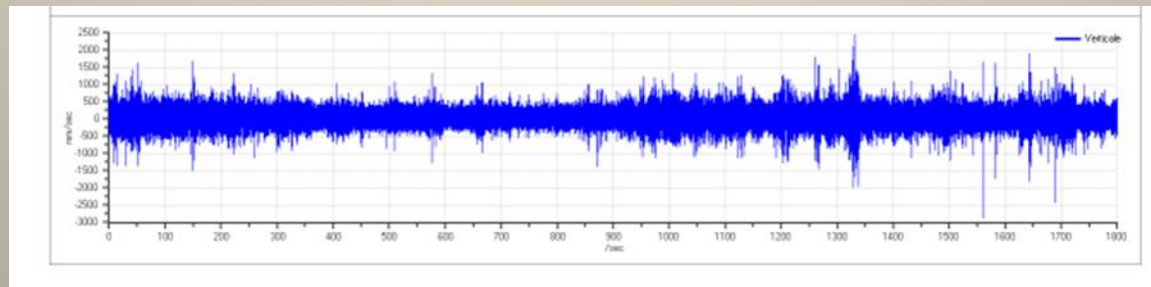




L'ESPLOSIVO NON DETONANTE PER LA DEMOLIZIONE CONTROLLATA E I DISGAGGI DI BLOCCHI ROCCIOSI: MONITORAGGIO DELLE VIBRAZIONI INDOTTE



Dott. Geol. Andrea Mocchiutti

Milano, 6 maggio 2015

VIBROMETRIA

misura di vibrazioni

SETTORE ING. CIVILE

- gallerie
- scavi e trincee
- cave
- miniere
- demolizioni
- cantiere

indotte su strutture e Opere Artistiche

SETTORE INDUSTRIALE

- macchine rotanti
- presse
- frese
- macchine a dividere
- troncatrici

controllo e verifica

SETTORE SALUTE DEL LAVORO

● **Lavoratori:**

impiegano attrezzature che le trasmettono al corpo intero o al sistema mano-braccio

SETTORE AMBIENTE

- traffico specie se pesante
- ferroviario AV/AC
- applicazioni geologia geotecnica
- rumore antropico

VIA/VAS

SETTORE RESPONSABILITA'

- assistenza e consulenza a Compagnie di Assicurazione, Periti, Avv.ti
- insorgere di danni
- contenziosi
- ATP legale
- CTU/CTP

attività peritale

Esplosivo in cava ed in cantiere



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Registrazione e Report Dell'evento



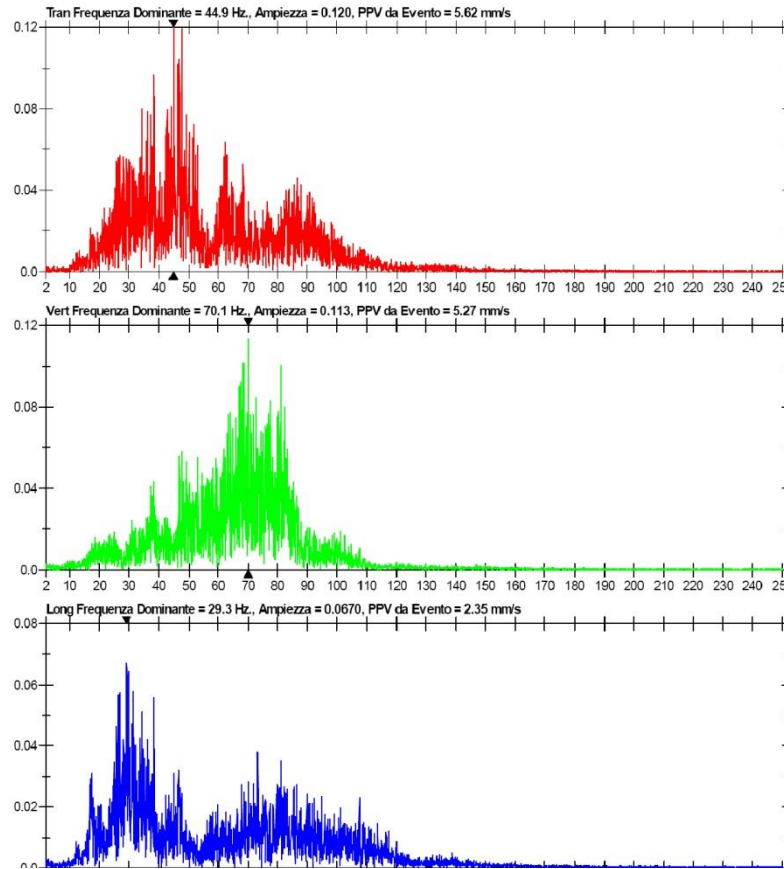
FFT Report

Data/Ora Vert. a 16:50:33 Settembre 15, 2010
Sorg. Trigger Geo: 1.00 mm/s
Campo Geo: 31.7 mm/s
Tempo Reg. 8.0 sec a 2048 sps
Num. Lavoro 1

Numero Serie BE15912.V 10.06-8.17 MiniMate Plus
Livello Batteria 6.8 Volts
Unit Calibration Giu 4, 2010 by Instantel inc.
Nome File QS12DEYH.G90

Note
Localita':
Cliente:
Utilizzatore:
Variel:

Extended Notes

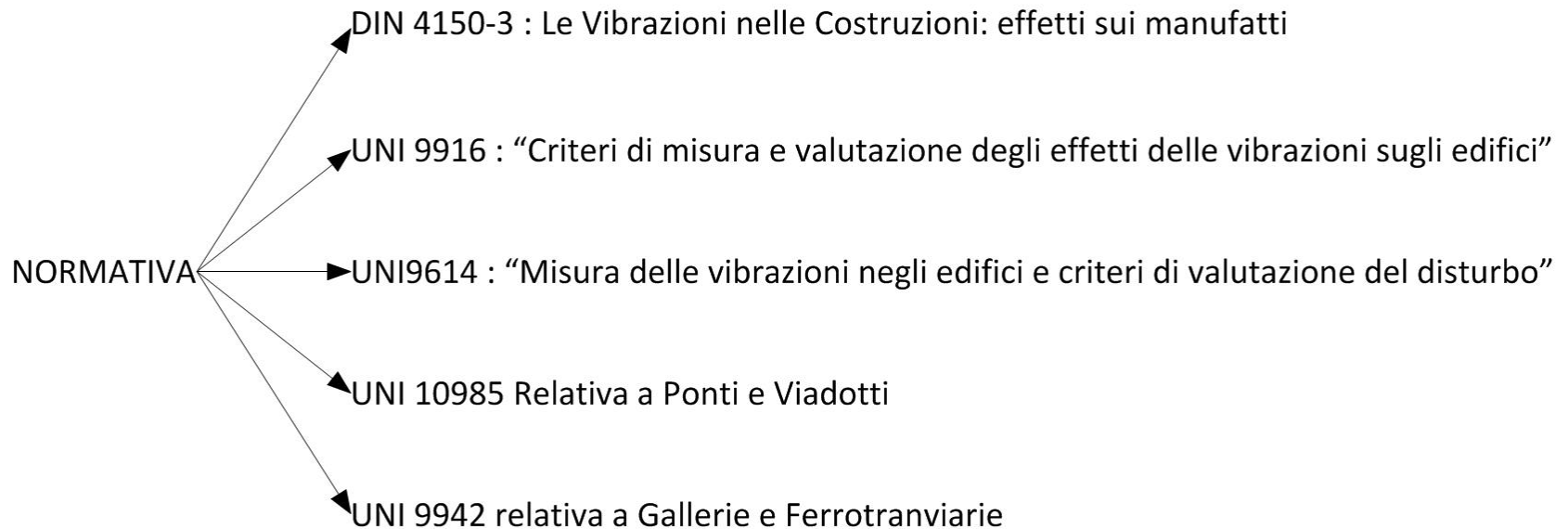




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NORMATIVA DI RIFERIMENTO



Norma tecnica

UNI 9916:2004

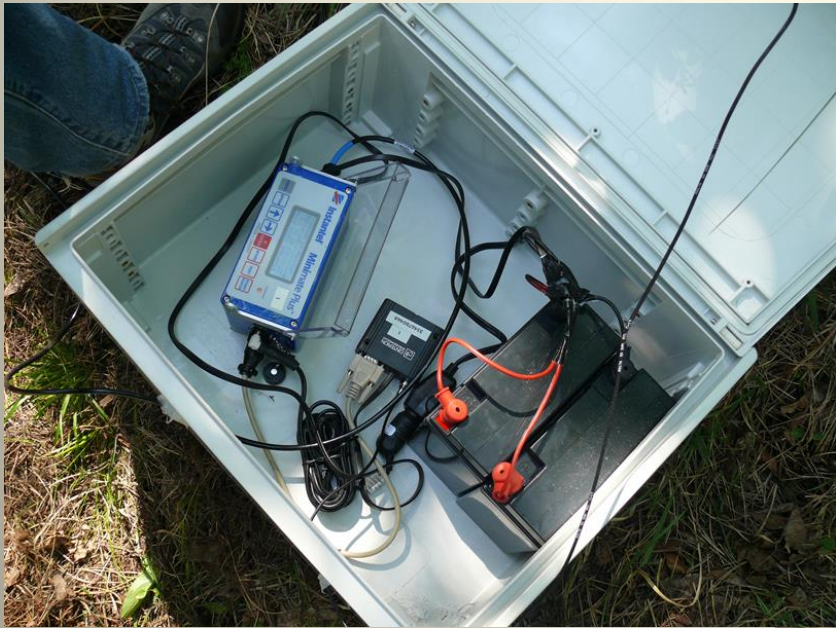
Data

01/04/2004

Norme di riferimento

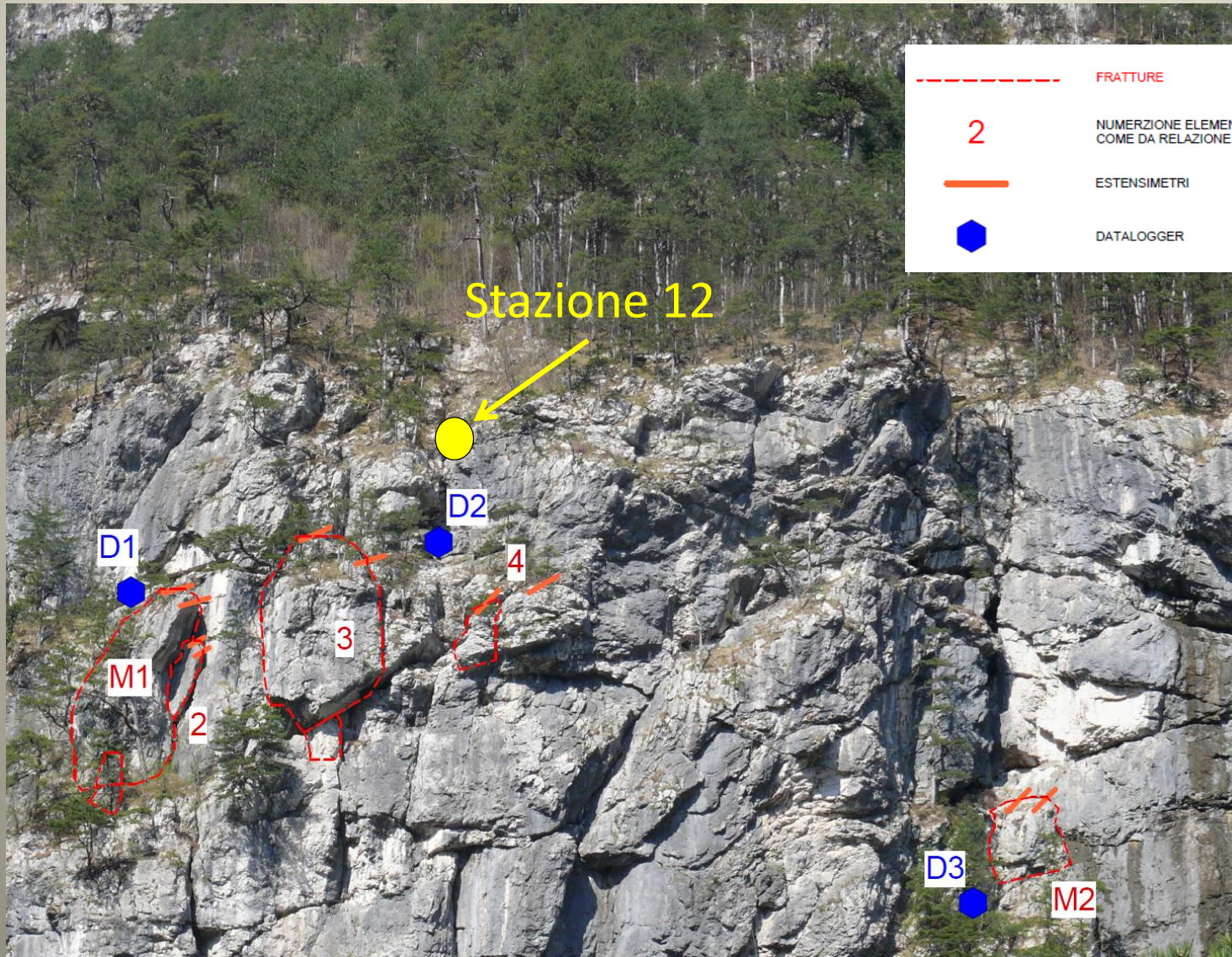
DIN 4150

BS 7385



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Rete di monitoraggio
con estensimetri



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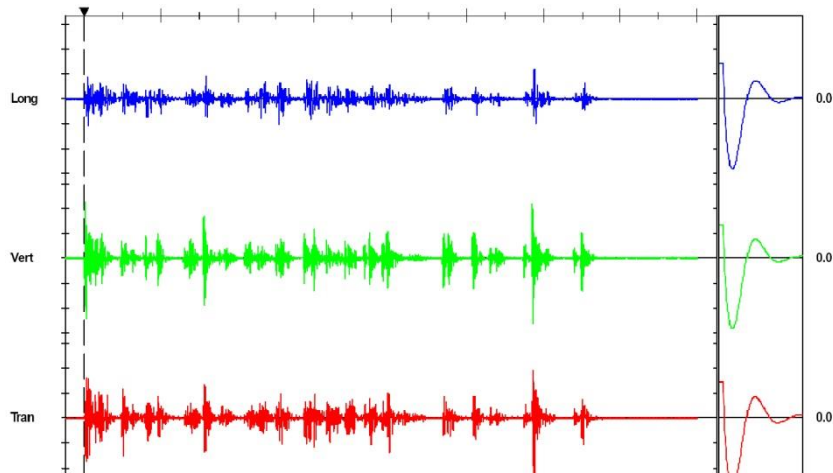
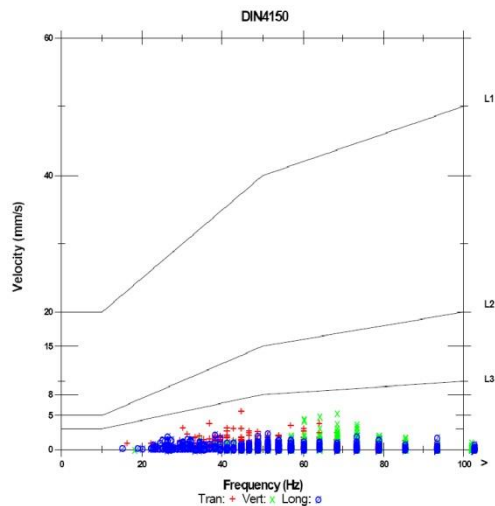
Event Report

Data/Ora Vert a 16:50:33 Settembre 15, 2010
Sorg. Trigger Geo: 1.00 mm/s
Campo Geo: 31.7 mm/s
Tempo Reg. 8.0 sec a 2048 sps
Num. Lavoro 1
Note
Localita':
Cliente:
Utilizzatore:
Variet:

Numero Serie BE15912 V 10.06-8.17 MiniMate Plus
Livello Batteria 6.6 Volts
Unit Calibration Giu 4, 2010 by InstanTel inc.
Nome File OG12DEYH.G90

Extended Notes

	Tran	Vert	Long	
PPV	5.62	5.27	2.35	mm/s
ZC Freq	45	68	61	Hz
Ora (Risp al Trig)	5.880	5.855	5.880	sec
Accel. Picco	0.229	0.222	0.103	g
Spostamento Picco	0.0171	0.0123	0.00772	mm
Sensorcheck	Passato	Passato	Passato	
Frequency	7.5	7.4	7.4	Hz
Overswing Ratio	3.6	4.0	4.1	
Somma Vet.Pic	6.56 mm/s a 5.855 sec			



Date/Time Tran at 09:55:38 October 12, 2011
Trigger Source Geo: 0.250 mm/s
Range Geo : 31.7 mm/s
Record Time 3.0 sec at 2048 sps
Job Number: 1

Serial Number BE15913 V 10.20-8.17 MiniMate Plus
Battery Level 6.9 Volts
Unit Calibration Uninitialized
File Name __TEMP.EVT

Notes

Location:
Client: Prevedello galleria Villanova
User Name: Geomok S.r.l.
General:

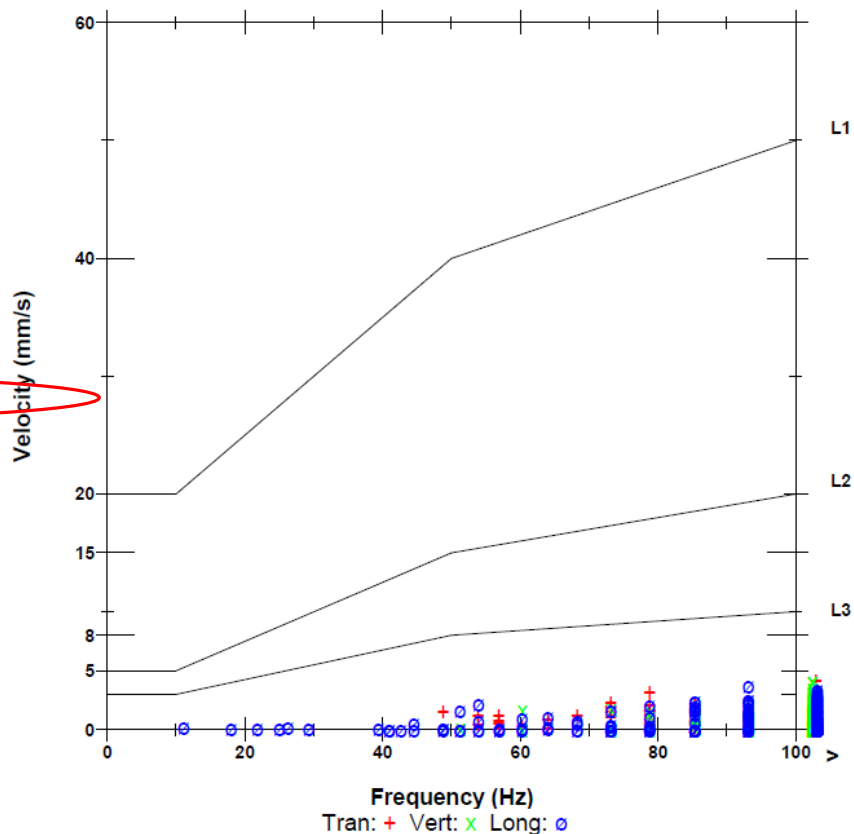
Extended Notes

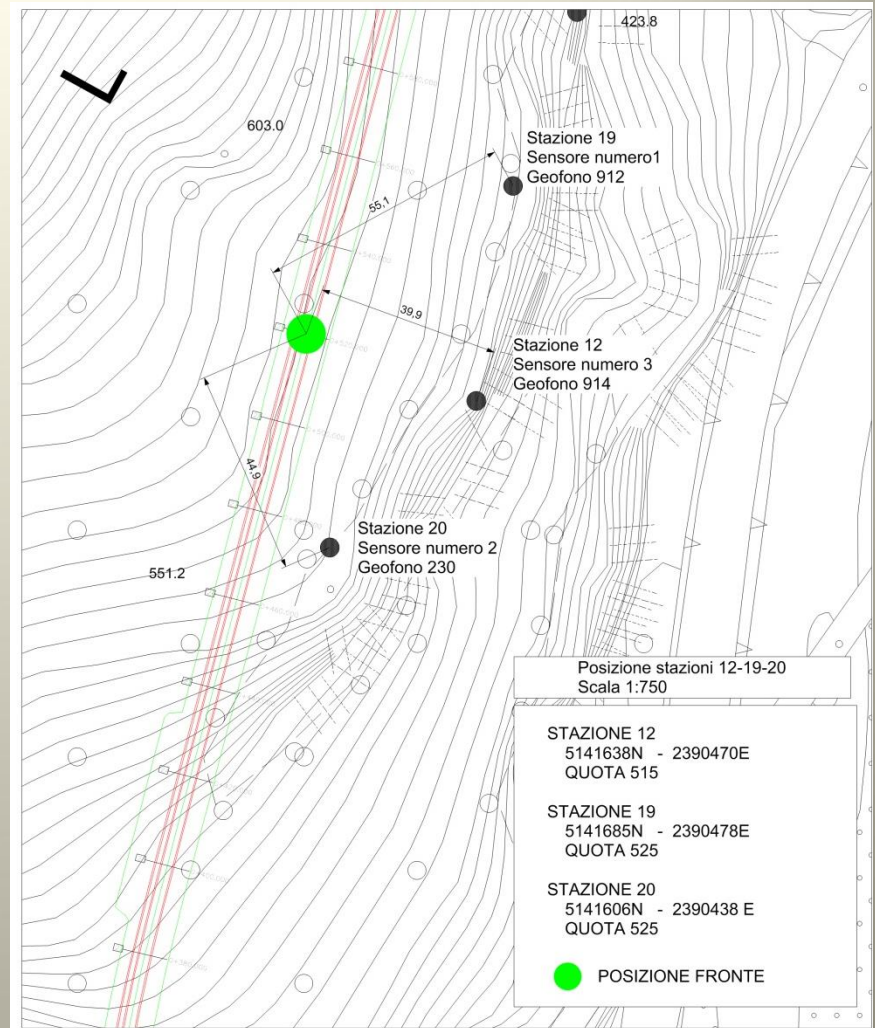
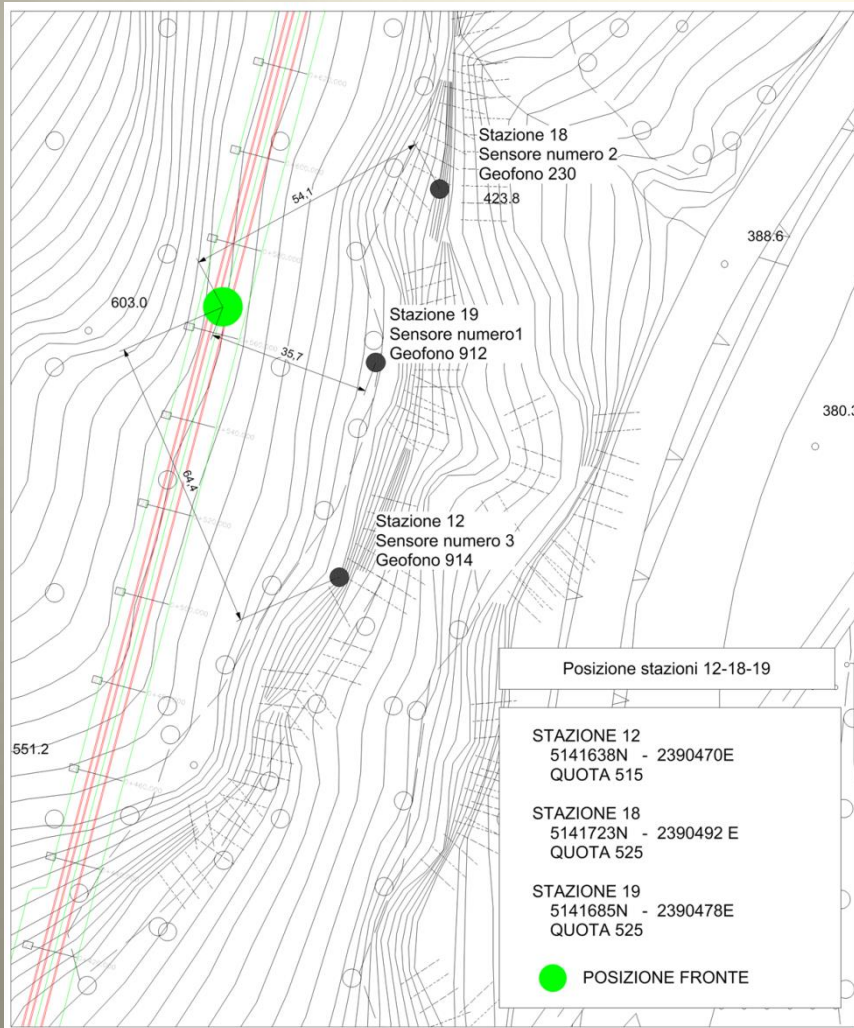
Microphone Linear Weighting
PSPL 1.25 pa.(L) at 0.324 sec
ZC Freq 102 Hz
Channel Test Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	4.19	4.10	3.73	mm/s
ZC Freq	102	128	93	Hz
Time (Rel. to Trig)	0.321	0.027	0.324	sec
Peak Acceleration	0.245	0.394	0.288	g
Peak Displacement	0.00645	0.00504	0.00578	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.5	Hz
Overswing Ratio	4.1	3.8	4.1	

Peak Vector Sum 4.44 mm/s at 0.321 sec

DIN4150





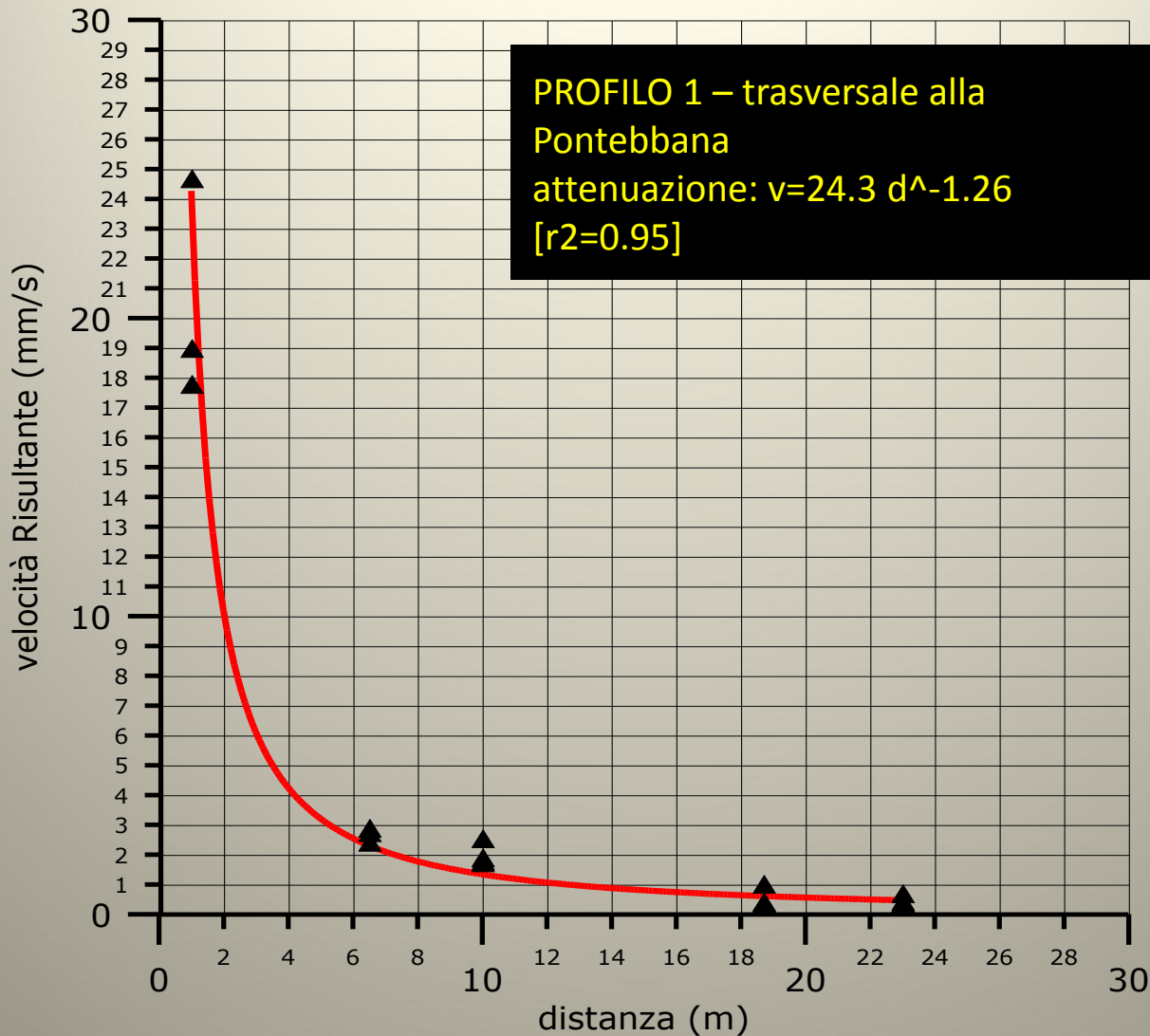
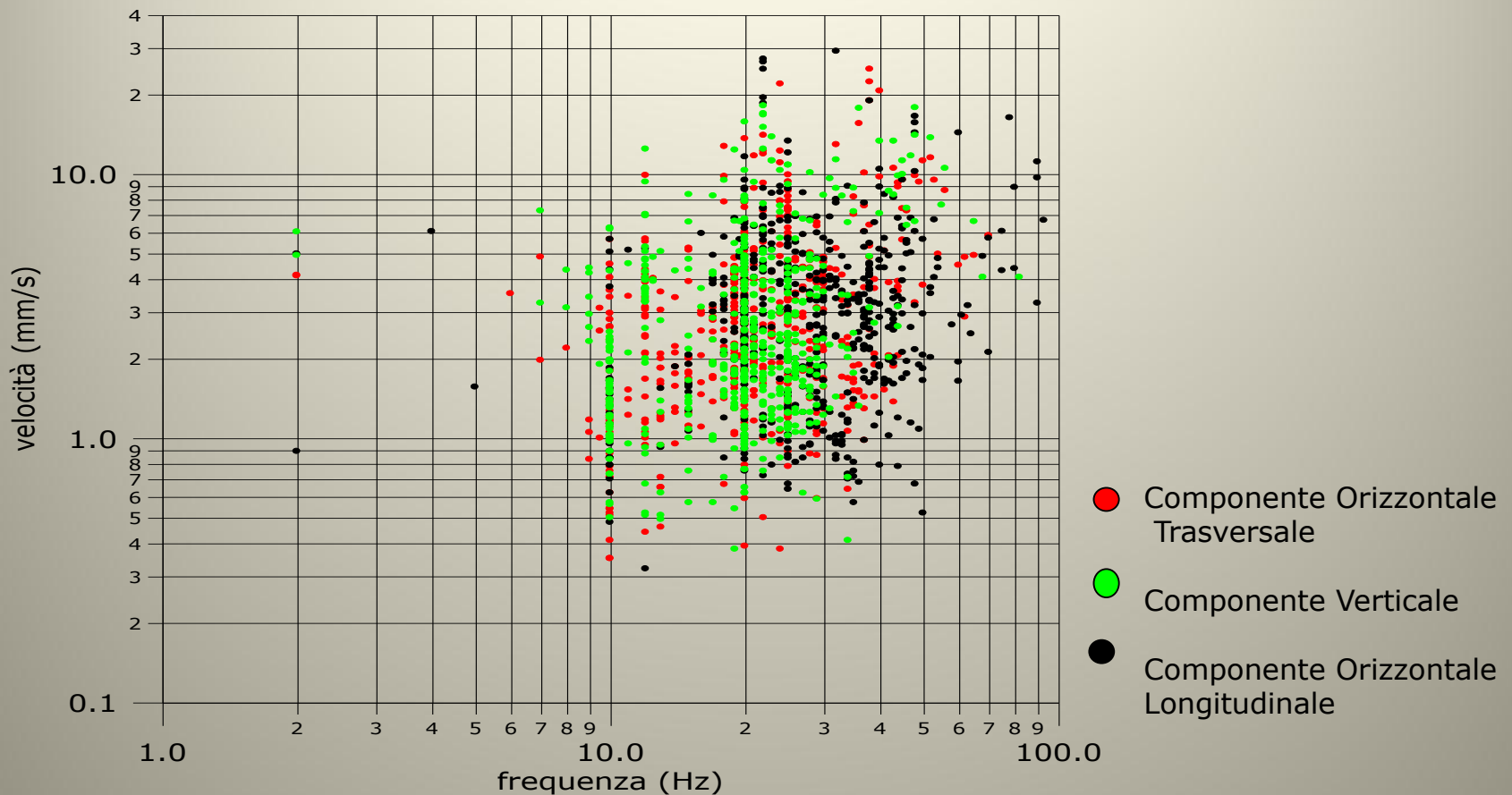


Grafico velocità vs frequenza delle volate monitorate per l'intera galleria



Galleria di Chiusaforte – Tutti i dati da giugno 2010 a ottobre 2011

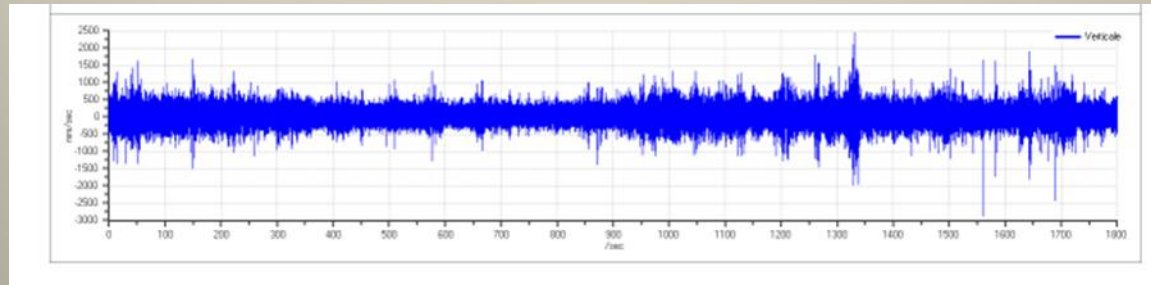


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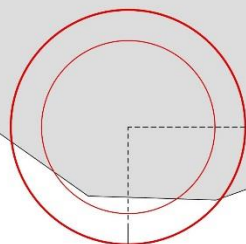
ATTIVITÀ IN CAMPO

Dott. Geol. Andrea Mocchiutti

Milano, 6 maggio 2015

1. RILIEVO SU ROCCIA

VOLATA



STAZIONE 15912
PPV 15,5 mm/s
ZC Freq 60 Hz

STAZIONE 15914
PPV 3,84 mm/s
ZC Freq 54 Hz

STAZIONE 16230
PPV 1,10 mm/s
ZC Freq 32 Hz

7 m

12 m

22 m



Date/Time Long at 14:03:40 May 6, 2015
Trigger Source Geo: 0.130 mm/s
Range Geo: 31.7 mm/s
Record Time 5.0 sec at 2048 sps
Job Number: 1

Serial Number BE15912 V 10.60-8.17 MiniMate Plus
Battery Level 6.1 Volts
Unit Calibration July 25, 2013 by RGN Zagreb
File Name Q912FU3B.240

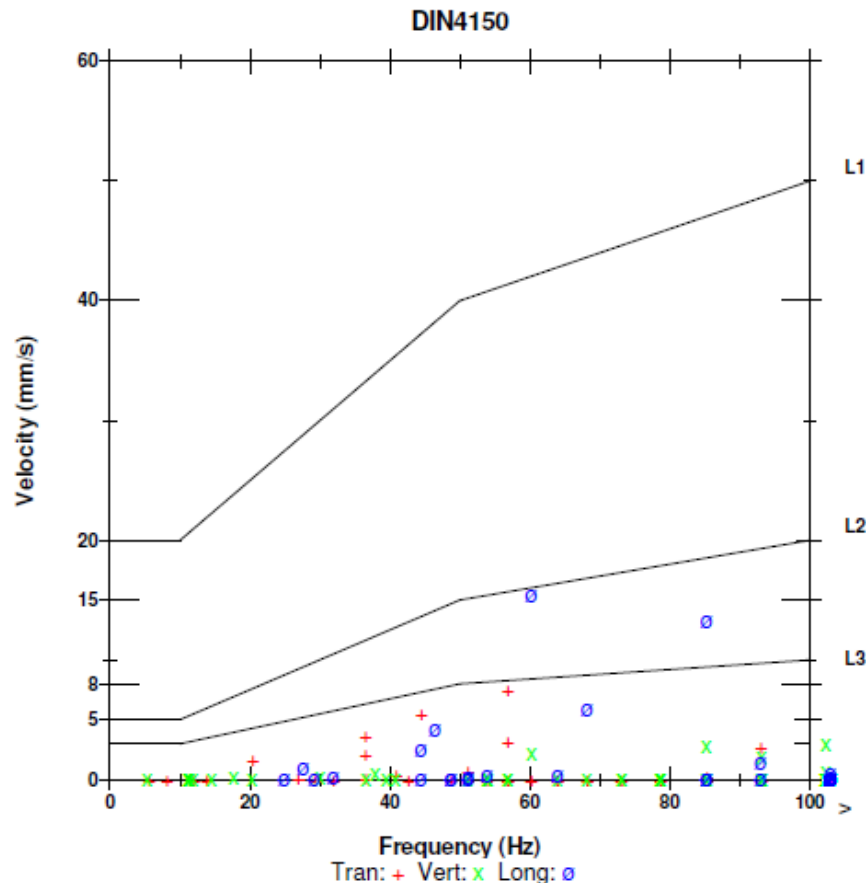
Notes

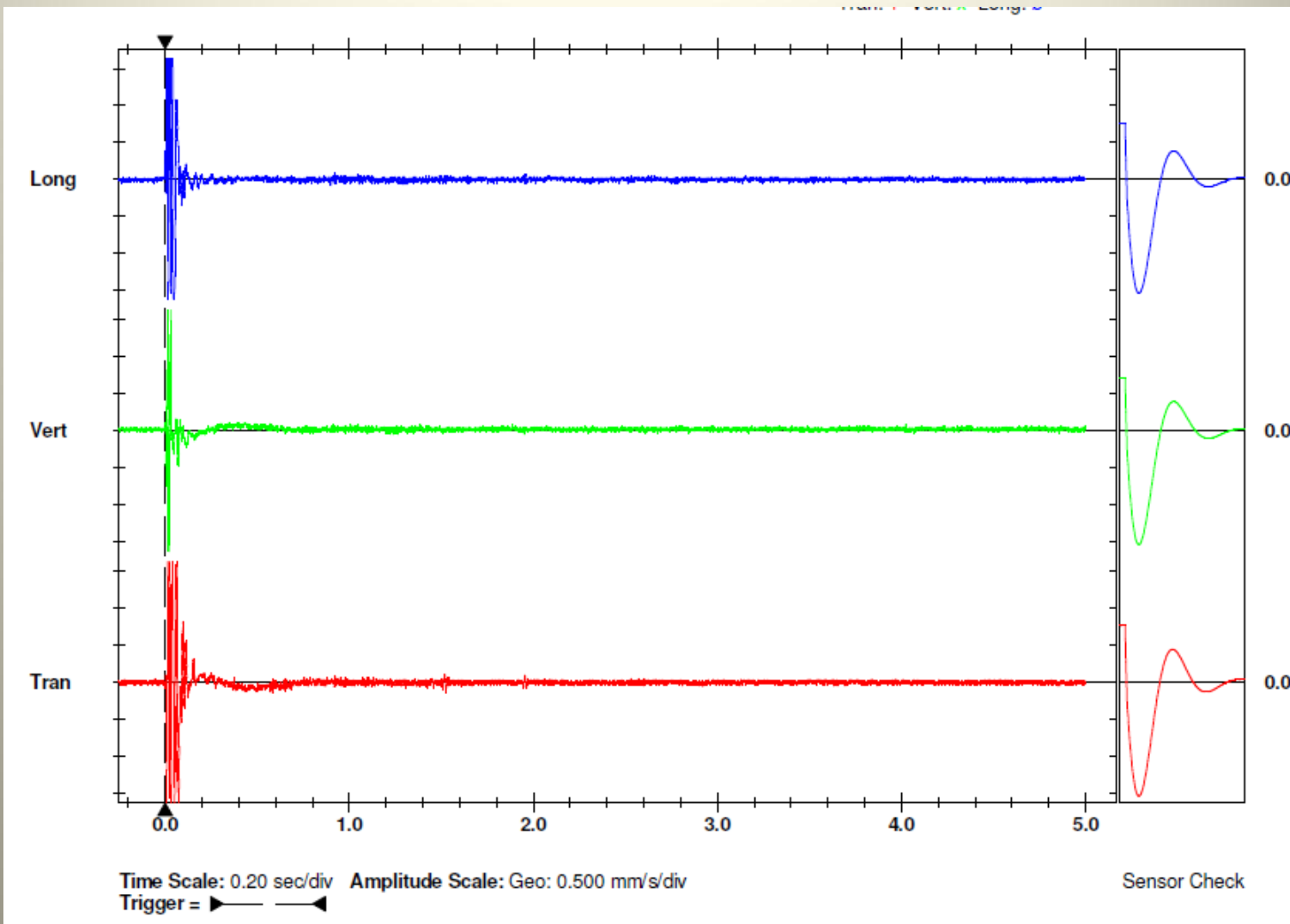
Location: Milano
Client: Ordine geologi della Lombardia
User Name: Geomok srl
General:

Extended Notes

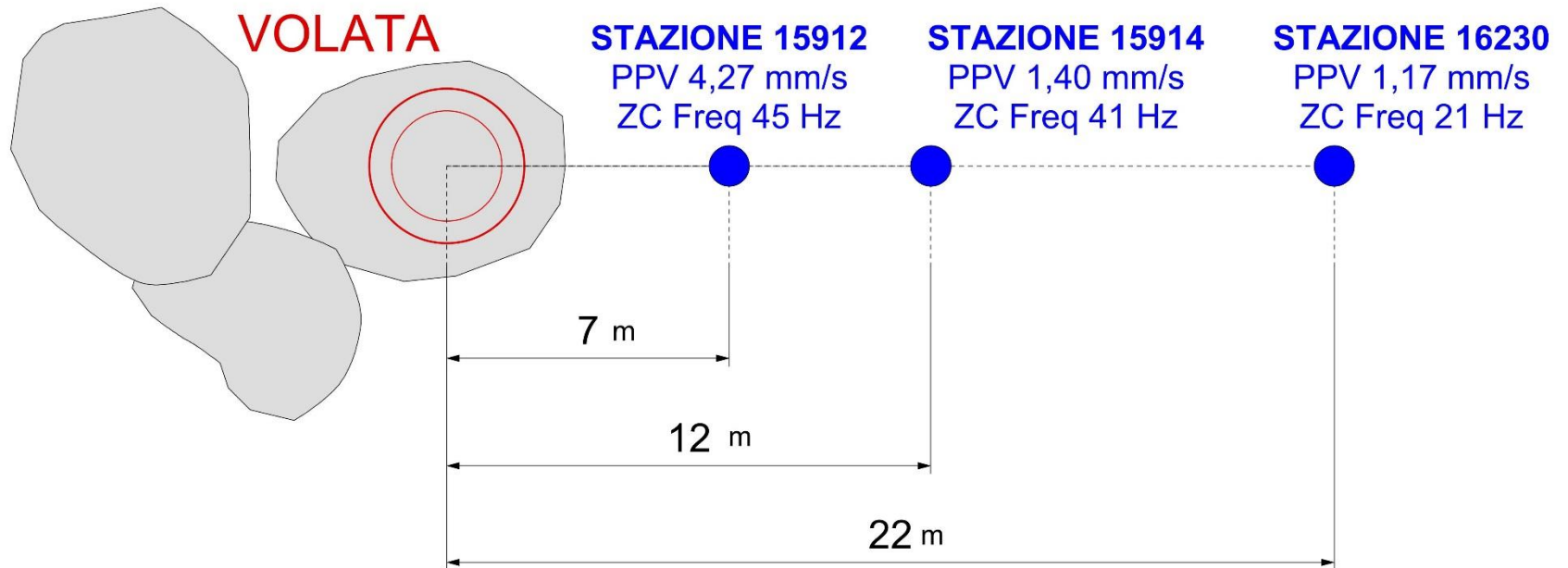
	Tran	Vert	Long	
PPV	7.62	3.03	15.5	mm/s
ZC Freq	57	102	60	Hz
Time (Rel. to Trig)	0.029	0.010	0.015	sec
Peak Acceleration	0.315	0.196	0.908	g
Peak Displacement	0.0223	0.00567	0.0415	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.6	7.4	7.3	Hz
Overswing Ratio	3.5	3.9	4.0	

Peak Vector Sum 15.6 mm/s at 0.015 sec





2. RILIEVO SUL SUOLO





Date/Time Long at 14:48:44 May 6, 2015
Trigger Source Geo: 0.130 mm/s
Range Geo: 31.7 mm/s
Record Time 5.0 sec at 2048 sps
Job Number: 1

Serial Number BE15912 V 10.60-8.17 MiniMate Plus
Battery Level 6.1 Volts
Unit Calibration July 25, 2013 by RGN Zagreb
File Name Q912FU3D.580

Notes

Location: Milano
Client: Ordine geologi della Lombardia
User Name: Geomok srl
General:

Extended Notes

	Tran	Vert	Long	
PPV	1.37	4.27	3.35	mm/s
ZC Freq	39	45	26	Hz
Time (Rel. to Trig)	1.351	1.348	1.352	sec
Peak Acceleration	0.0597	0.113	0.0795	g
Peak Displacement	0.00669	0.0184	0.0149	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.4	7.3	Hz
Overswing Ratio	3.5	3.9	4.1	

Peak Vector Sum 4.93 mm/s at 1.349 sec

