

# SV1

## *Seismic/ Human Response Vibration & Sound Analyzer*



[www.svdigital.com](http://www.svdigital.com)



**SV  
CORPORATION**

# Seismic / Human Response Vibration & Sound Analyser

# SV1



## Features

- Seismic/ Human Response Vibration & Noise Measurement
- Vibration Measurement by JIS C 1510(dBV)
- Vibration Measurement by DIN4150
- Simultaneously 3-Axis Vibration Level & Sound Level Display
- Simultaneously Multi-Processing & Display
- Vibration & Sound measurement by Trigger Level of Vibration Level
- Internet or LTE Communication with PC Software
- 7" LCD Touch Screen
- Long term Data storage (4GB SD Memory card)
- Report and Post Processing & Analysis(Trace & FFT) Software on PC
- Check the Saved Result Data and Measurement Setup by SV1 on PC
- Measured data to convert to Trace, Octave, FFT graph on PC

## Applications

- Seismic Monitoring
- Mining Monitoring
- Ground Vibration Monitoring
- Blast Monitoring
- Pile Driving
- Construction Field
- Bridge Monitoring
- Power Plant Monitoring
- Building Vibration Monitoring

**SV1 is based on Smart phone technology with versatile application software to measure the Blast/Environment Vibration & Sound monitoring and analysis on the portable rugged system.**

## Main Specifications

<b>Operating system</b>	WinCE5.0(Device), Windows7 and higher(32bit,64bit)(PC)	<b>USB Interface</b>	1 Host, 1 Device
<b>CPU</b>	PXA320 (806MHz)	<b>Power</b>	5V, 3A
<b>LCD</b>	7" TFT-LCD +TSP	<b>International protection</b>	IP64
<b>Flash memory</b>	NAND 128MB	<b>Dimension</b>	350(W)x290(D)x150(H)mm
<b>System memory</b>	DDR SDRAM 128MB	<b>Weight</b>	4.0Kg(without accessories)
<b>External memory slot</b>	SD/MMC Slot	<b>Operating temperature</b>	-20 °C~50 °C(-4 °F~122 °F)
<b>Communication</b>	Serial, Wireless(WiFi), Internet, LTE	<b>Humidity</b>	5%~95%Non-condensing

## Data Acquisition Unit Specifications

<b>A/D Converter</b>	24bit
<b>Input Channel</b>	4channel(3ch for Vibration and 1ch for Sound)
<b>Sensor Type</b>	IEPE
<b>Sampling Frequency</b>	Vibration : 1024 Hz for each channel / Sound : 16384Hz
<b>Input Range</b>	±5V(peak)
<b>Measuring Range</b>	Sound : 30~142 dB(50mV/Pa)
<b>Frequency Range</b>	Vibration : 37~146 dB(±2g Full Scale), 46~156 dB(±6g Full Scale) Vibration : 0.5 ~ 500Hz(3dB) / Sound : 0.5 ~ 8000 Hz(3dB)
<b>Accuracy</b>	+/- 3%
<b>Linear Accuracy</b>	+/- 0.1 dB/30Hz
<b>Trigger Range</b>	0.127 to 254 mm/s
<b>Record Time</b>	1 to 10 Sec , up to 30 minutes, Wave Form, Combo & Manual mode
<b>Signal to Noise Ratio</b>	>= 120dB

## Seismic Vibration & Sound Measurement

### [Vibration]

- Provide the influence evaluation data nearby Structure : 3axis peak and PVS(mm/sec)
- Vibration Measuring Range 255mm/sec
- Frequency Range : 0.5 ~ 100Hz for each channels (up to 500Hz)
- Vibration Accuracy : Less than 1%
- Vibration Resolution: 0.01 mm/sec
- Vibration Measuring Sample Rate: 1024 samples/sec
- Storage Sample Rate: 1024 samples/sec

### [Sound]

- Sound Measuring Range: 35 ~ 142 dBA
- Frequency Weighting Filter : A and L
- Frequency Range : 20 Hz ~ 8000 Hz
- Sound Accuracy : IEC 60651 Type2
- Sound Data : Simultaneously Lmax, Lmin, LeqLn, LeqAv

### [Common]

- Trigger Level : Set up from 0.1mm/sec with 0.1mm/sec step, 92dB
- Measuring Mode : Selectable Manual, Single, Continuous mode (Up to 250 Events)
- Selectable Measurement Time : 1sec, 2sec, 3sec, 5sec, 10sec, 1min, 5min, 30min, 1hr, 1day, User definable time
- Data Storage Capacity: SD Memory Card 4G (Continuously 60 days for the measurement data including Graph)
- Measurement cycle time: no dead time

Sound (dB):			
LeqIn	LeqAv	Lmax	Lmin
41.01	39.54	42.20	38.89
Vibro (mm/sec):			
	X	Y	Z
VelPeak (Inst)	0.03	0.04	0.03
VelPeak (Hold)	0.05	0.05	0.10

Time: 3.375 s;  
File: SV003.WAV

Blast Measurement BLS mode

## Human Response Vibration & Sound Measurement

- Measurement Results : Instantaneous Sound Leq, Lmax, Lmin, Statistic Vibration Level L5, L10, L50, L90, L95

- Vibration Frequency Range : 0.5 ~ 80 Hz (up to 500Hz)

Vibration Measuring Range : 37 ~ 156 dB

- Sound Measuring Range : 30 ~ 140 dBA

- Weighting Filter : A and L

- Sound Frequency Range : 20 Hz ~ 8000 Hz

- Dynamic Range : more than 120 dB

- Selectable Measuring Time : 1sec, 2sec, 3sec, 5sec, 10sec, 1min, 5min, 30min, 1hr, 8hr, 1day, User definable set up

- Vibration Trigger Level : set up with 1 dB step from 45dB (to measure the wanted Vibration And Sound Level)

- Measuring Mode : Selectable Manual, Single, Continuous mode up to 250 events

- Data Storage Capacity : SD Memory Card 4GB (Continuously 60days for the measurement data including Graph)

Sound (dB(A)):			
LeqIn	LeqAv	Lmax	Lmin
39.32	39.38	39.90	39.16
Vibro (dB(V)):			
	X	Y	Z
Lmax	39.30	35.55	43.48
Lv(In)/Lv(Av)	39.30/35.24	34.39/33.96	43.48/39.96
L10	37.54	35.55	42.29

Time: 3.625 s;  
File: SV001.WAV

Environmental Measurement EVS mode

## Remote Auto Measurement

- Communication Type : LTE or Internet

- Remote Data Transmit and Receiving time Control (To Control interval time with Hour, Min, Sec Unit)

- Remote Auto Control up to Max 100 measuring equipments

- Remote Control Trigger Level and Measurement time

- Possible to measure during receiving the measured data

- No need Reset the Equipment by the receiving error (Simultaneously the Measurement and Communication mode)



Environmental Vibration mode by JIS C 1510

Lv10 :	
ch1, ACC:	54.286 dB (V)
ch2, ACC:	64.329 dB (V)
ch3, ACC:	55.262 dB (V)
Lv90 :	
ch1, ACC:	54.286 dB (V)
ch2, ACC:	64.329 dB (V)
ch3, ACC:	55.262 dB (V)

Time: 3.875 s;  
File:

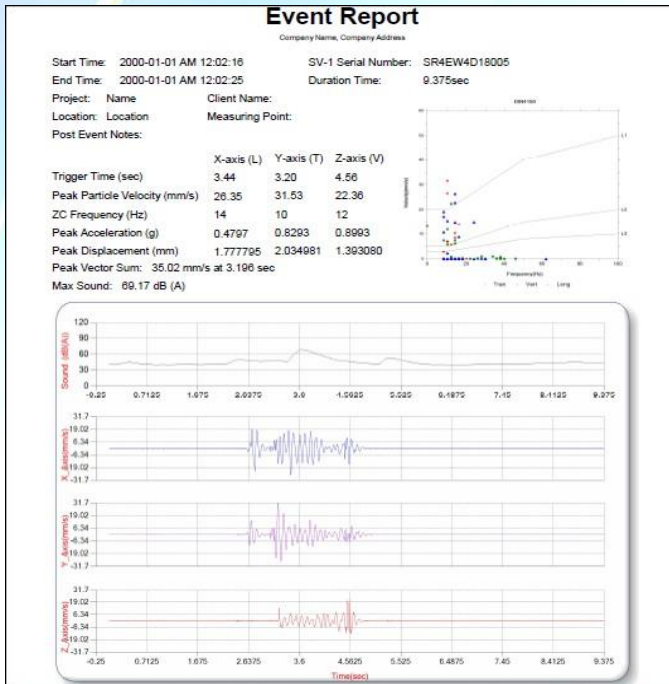


3-axis Environmental Vibration mode by JIS C 1510



ST No.	Filename	Date/Time	Vel	Peak Hold(X_Axis)	Val	Peak Hold(Y_Axis)	Val	Peak Hold(Z_Axis)	PMS
1	SW010.BLS	2012-03-23 오후 5:13:50	0.04	0.06	0.04	0.04	0.04	0.08	
2	SW011.BLS	2012-03-26 오후 8:10:26	0.39	0.40	1.20	0.05	0.03	1.22	
3	SW012.BLS	2012-03-23 오후 5:23:42	0.04	0.05	0.03	0.04	0.03	0.06	
4	SW013.BLS	2012-03-23 오후 5:26:21	0.04	0.04	0.03	0.04	0.03	0.05	
5	SW014.BLS	2012-03-22 오후 2:54:48	0.04	0.04	0.03	0.04	0.03	0.06	
6	SW015.BLS	2012-03-22 오후 7:50:16	0.04	0.05	0.03	0.04	0.03	0.05	
7	SW016.BLS	2012-03-23 오후 5:12:56	0.06	0.13	0.14	0.06	0.04	0.18	
8	SW017.BLS	2012-03-23 오후 5:13:28	0.05	0.06	0.04	0.06	0.04	0.08	
9	SW018.BLS	2012-03-26 오후 1:29:03	6.05	8.99	5.87	4.12	2.18	10.87	
10	SW020.BLS	2012-03-26 오후 1:29:26	1.43	4.12	2.18	4.12	2.18	4.52	
11	SW021.BLS	2012-03-29 오후 6:34:58	0.11	0.08	0.29	0.03	0.03	0.32	
12	SW022.BLS	2012-03-29 오후 6:35:15	0.03	0.03	0.03	0.04	0.03	0.04	
13	SW023.BLS	2012-03-29 오후 8:29:24	0.03	0.04	0.03	0.04	0.03	0.04	
14	SW024.BLS	2012-03-29 오후 8:14:31	0.03	0.03	0.03	0.04	0.03	0.04	
15	SW025.BLS	2012-03-30 오후 7:09:31	0.03	0.04	0.03	0.04	0.03	0.05	
16	SW026.BLS	2012-03-30 오후 7:09:42	0.05	0.10	0.03	0.03	0.03	0.07	
17	SW027.BLS	2012-03-30 오후 7:10:01	0.71	0.47	0.49	0.04	0.03	0.81	
18	SW028.BLS	2012-03-30 오후 7:10:22	0.03	0.04	0.03	0.04	0.03	0.05	
19	SW029.BLS	2012-03-30 오후 7:10:30	0.03	0.03	0.02	0.04	0.03	0.04	
20	SW030.BLS	2012-03-30 오후 7:10:34	0.03	0.04	0.03	0.04	0.03	0.04	
21	SW031.BLS	2012-03-30 오후 10:52:33	0.49	0.35	0.45	0.03	0.03	0.75	

**Event Lists on PC**

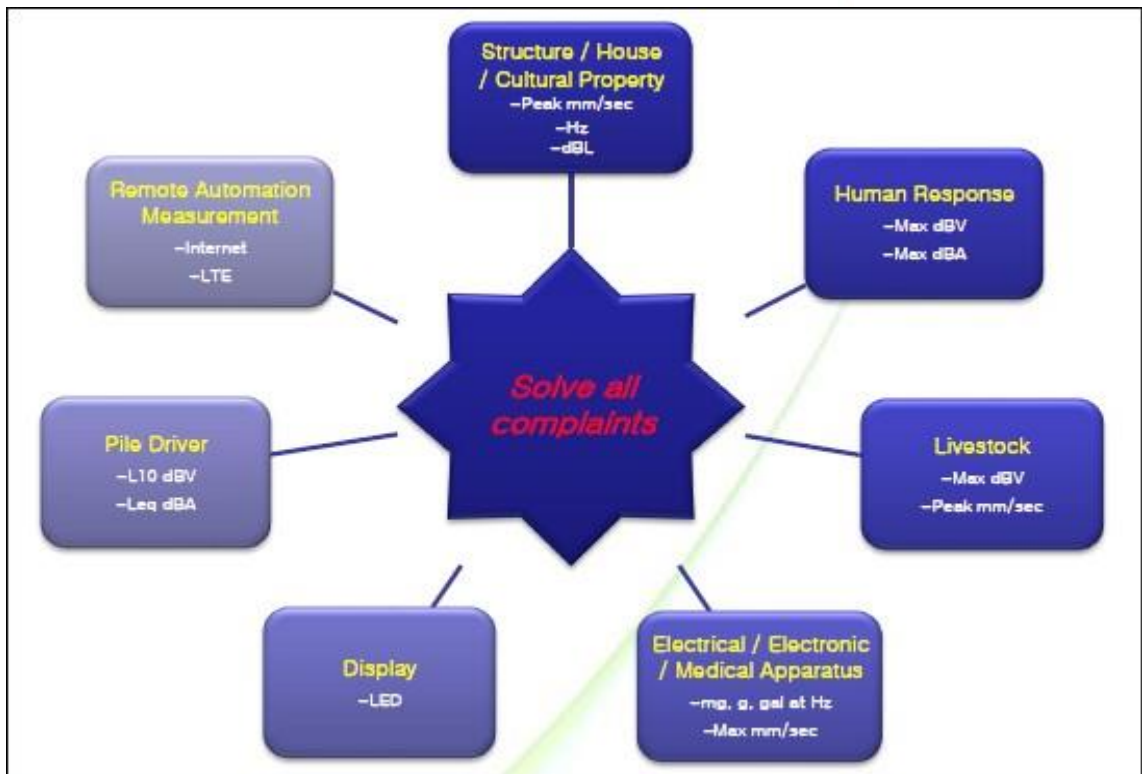


**Time Data, Result data and DIN 4150**

**Analysis & Report Software**

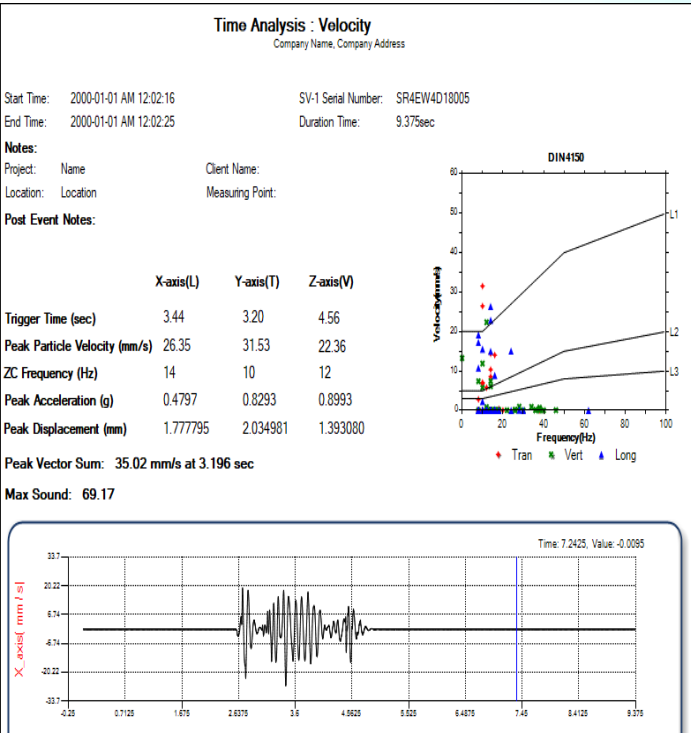
*-Powerful PC Software*

- The user can store the measured data in SD card to do the post processing, analysis and report PC.
- The user can get the report by JIS C1510 and DIN 4150 with this post processing software.
- Software along with manual for use in window system and analysis.
- Time history graph of displacement, acceleration & particle velocity.
- Frequency Vs Energy graph and also in numerical form of above waveform.
- Peak value of displacement, acceleration and particle velocity, frequency and energy release with corresponding time and release.
- F.F.T analysis. The software should have the provision for giving raw data in ASCII and/or standard data base format for use in the third party software.
- **Optional Post-processing software (DatsliteNVE)** (attached) : PSD(Auto Power Spectral Density), FFT, Trends(Acceleration, Velocity, Displacement), Digital filtering and so on

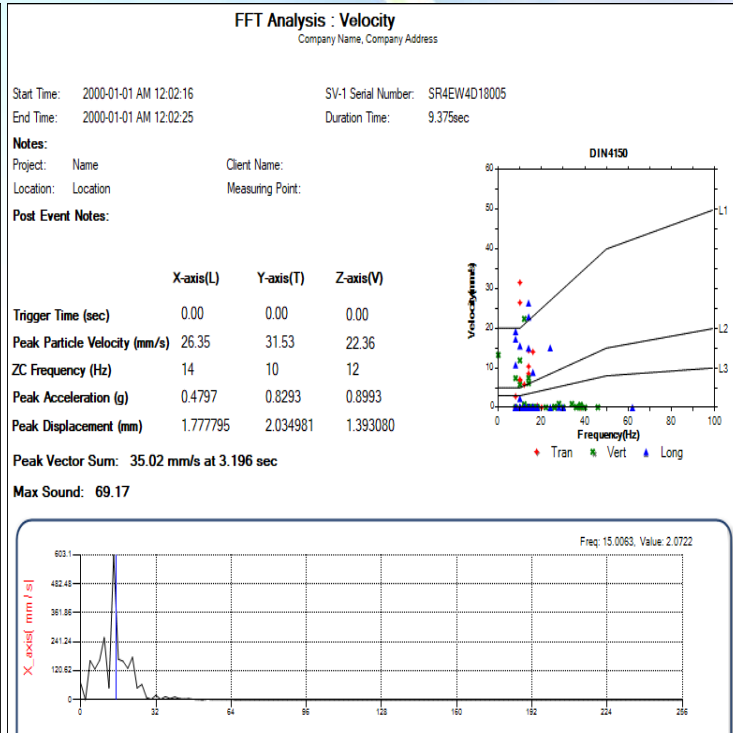


# Seismic / Human Response Vibration & Sound Analyser

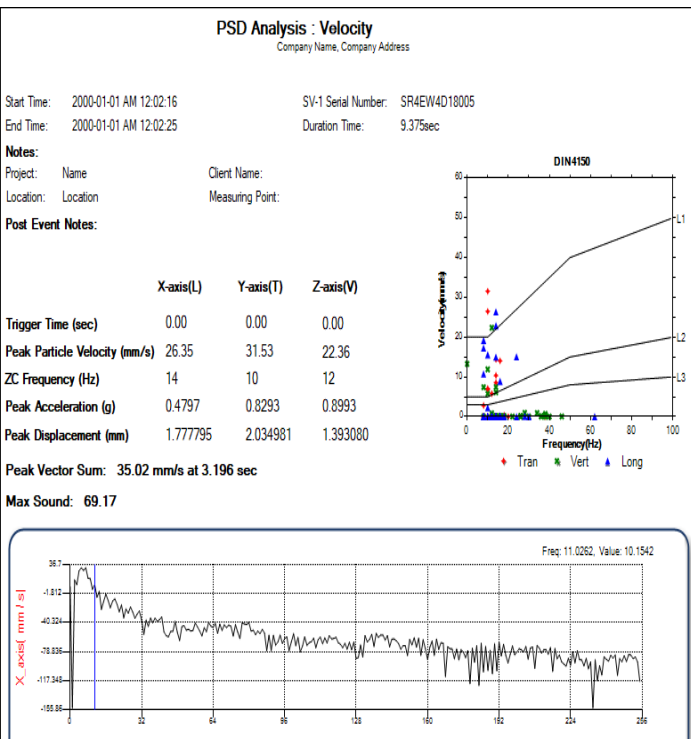
## BLS PC Software



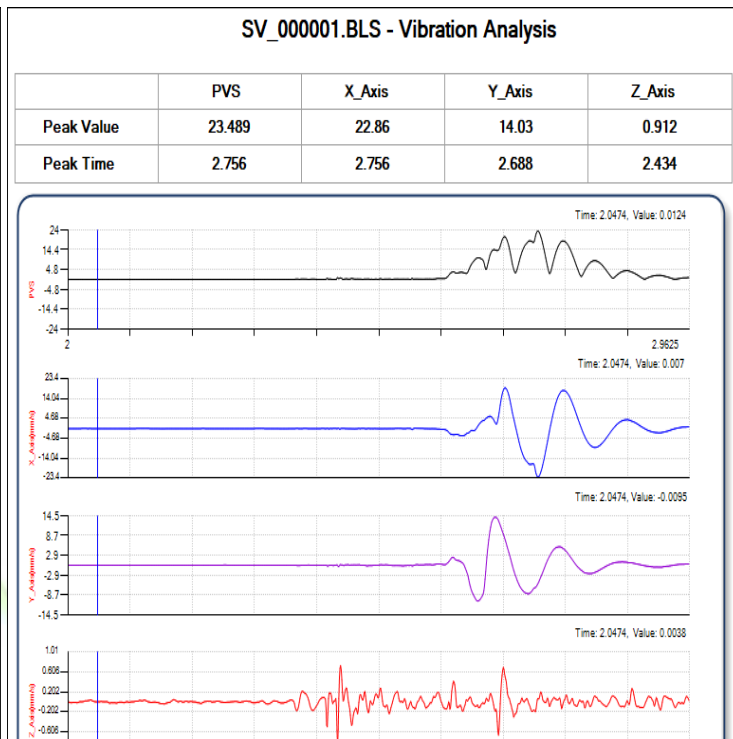
Time Analysis : Velocity



FFT Analysis : Velocity



PSD Analysis : Velocity



Velocity Data Zoom Analysis

# Seismic / Human Response Vibration & Sound Analyser

## Time Analysis : Acceleration

Company Name, Company Address

Start Time: 2000-01-01 AM 12:02:16  
End Time: 2000-01-01 AM 12:02:25

SV-1 Serial Number: SR4EW4D18005  
Duration Time: 9.375sec

### Notes:

Project: Name Client Name:  
Location: Location Measuring Point:

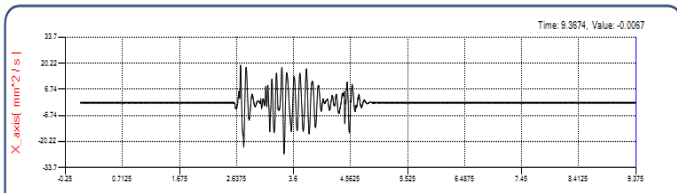
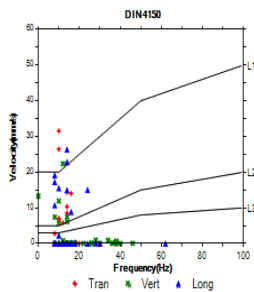
### Post Event Notes:

	X-axis(L)	Y-axis(T)	Z-axis(V)
Trigger Time (sec)	3.44	3.20	4.56
Peak Particle Velocity (mm/s)	26.35	31.53	22.36
ZC Frequency (Hz)	14	10	12
Peak Acceleration (g)	0.4797	0.8293	0.8993
Peak Displacement (mm)	1.777795	2.034981	1.393080

	X-axis(L)	Y-axis(T)	Z-axis(V)
Trigger Time (sec)	3.44	3.20	4.56
Peak Particle Velocity (mm/s)	26.35	31.53	22.36
ZC Frequency (Hz)	14	10	12
Peak Acceleration (g)	0.4797	0.8293	0.8993
Peak Displacement (mm)	1.777795	2.034981	1.393080

Peak Vector Sum: 35.02 mm/s at 3.196 sec

Max Sound: 69.17



Time Analysis: Acceleration

## PSD Analysis : Acceleration

Company Name, Company Address

Start Time: 2000-01-01 AM 12:02:16  
End Time: 2000-01-01 AM 12:02:25

SV-1 Serial Number: SR4EW4D18005  
Duration Time: 9.375sec

### Notes:

Project: Name Client Name:  
Location: Location Measuring Point:

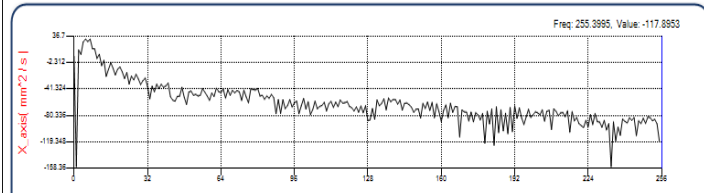
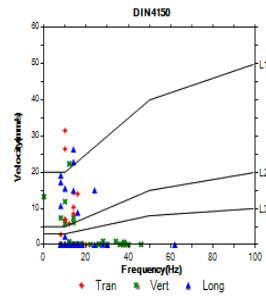
### Post Event Notes:

	X-axis(L)	Y-axis(T)	Z-axis(V)
Trigger Time (sec)	0.00	0.00	0.00
Peak Particle Velocity (mm/s)	26.35	31.53	22.36
ZC Frequency (Hz)	14	10	12
Peak Acceleration (g)	0.4797	0.8293	0.8993
Peak Displacement (mm)	1.777795	2.034981	1.393080

	X-axis(L)	Y-axis(T)	Z-axis(V)
Trigger Time (sec)	0.00	0.00	0.00
Peak Particle Velocity (mm/s)	26.35	31.53	22.36
ZC Frequency (Hz)	14	10	12
Peak Acceleration (g)	0.4797	0.8293	0.8993
Peak Displacement (mm)	1.777795	2.034981	1.393080

Peak Vector Sum: 35.02 mm/s at 3.196 sec

Max Sound: 69.17



PSD Analysis: Acceleration

## Time Analysis : Displacement

Company Name, Company Address

Start Time: 2000-01-01 AM 12:02:16  
End Time: 2000-01-01 AM 12:02:25

SV-1 Serial Number: SR4EW4D18005  
Duration Time: 9.375sec

### Notes:

Project: Name Client Name:  
Location: Location Measuring Point:

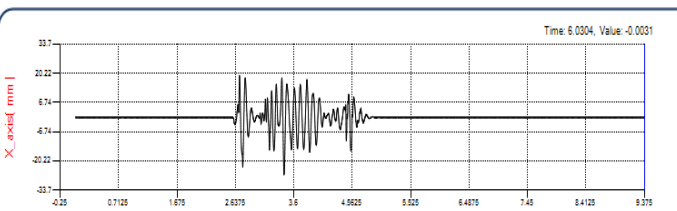
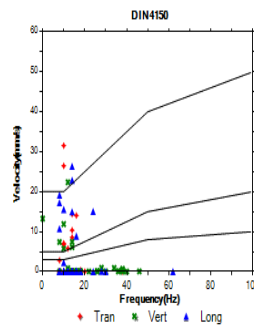
### Post Event Notes:

	X-axis(L)	Y-axis(T)	Z-axis(V)
Trigger Time (sec)	3.44	3.20	4.56
Peak Particle Velocity (mm/s)	26.35	31.53	22.36
ZC Frequency (Hz)	14	10	12
Peak Acceleration (g)	0.4797	0.8293	0.8993
Peak Displacement (mm)	1.777795	2.034981	1.393080

	X-axis(L)	Y-axis(T)	Z-axis(V)
Trigger Time (sec)	3.44	3.20	4.56
Peak Particle Velocity (mm/s)	26.35	31.53	22.36
ZC Frequency (Hz)	14	10	12
Peak Acceleration (g)	0.4797	0.8293	0.8993
Peak Displacement (mm)	1.777795	2.034981	1.393080

Peak Vector Sum: 35.02 mm/s at 3.196 sec

Max Sound: 69.17



Time Analysis: Displacement

## FFT Analysis : Displacement

Company Name, Company Address

Start Time: 2000-01-01 AM 12:02:16  
End Time: 2000-01-01 AM 12:02:25

SV-1 Serial Number: SR4EW4D18005  
Duration Time: 9.375sec

### Notes:

Project: Name Client Name:  
Location: Location Measuring Point:

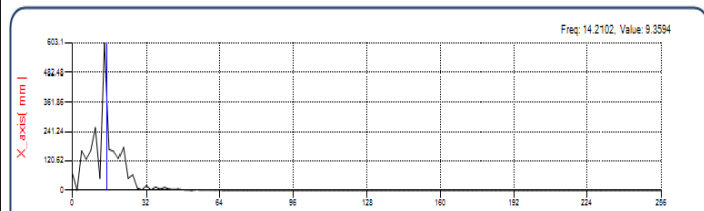
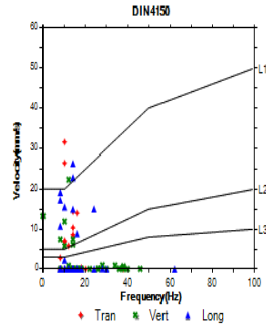
### Post Event Notes:

	X-axis(L)	Y-axis(T)	Z-axis(V)
Trigger Time (sec)	0.00	0.00	0.00
Peak Particle Velocity (mm/s)	26.35	31.53	22.36
ZC Frequency (Hz)	14	10	12
Peak Acceleration (g)	0.4797	0.8293	0.8993
Peak Displacement (mm)	1.777795	2.034981	1.393080

	X-axis(L)	Y-axis(T)	Z-axis(V)
Trigger Time (sec)	0.00	0.00	0.00
Peak Particle Velocity (mm/s)	26.35	31.53	22.36
ZC Frequency (Hz)	14	10	12
Peak Acceleration (g)	0.4797	0.8293	0.8993
Peak Displacement (mm)	1.777795	2.034981	1.393080

Peak Vector Sum: 35.02 mm/s at 3.196 sec

Max Sound: 69.17



FFT Analysis: Displacement



RM. 302, Sangshin B/D, 719-1, Yi-Dong, Sangrok-Gu,  
Ansan, Kyungki-Do, 426-863, KOREA.  
TEL : +82-31-501-4030 FAX : +82-31-501-4032  
Homepage : [www.svdigital.com](http://www.svdigital.com)



**Svib Software Technologies Pvt Ltd**

(Branch office of SV Corporation)

#129, 4th J Cross Road, Above Jumbo xerox-3rd floor Kasturinagar 2nd Main  
Road, Bengaluru, Karnataka 560043, INDIA. Cell: 72592 53724  
<http://www.svibtech.net>, [www.svibtech.com](http://www.svibtech.com)