger** menu and its sub-lists. Profile results are written on 15 most significant bits in dB*10, while least significant bit is used for overload indication flag. The following elements can be present (in the given sequence):

-        results of the measurement from the 1st profile of the 1st channel if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On*) and if any position in **Channel 1 Profile 1** (*path: MENU / Measurement / Logging / Logger / Logger Result / Channel 1 Profile 1*) **Log** column was selected, up to five words are written in the given sequence:

   <result1> - **PEAK** result in the case of **VLM** if the first position was marked, else no value is written;
   <result2> - **P–P** result in the case of **VLM** if the second position was marked, else no value is written;
   <result3> - **MAX** result in the case of **VLM** if the third position was marked, else no value is written;
   <result4> - **RMS** result in the case of **VLM** if the fourth position was marked, else no value is written;
   <result5> - **VDV** result in the case of **VLM** if the fifth position was marked, else no value is written;

-        results of the measurement from the 1st profile of the 2nd channel if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On*) and if any position in **Channel 2 Profile 1** (*path: MENU / Measurement / Logging / Logger / Logger Result / Channel 2 Profile 1*) **Log** column was selected, up to five words are written in the given sequence:

   <result1> - **PEAK** result in the case of **VLM** if the first position was marked, else no value is written;
   <result2> - **P–P** result in the case of **VLM** if the second position was marked, else no value is written;
   <result3> - **MAX** result in the case of **VLM** if the third position was marked, else no value is written;
   <result4> - **RMS** result in the case of **VLM** if the fourth position was marked, else no value is written;
   <result5> - **VDV** result in the case of **VLM** if the fifth position was marked, else no value is written;

-        results of the measurement ment from the 1st profile of the 3rd channel if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On*) and if any position in **Channel 3 Profile 1** (*path: MENU / Measurement / Logging /*

Logger / Logger Result / Channel 3 Profile 1) **Log** column was selected, up to five words are written in the given sequence:

<result1> - **PEAK** result in the case of **VLM** if the first position was marked, else no value is written;
<result2> - **P–P** result in the case of **VLM** if the second position was marked, else no value is written;
<result3> - **MAX** result in the case of **VLM** if the third position was marked, else no value is written;
<result4> - **RMS** result in the case of **VLM** if the fourth position was marked, else no value is written;
<result5> - **VDV** result in the case of **VLM** if the fifth position was marked, else no value is written;

- results of the measurement from the 1st profile of the 4th channel if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if any position in **Channel 4 Profile 1** (*path: MENU / Measurement / Logging / Logger / Logger Result / Channel 4 Profile 1*) **Log** column was selected, up to five words are written in the given sequence:

<result1> - **PEAK** result in the case of **VLM** if the first position was marked, else no value is written;
<result2> - **P–P** result in the case of **VLM** if the second position was marked, else no value is written;
<result3> - **MAX** result in the case of **VLM** if the third position was marked, else no value is written;
<result4> - **RMS** result in the case of **VLM** if the fourth position was marked, else no value is written;
<result5> - **VDV** result in the case of **VLM** if the fifth position was marked, else no value is written;

- results of the measurement from the 1st profile of the 5th channel if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if any position in **Channel 5 Profile 1** (*path: MENU / Measurement / Logging / Logger / Logger Result / Channel 5 Profile 1*) **Log** column was selected, up to five words are written in the given sequence:

<result1> - **PEAK** result in the case of **VLM** if the first position was marked, else no value is written;
<result2> - **P–P** result in the case of **VLM** if the second position was marked, else no value is written;
<result3> - **MAX** result in the case of **VLM** if the third position was marked, else no value is written;
<result4> - **RMS** result in the case of **VLM** if the fourth position was marked, else no value is written;
<result5> - **VDV** result in the case of **VLM** if the fifth position was marked, else no value is written;

- results of the measurement from the 1st profile of the 6th channel if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if any position in **Channel 6 Profile 1** (*path: MENU / Measurement / Logging / Logger / Logger Result / Channel 6 Profile 1*) **Log** column was selected, up to five words are written in the given sequence:

<result1> - **PEAK** result in the case of **VLM** if the first position was marked, else no value is written;
<result2> - **P–P** result in the case of **VLM** if the second position was marked, else no value is written;
<result3> - **MAX** result in the case of **VLM** if the third position was marked, else no value is written;
<result4> - **RMS** result in the case of **VLM** if the fourth position was marked, else no value is written;
<result5> - **VDV** result in the case of **VLM** if the fifth position was marked, else no value is written;

- results of the measurement from the 2nd profile of the 1st channel if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if any position in **Channel 1 Profile 2** (*path: MENU / Measurement / Logging / Logger / Logger Result / Channel 1 Profile 2*) **Log** column was selected, up to five words are written in the given sequence:

<result1> - **PEAK** result in the case of **VLM** if the first position was marked, else no value is written;
<result2> - **P–P** result in the case of **VLM** if the second position was marked, else no value is written;
<result3> - **MAX** result in the case of **VLM** if the third position was marked, else no value is written;
<result4> - **RMS** result in the case of **VLM** if the fourth position was marked, else no value is written;
<result5> - **VDV** result in the case of **VLM** if the fifth position was marked, else no value is written;

- results of the measurement from the 2nd profile of the 2nd channel if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if any position in **Channel 2 Profile 2** (*path: MENU / Measurement / Logging /*

Logger / Logger Result / Channel 2 Profile 2) **Log** column was selected, up to five words are written in the given sequence:

<result1> - **PEAK** result in the case of **VLM** if the first position was marked, else no value is written;
<result2> - **P–P** result in the case of **VLM** if the second position was marked, else no value is written;
<result3> - **MAX** result in the case of **VLM** if the third position was marked, else no value is written;
<result4> - **RMS** result in the case of **VLM** if the fourth position was marked, else no value is written;
<result5> - **VDV** result in the case of **VLM** if the fifth position was marked, else no value is written;

- results of the measurement from the 2nd profile of the 3rd channel if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if any position in **Channel 3 Profile 2** (*path: MENU / Measurement / Logging / Logger / Logger Result / Channel 3 Profile 2*) **Log** column was selected, up to five words are written in the given sequence:

<result1> - **PEAK** result in the case of **VLM** if the first position was marked, else no value is written;
<result2> - **P–P** result in the case of **VLM** if the second position was marked, else no value is written;
<result3> - **MAX** result in the case of **VLM** if the third position was marked, else no value is written;
<result4> - **RMS** result in the case of **VLM** if the fourth position was marked, else no value is written;
<result5> - **VDV** result in the case of **VLM** if the fifth position was marked, else no value is written;

- results of the measurement from the 2nd profile of the 4th channel if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if any position in **Channel 4 Profile 2** (*path: MENU / Measurement / Logging / Logger / Logger Result / Channel 4 Profile 2*) **Log** column was selected, up to five words are written in the given sequence:

<result1> - **PEAK** result in the case of **VLM** if the first position was marked, else no value is written;
<result2> - **P–P** result in the case of **VLM** if the second position was marked, else no value is written;
<result3> - **MAX** result in the case of **VLM** if the third position was marked, else no value is written;
<result4> - **RMS** result in the case of **VLM** if the fourth position was marked, else no value is written;
<result5> - **VDV** result in the case of **VLM** if the fifth position was marked, else no value is written;

- results of the measurement from the 2nd profile of the 5th channel if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if any position in **Channel 5 Profile 2** (*path: MENU / Measurement / Logging / Logger / Logger Result / Channel 5 Profile 2*) **Log** column was selected, up to five words are written in the given sequence:

<result1> - **PEAK** result in the case of **VLM** if the first position was marked, else no value is written;
<result2> - **P–P** result in the case of **VLM** if the second position was marked, else no value is written;
<result3> - **MAX** result in the case of **VLM** if the third position was marked, else no value is written;
<result4> - **RMS** result in the case of **VLM** if the fourth position was marked, else no value is written;
<result5> - **VDV** result in the case of **VLM** if the fifth position was marked, else no value is written;

- results of the measurement from the 2nd profile of the 6th channel if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if any position in **Channel 6 Profile 2** (*path: MENU / Measurement / Logging / Logger / Logger Result / Channel 6 Profile 2*) **Log** column was selected, up to five words are written in the given sequence:

<result1> - **PEAK** result in the case of **VLM** if the first position was marked, else no value is written;
<result2> - **P–P** result in the case of **VLM** if the second position was marked, else no value is written;
<result3> - **MAX** result in the case of **VLM** if the third position was marked, else no value is written;
<result4> - **RMS** result in the case of **VLM** if the fourth position was marked, else no value is written;
<result5> - **VDV** result in the case of **VLM** if the fifth position was marked, else no value is written;

- **VECTOR 1-3** measurement result if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if position at **VEC13** row **Log** column (*path: MENU / Measurement / Logging / Logger / Logger Result / Auxiliary Logger*) is selected and **VECTOR 1-3** measurement was enabled; one word is

written;

- **VECTOR 4-6** measurement result if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if position at **VEC46** row **Log** column (*path: MENU / Measurement / Logging / Logger / Logger Result / Auxiliary Logger*) is selected and **VECTOR 4-6** measurement was enabled; one word is written;

- results of the measurement from the 1st force channel if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if any position in **Force 1-3 Logger** (*path: MENU / Measurement / Logging / Logger / Logger Result / Auxiliary / Force 1-3 Logger*) **Log** column was selected, up to four words are written in the given sequence:

  <result1> - **PEAK** result if the first position was marked, else no value is written;
  <result2> - **MAX** result if the second position was marked, else no value is written;
  <result3> - **MIN** result if the third position was marked, else no value is written;
  <result4> - **AVER** result if the fourth position was marked, else no value is written;

- results of the measurement from the 2nd force channel if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if any position in **Force 4-6 Logger** (*path: MENU / Measurement / Logging / Logger / Logger Result / Auxiliary / Force 4-6 Logger*) **Log** column was selected, up to four words are written in the given sequence:

  <result1> - **PEAK** result if the first position was marked, else no value is written;
  <result2> - **MAX** result if the second position was marked, else no value is written;
  <result3> - **MIN** result if the third position was marked, else no value is written;
  <result4> - **AVER** result if the fourth position was marked, else no value is written;

- results of **1/1 OCTAVE** analysis from the 1st channel if **1/1 OCTAVE** analysis was selected as the measurement function and if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if **Channel 1** position (*path: MENU / Measurement / Logging / Logger / Logger Result / 1/1 Octave Logger*) is selected; the sequence of words is written:

  <flags> <Octave[1]> <Octave[2]> ... <Octave[NOct+NOctTot]>
  where:
  flags = 1 - the overload detected, 0 - the overload not detected
  Octave[i] - the result of **1/1 OCTAVE** analysis (*100 dB); i = 1..NOct+NOctTot

- results of **1/1 OCTAVE** analysis from the 2nd channel if **1/1 OCTAVE** analysis was selected as the measurement function and if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if **Channel 2** position (*path: MENU / Measurement / Logging / Logger / Logger Result / 1/1 Octave Logger*) is selected; the sequence of words is written:

  <flags> <Octave[1]> <Octave[2]> ... <Octave[NOct+NOctTot]>
  where:
  flags = 1 - the overload detected, 0 - the overload not detected
  Octave[i] - the result of **1/1 OCTAVE** analysis (*100 dB); i = 1..NOct+NOctTot

- results of **1/1 OCTAVE** analysis from the 3rd channel if **1/1 OCTAVE** analysis was selected as the measurement function and if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if **Channel 3** position (*path: MENU / Measurement / Logging / Logger / Logger Result / 1/1 Octave Logger*) is selected; the sequence of words is written:

  <flags> <Octave[1]> <Octave[2]> ... <Octave[NOct+NOctTot]>
  where:
  flags = 1 - the overload detected, 0 - the overload not detected
  Octave[i] - the result of **1/1 OCTAVE** analysis (*100 dB); i = 1..NOct+NOctTot

- results of **1/1 OCTAVE** analysis from the 4th channel if **1/1 OCTAVE** analysis was selected as the measurement function and if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if **Channel 4** position (*path: MENU / Measurement / Logging / Logger / Logger Result / 1/1 Octave Logger*) is selected; the sequence of words is written:

     <flags> <Octave[1]> <Octave[2]> ... <Octave[NOct+NOctTot]>
         where:
             flags = 1 - the overload detected, 0 - the overload not detected
             Octave[i] - the result of **1/1 OCTAVE** analysis (*100 dB); i = 1..NOct+NOctTot

- results of **1/1 OCTAVE** analysis from the 5th channel if **1/1 OCTAVE** analysis was selected as the measurement function and if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if **Channel 5** position (*path: MENU / Measurement / Logging / Logger / Logger Result / 1/1 Octave Logger*) is selected; the sequence of words is written:

     <flags> <Octave[1]> <Octave[2]> ... <Octave[NOct+NOctTot]>
         where:
             flags = 1 - the overload detected, 0 - the overload not detected
             Octave[i] - the result of **1/1 OCTAVE** analysis (*100 dB); i = 1..NOct+NOctTot

- results of **1/1 OCTAVE** analysis from the 6th channel if **1/1 OCTAVE** analysis was selected as the measurement function and if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if **Channel 6** position (*path: MENU / Measurement / Logging / Logger / Logger Result / 1/1 Octave Logger*) is selected; the sequence of words is written:

     <flags> <Octave[1]> <Octave[2]> ... <Octave[NOct+NOctTot]>
         where:
             flags = 1 - the overload detected, 0 - the overload not detected
             Octave[i] - the result of **1/1 OCTAVE** analysis (*100 dB); i = 1..NOct+NOctTot

- results of **1/3 OCTAVE** analysis from the 1st channel if **1/3 OCTAVE** analysis was selected as the measurement function and if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if **Channel 1** position (*path: MENU / Measurement / Logging / Logger / Logger Result / 1/3 Octave Logger*) is selected; the sequence of words is written:

  - <flags> <Terave[1]> < Terave [2]> ... < Terave [Nter+NterTot]>
       where:
               flags = 1 - the overload detected, 0 - the overload not detected
               Terave[i] - the result of **1/3 OCTAVE** analysis (*100 dB); i = 1..Nter+NterTot

- results of **1/3 OCTAVE** analysis from the 2nd channel if **1/3 OCTAVE** analysis was selected as the measurement function and if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if **Channel 2** position (*path: MENU / Measurement / Logging / Logger / Logger Result / 1/3 Octave Logger*) is selected; the sequence of words is written:

  - <flags> <Terave[1]> < Terave [2]> ... < Terave [Nter+NterTot]>
       where:
               flags = 1 - the overload detected, 0 - the overload not detected
               Terave[i] - the result of **1/3 OCTAVE** analysis (*100 dB); i = 1..Nter+NterTot

- results of **1/3 OCTAVE** analysis from the 3rd channel if **1/3 OCTAVE** analysis was selected as the measurement function and if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if **Channel 3** position (*path: MENU / Measurement / Logging / Logger / Logger Result / 1/3 Octave Logger*) is selected; the sequence of words is written:
  - <flags> <Terave[1]> < Terave [2]> ... < Terave [Nter+NterTot]>
       where:

flags = 1 - the overload detected, 0 - the overload not detected

Terave[i] - the result of **1/3 OCTAVE** analysis (*100 dB); i = 1..Nter+NterTot

- results of **1/3 OCTAVE** analysis from the 4th channel if **1/3 OCTAVE** analysis was selected as the measurement function and if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if **Channel 4** position (*path: MENU / Measurement / Logging / Logger / Logger Result / 1/3 Octave Logger*) is selected; the sequence of words is written:
  - <flags> <Terave[1]> < Terave [2]> ... < Terave [Nter+NterTot]>
    where:

    flags = 1 - the overload detected, 0 - the overload not detected

    Terave[i] - the result of **1/3 OCTAVE** analysis (*100 dB); i = 1..Nter+NterTot

- results of **1/3 OCTAVE** analysis from the 5th channel if **1/3 OCTAVE** analysis was selected as the measurement function and if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if **Channel 5** position (*path: MENU / Measurement / Logging / Logger / Logger Result / 1/3 Octave Logger*) is selected; the sequence of words is written:
  - <flags> <Terave[1]> < Terave [2]> ... < Terave [Nter+NterTot]>
    where:

    flags = 1 - the overload detected, 0 - the overload not detected

    Terave[i] - the result of **1/3 OCTAVE** analysis (*100 dB); i = 1..Nter+NterTot

- results of **1/3 OCTAVE** analysis from the 6th channel if **1/3 OCTAVE** analysis was selected as the measurement function and if the **LOGGER** list was marked and **LOGGER MODE** was set to **ON** (*path: MENU / Measurement / Logging / Logger / Logger Setup / Logger Mode: On)* and if **Channel 6** position (*path: MENU / Measurement / Logging / Logger / Logger Result / 1/3 Octave Logger*) is selected; the sequence of words is written:
  - <flags> <Terave[1]> < Terave [2]> ... < Terave [Nter+NterTot]>
    where:

    flags = 1 - the overload detected, 0 - the overload not detected

    Terave[i] - the result of **1/3 OCTAVE** analysis (*100 dB); i = 1..Nter+NterTot

B.4.2. Record with the state of the markers

The record with the state of the markers consists of one word:

<0x8nnn>

in which 12 bits nnn denote the state of the markers:

b11 = state of #12 marker

b10 = state of #11 marker

...

b1 = state of #2 marker

b0 = state of #1 marker

B.4.3. Record with the breaks in the results registration

The record with the breaks in the results registration consists of four words:

<0xB0ii> <0xB1jj> <0xB2kk> <0xB3nn>

in which ii, jj, kk, nn bytes denote 4-bytes counter of left or skipped records: nnkkjjii (ii is the least significant byte, nn - the most significant byte).

B.4.4. Record with the breaks account PAUSE in the results registration

The record with the breaks in the results registration consists of four words:

<0xA0ii> <0xA1jj> <0xA2kk> <0xA3nn>

in which ii, jj, kk, nn bytes denote 4-bytes counter duration of PAUSE in milliseconds:
nnkkjjii (ii is the least significant byte, nn - the most significant byte).

Pause duration means time passed between pressing **<PAUSE>** key and measurement continuation key.
Start delay after pressing continuation key isn't added to the counter.

B.4.5 Record with the auto-save file name
The record with the auto-save file name consists of six words:
<0xC0aa>
<0xccbb>
<0xeedd>
<0xggff>
<0xiihh>
<0xC8aa>
in which:
aa - size of record,
bb cc dd ee ff gg hh ii - 8-bytes name of auto-save file name

B.4.6 Record with Time-domain signal data
This record exists only in the case when the **Time-domain signal recording** is active. The samples
of the signal are saved in the blocks. Each block is divided into frames, which are stored in a file among
the logger results. The frame starting block and the frame ending it are marked with the b10 and b9 bits
set in the header of the frame, respectively. It happens in the case of stopping the recording that
the ending frame does not exist.
The format of the data frame is as follows:

HS	L	S	L	HE

where:
HS starting header (1 word)
L block length (1 word), expressed in words (4 + number of samples)
S samples of the measured signal (each sample is written in two bytes; the recording starts
with the least significant byte)
HE ending header (1 word), which differs from the HS only on b11 bit (thanks to it, it is possible
to analyse the recorded file starting from its end)
The HEADER format is as follows:

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0

where:
b15 - 1
b14 - 0
b13 - 0
b12 - 1, bits b15 ÷ b12 = 9 constitute the marker of the frame
b11 - header type:
0 - HS
1 - HE
b10 - 1 denotes the first frame in the block
b9 - 1 denotes the last frame in the block
b7 - 1 denotes an error (the samples were overwritten in the cycle buffer, which means that
the recording in the analysed block is not correct)
b8, b6÷b0 - reserved

B.4.6 Record with the meteo data

Word number	Name / Value	Comment
0	0xC1nn	nn= size of records
1	Temperature	temperature [*10°C]
2	Pressure	pressure [hPa]
3	Humidity	humidity [*10%]
4	AvgWindSpeed	Average wind speed [*10m/s^2]
5	WindDirection	wind direction for max wind speed [degrees]. 0xFFFF if direction is unavailable
6	MaxWindSpeed	max wind speed [*10 m/s] (ignored if WindDirection is unavailable)
7..8	WindDirTotalPuffs	number of total wind puffs in distribution vector of wind direction
9	RainDetection	Rain detection flag
10	0xC9nn	nn= size of records
…	…	…

B.5. Date and time

Following function written in C explains how the date and time are coded:

```c
void ExtractDateTime(int date, int time, int dt[])
{
    int sec,year;

    sec = ((0xffff&time)<<1); /* time<<1; */
    dt[0] = sec%60; /* sec */
    dt[1] = (sec/60)%60; /* min */
    dt[2] = sec/3600; /* hour */

    dt[3] = date&0x1F; /* day */
    dt[4] = (date>>5)&0x0F; /* month */
    year = (date>>9) & 0x07F;
    dt[5] = year+2000; /* year */
}
```