Appendix E
Construction Summary Report

GeoEngineers, Inc., April 7, 2022

Construction Summary Report (LDA #1)

Go East Landfill Closure (PFN 20 118246 LDA)
Snohomish County, Washington

for
PACE Engineers, Inc.

April 7, 2022

GeoEngineers
Earth Science + Technology

Construction Summary Report (LDA #1)

Go East Landfill Closure (PFN 20 118246 LDA)
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for
PACE Engineers, Inc.

April 7, 2022

GeoEngineers

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Redmond, Washington 98052
425.861.6000

Construction Summary Report (LDA #1)

Go East Landfill Closure
(PFN 20 118246 LDA)
Snohomish County, Washington

File No. 6694-002-02

April 7, 2022

Prepared for:

PACE Engineers, Inc.
11255 Kirkland Way, Suite 300
Kirkland, Washington 98033

Attention: Marty Penhallegon

Prepared by:

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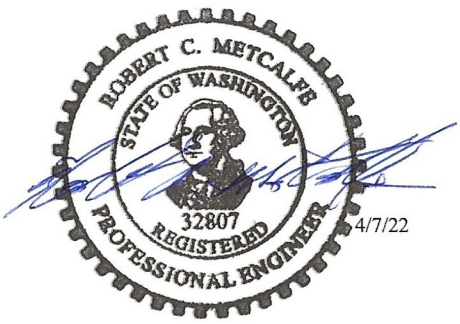

Colton W. McInelly, PE
Geotechnical Engineer

Robert C. Metcalfe, PE, LEG
Principal Geotechnical Engineer

CWM:RCM:nld

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APPENDICES

1.0 INTRODUCTION

This report presents a summary of GeoEngineers' construction quality control observation services for the Go East Landfill Closure (LDA #1) project located in Snohomish County, Washington. The project consists of the closure of the Go East Landfill by consolidating approximately 60,000 cubic yards of landfill material prior to capping the landfill footprint with a geosynthetic/soil cover system. A residential development (LDA #2) will then be constructed around the closed landfill. Closure of the landfill also included excavation and deep dynamic compaction of landfill waste under the stormwater detention pond (Cover System #2), regrading of the landfill surface, and constructing a rock fill toe buttress along the bottom of the northeast slope. The Snohomish County Planning and Development Services project number for the landfill closure is PFN 20-118246 LDA.

The landfill closure was completed in general conformance with the Go East Landfill Closure Plan (revised January 18, 2018 with updates), prepared by PACE Engineers, Inc., the Construction Quality Assurance Plan in Support of LDA for Go East (dated April 7, 2020), and the project drawings titled "Go East Landfill Closure, Land Disturbance Activity – LDA #1", dated June 9, 2021, and approved by Snohomish County Planning and Development Services, dated June 23, 2021.

2.0 OBSERVATIONS AND TESTING

GeoEngineers served at the Construction Quality Assurance (CQA) Engineer for the Go East Landfill closure and was on site for construction observation and testing for 202 days from April 2, 2021 through March 21, 2022. On-going construction and construction observation services have continued since this time. GeoEngineers services for the landfill closure (LDA #1) included the following:

- Observing the wedge excavation and landfill material relocation;
- Observing subgrade conditions, and placement and compaction of structural fill in the wedge excavation;
- Observing placement and compaction of landfill materials;
- Observing placement of drainage materials in the west wedge excavation, including placement and compaction of the silt/clay dam, and placement of structural fill;
- Monitoring construction of the landfill cover system, including:
    - Evaluating subgrade conditions for the geomembrane;
    - Observe excavation of anchor trenches;
    - Observing geomembrane installation and seaming;
    - Observing installation of the geocomposite drainage layer;
    - Observing placement of a cushion geotextile (where needed);
    - Observing placement of the sand cover layer over the geomembrane; and
    - Observe placement and compaction of backfill in anchor trenches;

- Evaluating the west cut slope, construction of the groundwater interceptor trench, and construction of the geomembrane for the permanent stream alignment;
- Observing construction of the rock buttress at the toe of the northeast slope;
- Monitoring deep dynamic compaction activities in stormwater pond footprint; and
- Evaluating vibration monitoring data before, during and after deep dynamic compaction activities.

Field reports summarizing our construction observation activities are presented in our daily field reports for the project, numbers 1 through 202 (dated April 2, 2021 through March 21, 2022), and are included in Appendix A.

2.1. Wedge Excavation

2.1.1. Landfill Material Relocation

GeoEngineers observed the removal of landfill waste from the west and south wedge excavation areas and relocation of that material to portions of the landfill that was covered with the landfill cover system. The material was removed until native sand was encountered. We observed these activities during our site visits from April 23 through May 27, 2021 and from June 8 through June 25, 2021. Based on our observations, the landfill material was removed as planned and relocated to the upper portion of the landfill in general accordance with the project plans and specifications.

2.1.2. Landfill Material Placement and Compaction

We observed placement and compaction of the relocated landfill waste material from the west and south wedge excavation areas onto portions of the landfill that was covered with the geomembrane system. The relocated landfill waste was spread in approximately 12-inch-thick loose level lifts before being compacted with a landfill compactor making a minimum of four passes over each lift. These activities were observed during our site visits from April 23 through August 13, 2021. Based on our observations, it is our opinion that the relocated landfill material was placed and compacted in general accordance with the project plans and specifications.

2.1.3. Wedge Excavation Subgrade Preparation

GeoEngineers observed preparation of the subgrade areas in the wedge excavations during our site visits from May 5 to June 25, 2021. The exposed wedge excavation subgrades typically consisted of native fine to medium sand with silt. Once the native sand was exposed and approved for backfilling, the exposed subgrade areas were compacted with steel drum vibratory roller by making at least four passes over the exposed subgrade or the subgrade areas were compacted with vibratory plate mounted on an excavator. We evaluated the subgrade by means of probing with a ½-inch-diameter steel probe rod. Typical probe depths ranged from 3 to 4 inches. We observed that the subgrades were generally firm and in a suitable condition for fill placement. Based on our observations and evaluations, it is our opinion that wedge excavation subgrade preparation was completed in general accordance with the project plans and specifications.

2.1.4. Wedge Excavation Backfill Placement

Placement and compaction of backfill in the wedge excavations was observed and evaluated during our site visits from May 12 to September 2, 2021. The fill typically consisted of native fine to medium sand with

silt generated from on-site cut areas and/or imported silty fine to medium sand with gravel. Fill placement consisted of spreading the backfill in maximum 12-inch-thick loose level lifts and compacting each lift with at least four passes using a heavy steel drum vibratory roller. We also observed the performance of the fill under fully loaded off-road haul trucks and other construction equipment, The backfill was also evaluated by performing in-place moisture and density tests using a nuclear density gauge and by means of probing with a ½-inch-diameter steel probe rod. Density testing indicated that the fill had been compacted to at least 95 percent of the maximum dry density (MDD) as determined by ASTM D 1557 in the future lot areas (LDA #2) and to at least 90 percent of the MDD in the landfill closure area (LDA #1). Based on our observations, evaluations and test results, it is our opinion that the wedge excavation backfill placement and compaction was completed in general accordance with the project plans and specifications.

2.1.5. West Wedge Excavation – Groundwater Seepage Drain and Clay Dam Backfill

A clay dam was constructed along the southwest side of the landfill in the west wedge excavation area where moderate groundwater seepage was observed. Based on discussions during construction, the clay dam was constructed under the southwest edge of the landfill closure. Prior to constructing the clay dam, a groundwater collection and drainage layer was constructed at the base of the west wedge excavation after the landfill waste was removed and the wedge excavation was approved for backfilling. The groundwater drainage layer consisted of 1 to 2 feet of quarry spalls overlain by a needle-punched nonwoven geotextile separator. The clay dam was constructed in 12-inch-thick maximum loose lifts and each loose lift was compacted with a sheeps-foot compactor and/or a vibratory steel drum roller each making a minimum of four passes over each lift. We evaluated the material by performing in-place moisture and density testing with a nuclear density gauge. Density testing indicated that the material had been compacted to at least 95 percent of the MDD in future lot areas (LDA #2) and to at least 90 percent of the MDD in the landfill closure area (LDA #1). Based on our observations, evaluations, and test results, it is our opinion that clay dam and groundwater seepage collection layer were constructed in general accordance with our recommendations, and the project plans and specifications.

2.2. Landfill Cover System

2.2.1. Landfill Subgrade Preparation

GeoEngineers evaluated placement and compaction of the relocated landfill waste as described above, and observed exposed cut areas on the south slope and around the stormwater detention pond area. The exposed and compacted final surface of the landfill waste was evaluated prior to placing the 6-inch-thick sand layer. The exposed landfill waste surface was evaluated and observed debris that could penetrate the sand layer and possible puncture the geomembrane was removed (such as protruding wood waste, metal debris, wire, etc.). Once the landfill surface was approved, then the 6-inch-thick sand layer was placed and compacted with at least four passes using a dozer. We observed and evaluated the geomembrane subgrade conditions during our site visits from September 13, 2021 to February 1, 2022. Based on our observations, the finished landfill waste surface was properly prepared for placement of the 6-inch-thick sand layer in general accordance with the project plans and specifications.

2.2.1. 6-inch Sand Layer

We observed placement and compaction of the 6-inch-thick sand layer located below the geomembrane cover system. The sand layer was compacted with a dozer or smooth drum vibratory roller that made a minimum of four passes over the sand layer. We periodically probed the sand layer to check that it was at least 6 inches thick after compaction. We also observed the sand layer to make sure it was free of

unsuitable materials or debris and standing water prior to deployment of the geomembrane. Based on our observations and evaluations, it is our opinion that the 6-inch-thick sand layer was placed and compacted in general accordance with the project plans and specifications.

2.2.2. Anchor Trench Excavation

We observed excavation of the anchor trenches for the landfill cover system. We walked the anchor trenches to make sure the outside edge was excavated in clean soil. Where the inside edges of the anchor trenches were excavated in landfill material, we assessed the anchor trench sidewalls and observed removal of significant protruding landfill waste that posed a risk to the geomembrane. Once approved, exposed wood waste along the interior anchor trenches was covered with a needle-punched nonwoven cushion geotextile (TenCate Mirafi 1160N). The cushion geotextile was placed where needed after we approved subgrade conditions along the trenches. Based on our observations, it is our opinion that the anchor trenches were excavated and prepared in general accordance with the project plans and specifications, and our recommendations.

2.2.3. Geomembrane Installation

GeoEngineers observed installation of the geomembrane cover system and seaming of the geomembrane panels during our site visits from September 14, 2021 to February 16, 2022. The geomembrane consisted of Solmax 40-mil LLDPE double-sided textured geomembrane. The installation subcontractor typically seamed the panels together using fusion welding (double-wedge welding) equipment set at a speed of 6.5 feet per minute. Some shorter panels were seamed using extrusion welds. Extrusion welds were also used to patch three-way intersections, observed geomembrane damaged areas, and failed fusion welds.

Prior to production welding, geomembrane fusion and extrusion welded seams were tested for peel and shear (tensile) per the Go East Landfill Closure Plan and the Solmax quality assurance control manual (Section 7.0) by preparing test seams on geomembrane fragments. Coupons were tested in the field using a calibrated tensiometer. Test seam samples passed for film tear bond (FTB) and in shear prior to beginning production welding. Air pressure testing (non-destructive) was performed on fusion welded seams, while extrusion welds were used for all other seaming including where damaged was observed in the geomembrane, at three-way panel intersections, for failed fusion welded seams, and around penetrations through the geomembrane.

Based on our observations, and observed testing of geomembrane seams and test samples, it is our opinion that the geomembrane installation was completed in general accordance with the project plans and specifications, and the manufacturer requirements.

2.2.4. Geomembrane Seam Testing – Outside Laboratory Test Results

Destructive seam samples were obtained for every approximately 500 linear feet of geomembrane panel field seaming. Twenty-seven destructive seam tests were taken during the project from fusion welded seams and sent to an outside laboratory (TRI Environmental) for testing. The destructive seam samples were tested for peal (FTB) and in shear. All tested samples met the minimum project requirements. The test results are included in Appendix B.

2.2.5. Geocomposite Drainage Layer Installation

GeoEngineers observed installation of the geocomposite drainage layer that was placed over the geomembrane. The geocomposite drainage layer consisted of Solmax FabriNet 200 or 225-mil double-sided drainage composite. The panels were connected using zip ties typically spaced at approximately 2- to 3-foot intervals. The upper needle-punched non-woven geotextile was heat-bonded (tack welded) together. Based on our observations, the geocomposite drainage layer was installed in accordance with the project plans and specifications, and the manufactures recommendations.

2.2.6. Anchor Trench Backfill

We observed and evaluated backfilling of the anchor trenches after the landfill cover system geosynthetic materials were installed. Anchor trench backfill consisted of native or imported sand with silt that was placed in approximately 12-inch-thick loose lifts and compacted with a vibratory plate mounded on an excavator. We evaluated the backfill be means of probing with a ½-inch diameter steel probe rod and using a nuclear density gauge. The test results indicated that the backfill had been compacted to at least 90 percent of the MDD in accordance with ASTM D1557. Based on our observations, evaluations, and the test results, the anchor trench backfill was placed and compacted in general accordance with the project plans and specifications.

2.2.7. Placement and Compaction of 12-inch Cover Sand Layer

At least 12 inches of sand was placed and compacted over the geomembrane and geocomposite drainage layers on the landfill. The 12-inch-thick sand layer was placed in one lift with a dozer before being track-walked in place with at least four passes using the dozer. We walked the edges of the sand layer to make sure the exposed geosynthetic materials were not damaged during placement of the cover sand layer. Based on our observations, the cover sand was placed and compacted in general accordance with the project plans and specifications.

2.2.8. Detention Pond

The detention pond cover system (Cover System #2) consisted of two geomembrane layers and two geocomposite drainage layers. A leak detection system was constructed between the two geomembrane layers. Based on our observations, the detention pond cover system was installed in accordance with the project plans and specifications.

2.3. West Cut Slope and Stream Channel Construction

2.3.1. West Cut Slope

We observed excavation of the west cut slope as shown on the drawings, as well as construction of the west stream channel. The west cut slope was completed as shown on the drawings. Portions of the lower slope were overexcavated to mine sand for use on the landfill. Where overexcavated, the contractor backfilled the excavation with imported structural fill consisting of silty sand with variable gravel content. The structural fill was generally placed in 12-inch-thick maximum loose lifts and compacted with a hoe-pack or steel drum roller. We evaluated the backfill by means of probing with a ½-inch-diameter steel probe rod and using a nuclear density gauge. The test results indicated that the backfill had been compacted to at least 90 percent of the MDD in accordance with ASTM D1557. Based on our observations, evaluations, and test results, the west slope backfill was placed and compacted in general accordance with the project plans and specifications.

2.3.2. Groundwater Interceptor Trench

A groundwater interceptor trench was installed along the toe of the west slope and below the west stream channel to intercept groundwater seepage emanating from the base of the west slope. The groundwater interceptor trench was installed during our site visits from September 1 to September 16, 2021. The interceptor trench consisted of an 8-inch-diameter perforated corrugated drainage pipe (ADS N-12) surrounded by approximately 12 inches of washed ¾-inch drainage rock that was wrapped in a needle-punched nonwoven geotextile.

We also observed construction of a blanket drain along a portion of the west slope adjacent to the west side of the stream channel during our site visits from August 2 to October 5, 2021. The blanket drain was constructed to intercept and convey a high groundwater flow area to the previously constructed groundwater interceptor trench. The blanket drain consisted of a 2-foot-thick layer of 2- to 4-inch quarry spalls wrapped in a needle-punched nonwoven geotextile. The west stream channel was then constructed over this portion of the blanket drain.

Based on our observations, it is our opinion that the groundwater interceptor trench and blanket drain were constructed in general accordance with our recommendations and the project drawings.

2.3.3. Backfill and Compaction

We observed and evaluated backfill that was placed along the base of the west slope and around and below the west stream channel. Backfill consisted of imported silty sand with variable gravel that was placed in approximately 12-inch-thick loose lifts before being compacted with a vibratory drum roller. We evaluated the fill by means of in-place moisture and density testing with a nuclear density gauge. Density testing indicated that the backfill had been compacted to at least 90 percent of the MDD per ASTM D 1557. Based on our observations and evaluations the backfill was placed and compacted in general accordance with the project plans and specifications.

2.3.4. Geomembrane Subgrade Preparation

We evaluated the subgrade conditions for the west stream alignment prior to placement of the geomembrane. We evaluated the subgrade by means of probing with a ½-inch diameter steel probe rod. Probe depths were typically less than 2 inches. The subgrade was also observed to be free of deleterious material that could damage the geomembrane. Based on our observations, the subgrade was prepared in general accordance with the project plans and specifications.

2.3.5. Geomembrane Installation

GeoEngineers observed installation of the west stream channel geomembrane and seaming of the geomembrane panels. The geomembrane consisted of Solmax 40-mil LLDPE double-sided textured geomembrane. The installation subcontractor typically seamed the panels together using fusion welding (double-wedge welding) equipment set at a speed of 6.5 feet per minute. Some shorter panels were seamed using extrusion welds. Extrusion welds were also used to patch three-way intersections, observed geomembrane damaged areas, and failed fusion welds.

Prior to production welding, geomembrane fusion and extrusion welded seams were tested for peel and shear (tensile) per the Go East Landfill Closure Plan and the Solmax quality assurance control manual (Section 7.0) by preparing test seams on geomembrane fragments. Coupons were tested in the field using

a calibrated tensiometer. Test seam samples passed for FTB and in shear prior to beginning production welding. Air pressure testing (non-destructive) was performed on fusion welded seams, while extrusion welds were used for all other seaming including where damaged was observed in the geomembrane, at three-way panel intersections, for failed fusion welded seams, and around penetrations through the geomembrane.

Based on our observations, and observed testing of geomembrane seams and test samples, it is our opinion that the geomembrane installation was completed in general accordance with the project plans and specifications, and the manufacturer requirements.

2.3.6. Anchor Trench Excavation and Backfill

We observed excavation of the anchor trenches prior to installation of the geomembrane and approved the subgrade conditions prior to deployment of the geomembrane. After installation of the geomembrane, we observed placement of backfill in the anchor trenches during our site visits from September 20, 2021 through February 17, 2022. Backfill was placed in 12-inch loose lifts and compacted with an excavator mounted vibratory plate. Density testing indicated that the fill had been compacted to at least 95 percent of the MDD as determined by ASTM D 1557. Based on our observations, evaluations, and test results, it is our opinion that the anchor trenches were prepared and then backfilled in general accordance with the project plans and specifications.

2.3.7. Cover Sand Placement

We observed placement and compaction of at least 12 inches of sand over the geomembrane along the stream channel. The sand was placed in one lift before being compacted with a vibratory plate mounted to an excavator. Based on our observations, the cover sand was placed in general accordance with the project plans and specifications.

2.4. Northeast Slope - Rock Fill Buttress and Spring Box

2.4.1. Buttress Rock Fill

As shown on the drawings, a rock fill buttress was constructed along the base of the northeast slope. The subgrade was prepared by cutting vegetation down to the existing topsoil surface and by removing large woody debris, brush, down trees, and stumps. After the vegetation and debris was removed, we observed and approved the subgrade conditions prior to placement of the needle-punched nonwoven geotextile separator across the exposed subgrade surface. Rock fill consisting of 4- to 8-inch quarry spalls were then placed on the geotextile to construct the buttress fill. The rock fill was compacted with the back of the excavator mounted bucket. Based on our observations, the northeast slope buttress rock fill was constructed in general accordance with the project plans and specifications.

2.4.2. Groundwater Seepage Collection and Spring Box Installation

In accordance with the project plans, a spring box was constructed near the east end of the gravel working pad at the base of the northeast slope. In order to collect and convey groundwater seepage that was emanating from the base of the northeast slope towards the spring box, a geosynthetic clay liner (GCL) was installed. The GCL consisted of bentonite clay sandwiched between two needle-punched nonwoven geotextiles (Solmax Bentoliner, 0.75 lbs/ft^2). The subgrade was first prepared by forming a channel to convey the groundwater seepage towards the spring box. Approximately 6 inches of ⅝-inch clean crushed

gravel was placed on the exposed subgrade. The GCL was then installed on the constructed channel. GCL panels were overlapped at least 6 inches and panels were seamed together using bentonite placed between the overlaps. The GCL was also adhered to the back of the spring box using bentonite. Once the GCL was installed, it was covered with about 12 inches of the ⅝-inch clean crushed gravel prior to placing additional 4- to 8-inch quarry spalls to construct the remaining working pad and to finished construction of the buttress fill. Based on our observations, the spring box and GCL were constructed in general accordance with the project plans and specifications, and our recommendations.

2.5. Deep Dynamic Compaction

Deep dynamic compaction was completed at the location of the future detention ponds. The deep dynamic compaction was completed to reduce potential long-term settlement under the future detention ponds by compacting landfill debris beneath the ponds. The deep dynamic compaction process consisted of 297 drop point locations spaced at 12-feet on-center in an equilateral triangle spacing within in the detention pond footprint. A track-mounted crane (Liebherr HS 885 HD) with a 25-ton 6-foot-high by 8-foot-diameter tamper was used to complete the dynamic compaction. The deep dynamic compaction was performed by raising the 25-ton tamper to a height of 40 feet above the working pad (1-foot-thick quarry spalls) and dropping it at the specified drop point location. The tamper was dropped at each drop point location at least four times. Compaction of the drop point craters generally decreased significantly on the final two drops, indicating the material beneath it was compacting as planned. Crater depths typically ranged from 3 to 6 feet deep and were based on observations during the compaction process and were estimated to the nearest quarter foot.

Based on our observations of the deep dynamic compaction process completed for the project, the dynamic compaction program was completed in accordance with the intent of our recommendations and the approve project plans and specifications. A letter summarizing the results of our observations during the deep dynamic compaction program is included in Appendix C.

2.6. Vibration Monitoring

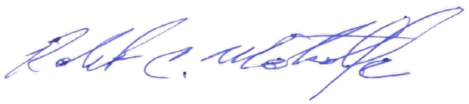
Vibration monitoring equipment was installed at two locations along the north and northwest property lines. Vibration monitoring station M1 was installed adjacent to Lot 64 and vibration monitoring station M2 was installed adjacent to Lot 23. Vibrations were monitored from March 29 to May 17, 2021. The primary purpose of the vibration monitoring program was to measure vibrations to assess potential impacts from deep dynamic compaction activities on the nearby residences located closest to where deep dynamic compaction was planned. Measured vibrations during construction were below the range of vibrations that adversely impact residential buildings. In addition, deep dynamic compaction activities in the detention pond area did not produce any vibrations that were detected at the monitoring stations. Our letter summarizing the vibration monitoring program is included in Appendix D.

3.0 CONCLUSIONS

Based on our observations, evaluations and testing completed for the project, we conclude that the work discussed herein for the Go East Landfill Closure project has been completed in general accordance with the project documents and the requirements of the Snohomish County Planning and Development Services approved project plans, dated June 23, 2021.

In accordance with the project CQA Plan, the undersigned professional engineer states that:

A designated representative under the supervision of a licensed professional engineer was present during construction to observe construction activities, and that person has reviewed the results of the field testing of materials, and to the best of the persons knowledge, and belief, the Go East Landfill Closure was constructed in general accordance with the approved construction documents and the materials used in construction were in general conformance with the specifications. Based on the forgoing, the project can begin post-closure requirements.



Robert C. Metcalfe, PE, LEG
Principal Geotechnical Engineer

APPENDICES

GeoEngineers

APPENDIX A
Field Reports (GeoEngineers)

Field reports are provided in Appendix F of the Construction Quality Assurance Report (PACE Engineers, July 1, 2022).

APPENDIX B
Seam Testing Results (TRI Environmental)

February 16, 2022

GAI-LAP
Initial: CVZ #:0.13
DATE: 02/16/2022

Colton McInelly
Geo Engineers
17425 NE Union Hill Road, Ste 250
Redmond, WA 98052

Re: FINAL LABORATORY TEST REPORT

Dear Mr. McInelly:

Thank you for consulting TRI California for your material testing needs.

Enclosed is the ***final*** laboratory report for the Seam testing of twenty-two (22) LLDPE seam samples.

PROJECT NAME: Go East Landfill

DATE REPORTED: **February 11, 2022-** Original reported
February 16, 2022- Updated to correct specs.

REFERENCE TRI JOB NO.: CA220118

DATE RECEIVED: February 11, 2022

SAMPLES SENT BY: Geo Engineers

SAMPLE IDENTIFICATIONS:

SAMPLE ID	*TRI-CA CONTROL NUMBER*	*SAMPLE ID*	*TRI-CA CONTROL NUMBER*
DS-1 P2/ P3	161623	DS-12 P87/ P88	161634
DS-2 P4/ P5	161624	DS-13 P95/ P96	161635
DS-3 P8/ P9	161625	DS-14 P49/ P107	161636
DS-4 P8/ P13	161626	DS-15 S19/ S20	161637
DS-5 P35/ P36	161627	DS-16 S24/ S26	161638
DS-6 P40 P41	161628	DS-17 S39/ S40	161639
DS-7 P46/ P47	161629	DS-18 P84/ P112	161640
DS-8 P61/ P65	161630	DS-19 P123/ P127	161641
DS-9 P68/ P69	161631	DS-20 P128/ P129	161642
DS-10 P76/ P77	161632	DS-24 P146/ P150	161643
DS-11 P79/ P80	161633	DS-25 P158/ P159	161644

TESTS REQUIRED / PERFORMED:

TEST METHOD	*DESCRIPTION*
1. ASTM D6392	Shear Bond Strength
2. ASTM D6392	Peel Bond Adhesion

TEST RESULTS: The test results are summarized in the attached Table 1 to 11.

Note: The general conditioning and testing of the material samples identified in this report were performed within the range of the laboratory environmental conditions; i.e., 20-24°C and 45-65% RH. Otherwise, the actual environmental conditions are indicated in the respective test method reported.

Respectfully,
TRI Environmental, Inc. - California

Maria Espitia
Quality Assurance

Chad Blackwell
TRI-CA Director

Signatures are on file

12 Pages Total *(including this sheet)*

TABLE 1.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: **GeoEngineers**
PROJECT: **Go East Landfill Closure**
DATE REC'D: **11-Feb-22**

MATERIAL: **40mil LLDPE SEAM**
SEAM TYPE: **Fusion Weld**
TRI JOB #: **CA220118**

QC'd By: Maria Capitia
TEST METHOD: ASTM D6392
DATE REPORT: 16-Feb-22

Crosshead Speed: 20 in/min		SHEAR EVALUATION				Crosshead Speed: 20 in/min	PEEL EVALUATION			
SAMPLE ID	TRI CONTROL #	MAXIMUM STRENGTH (lb/in width)	Elongation Run up to	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC. (lb/in width)
DS- 1	**161623**	134	>50%	SE1		1 Outside	123	0	SE1	
P2/ P3		134	>50%	SE1		2 Outside	132	0	SE1	
		135	>50%	SE1		3 Outside	124	0	SE1	
		131	>50%	SE1		4 Outside	99	0	SE1	
		134	>50%	SE1		5 Outside	111	0	SE1	
						AVG:	**118**			50
						STD. DEV.	**13**			
						1 Inside	114	0	SE1	
						2 Inside	124	0	SE1	
						3 Inside	127	0	SE1	
						4 Inside	107	0	SE1	
						5 Inside	107	0	SE1	
	AVG.	**134**			60	**AVG:**	**116**			50
	STD. DEV.	**2**				STD. DEV.	**9**			
DS- 2	**161624**	134	>50%	SE1		1 Outside	102	0	SE1	
P4/ P5		139	>50%	SE1		2 Outside	112	0	SE1	
		135	>50%	SE1		3 Outside	103	0	SE1	
		134	>50%	SE1		4 Outside	111	0	SE1	
		133	>50%	SE1		5 Outside	114	0	SE1	
						AVG:	**109**			50
						STD. DEV.	**5**			
						1 Inside	105	0	SE1	
						2 Inside	114	0	SE1	
						3 Inside	106	0	SE1	
						4 Inside	122	0	SE1	
						5 Inside	124	0	SE1	
	AVG:	**135**			60	**AVG:**	**114**			50
	STD. DEV.	**2**				STD. DEV.	**9**			

BREAK DESCRIPTION (ASTM D6392 FUSION):

AD	ADHESION FAILURE.
BRK	BREAK IN SHEETING.
SE1	BREAK AT OUTER EDGE OF SEAM.
SE2	BREAK AT INNER EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
SIP	SEPARATION IN THE PLANE OF THE SHEET.

EXTRUSION:

AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
AD2	ADHESION FAILURE.
AD-WLD	BREAK THROUGH THE FILLET.
SE1	BREAK AT BOTTOM EDGE OF SEAM.
SE2	BREAK AT TOP EDGE OF SEAM.
SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
BRK1	BREAK IN BOTTOM SHEETING.
BRK2	BREAK IN TOP SHEETING.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
HT	BREAK AT EDGE OF HOT TACK
SIP	SEPARATION IN THE PLANE OF THE SHEET.

(End of Table 1)

TABLE 2.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: **GeoEngineers**
PROJECT: **Go East Landfill Closure**
DATE REC'D: **11-Feb-22**

MATERIAL: **40mil LLDPE SEAM**
SEAM TYPE: **Fusion Weld**
TRI JOB #: **CA220118**

QC'd By: Maria Cipitia
TEST METHOD: ASTM D6392
DATE REPORT: 16-Feb-22

Crosshead Speed: 20 in/min		SHEAR EVALUATION				Crosshead Speed: 20 in/min	PEEL EVALUATION			
SAMPLE ID	TRI CONTROL #	MAXIMUM STRENGTH (lb/in width)	Elongation Run up to	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC. (lb/in width)
DS- 3	**161625**	131	>50%	SE1		1 Outside	90	0	SE1	
P8/ P9		131	>50%	SE1		2 Outside	97	0	SE1	
		130	>50%	SE1		3 Outside	110	0	SE1	
		129	>50%	SE1		4 Outside	109	0	SE1	
		131	>50%	SE1		5 Outside	111	0	SE1	
						AVG:	**103**			50
						STD. DEV.	**9**			
						1 Inside	95	0	SE1	
						2 Inside	108	0	SE1	
						3 Inside	113	0	SE1	
						4 Inside	112	0	SE1	
						5 Inside	110	0	SE1	
	AVG.	**130**			60	**AVG:**	**108**			50
	STD. DEV.	**1**				STD. DEV.	**7**			
DS- 4	**161626**	132	>50%	SE1		1 Outside	119	0	SE1	
P8/ P13		136	>50%	SE1		2 Outside	117	0	SE1	
		134	>50%	SE1		3 Outside	101	0	SE1	
		134	>50%	SE1		4 Outside	110	0	SE1	
		135	>50%	SE1		5 Outside	100	0	SE1	
						AVG:	**109**			50
						STD. DEV.	**9**			
						1 Inside	103	0	SE1	
						2 Inside	119	0	SE1	
						3 Inside	108	0	SE1	
						4 Inside	106	0	SE1	
						5 Inside	100	0	SE1	
	AVG:	**134**			60	**AVG:**	**107**			50
	STD. DEV.	**1**				STD. DEV.	**7**			

BREAK DESCRIPTION (ASTM D6392 FUSION):

AD	ADHESION FAILURE.
BRK	BREAK IN SHEETING.
SE1	BREAK AT OUTER EDGE OF SEAM.
SE2	BREAK AT INNER EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
SIP	SEPARATION IN THE PLANE OF THE SHEET.

EXTRUSION:

AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
AD2	ADHESION FAILURE.
AD-WLD	BREAK THROUGH THE FILLET.
SE1	BREAK AT BOTTOM EDGE OF SEAM.
SE2	BREAK AT TOP EDGE OF SEAM.
SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
BRK1	BREAK IN BOTTOM SHEETING.
BRK2	BREAK IN TOP SHEETING.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
HT	BREAK AT EDGE OF HOT TACK
SIP	SEPARATION IN THE PLANE OF THE SHEET.

(End of Table 2)

TABLE 3.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: **GeoEngineers**
PROJECT: **Go East Landfill Closure**
DATE REC'D: **11-Feb-22**

MATERIAL: **40mil LLDPE SEAM**
SEAM TYPE: **Fusion Weld**
TRI JOB #: **CA220118**

QC'd By: Maria Capitia
TEST METHOD: ASTM D6392
DATE REPORT: 16-Feb-22

Crosshead Speed: 20 in/min		SHEAR EVALUATION				Crosshead Speed: 20 in/min	PEEL EVALUATION			
SAMPLE ID	TRI CONTROL #	MAXIMUM STRENGTH (lb/in width)	Elongation Run up to	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC. (lb/in width)
DS- 5	**161627**	135	>50%	SE1		1 Outside	119	0	SE1	
P35/ P36		136	>50%	SE1		2 Outside	129	0	SE1	
		135	>50%	SE1		3 Outside	125	0	SE1	
		133	>50%	SE1		4 Outside	117	0	SE1	
		136	>50%	SE1		5 Outside	125	0	SE1	
						AVG:	**123**			50
						STD. DEV.	**5**			
						1 Inside	91	0	SE1	
						2 Inside	100	0	SE1	
						3 Inside	95	0	SE1	
						4 Inside	94	0	SE1	
						5 Inside	94	0	SE1	
	AVG.	**135**			60	**AVG:**	**95**			50
	STD. DEV.	**1**				STD. DEV.	**3**			
DS- 6	**161628**	133	>50%	SE1		1 Outside	116	0	SE1	
P40/ P41		133	>50%	SE1		2 Outside	112	0	SE1	
		137	>50%	SE1		3 Outside	119	0	SE1	
		133	>50%	SE1		4 Outside	118	0	SE1	
		131	>50%	SE1		5 Outside	115	0	SE1	
						AVG:	**116**			50
						STD. DEV.	**3**			
						1 Inside	117	0	SE1	
						2 Inside	105	0	SE1	
						3 Inside	102	0	SE1	
						4 Inside	105	0	SE1	
						5 Inside	103	0	SE1	
	AVG:	**133**			60	**AVG:**	**106**			50
	STD. DEV.	**2**				STD. DEV.	**6**			

BREAK DESCRIPTION (ASTM D6392 FUSION):

AD	ADHESION FAILURE.
BRK	BREAK IN SHEETING.
SE1	BREAK AT OUTER EDGE OF SEAM.
SE2	BREAK AT INNER EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
SIP	SEPARATION IN THE PLANE OF THE SHEET.

EXTRUSION:

AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
AD2	ADHESION FAILURE.
AD-WLD	BREAK THROUGH THE FILLET.
SE1	BREAK AT BOTTOM EDGE OF SEAM.
SE2	BREAK AT TOP EDGE OF SEAM.
SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
BRK1	BREAK IN BOTTOM SHEETING.
BRK2	BREAK IN TOP SHEETING.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
HT	BREAK AT EDGE OF HOT TACK
SIP	SEPARATION IN THE PLANE OF THE SHEET.

(End of Table 3)

TABLE 4.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: **GeoEngineers**
PROJECT: **Go East Landfill Closure**
DATE REC'D: **11-Feb-22**

MATERIAL: **40mil LLDPE SEAM**
SEAM TYPE: **Fusion Weld**
TRI JOB #: **CA220118**

QC'd By: Maria Capitia
TEST METHOD: ASTM D6392
DATE REPORT: 16-Feb-22

Crosshead Speed: 20 in/min		SHEAR EVALUATION				Crosshead Speed: 20 in/min	PEEL EVALUATION			
SAMPLE ID	TRI CONTROL #	MAXIMUM STRENGTH (lb/in width)	Elongation Run up to	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC. (lb/in width)
DS- 7	**161629**	138	>50%	SE1		1 Outside	113	0	SE1	
P46/ P47		138	>50%	SE1		2 Outside	101	0	SE1	
		137	>50%	SE1		3 Outside	109	0	SE1	
		138	>50%	SE1		4 Outside	91	0	SE1	
		137	>50%	SE1		5 Outside	103	0	SE1	
						AVG:	**103**			50
						STD. DEV.	**8**			
						1 Inside	103	0	SE1	
						2 Inside	104	0	SE1	
						3 Inside	107	0	SE1	
						4 Inside	103	0	SE1	
						5 Inside	108	0	SE1	
	AVG.	**138**			60	**AVG:**	**105**			50
	STD. DEV.	**1**				STD. DEV.	**2**			
DS- 8	**161630**	138	>50%	SE1		1 Outside	107	0	SE1	
P61/ P65		141	>50%	SE1		2 Outside	103	0	SE1	
		141	>50%	SE1		3 Outside	99	0	SE1	
		142	>50%	SE1		4 Outside	97	0	SE1	
		138	>50%	SE1		5 Outside	104	0	SE1	
						AVG:	**102**			50
						STD. DEV.	**4**			
						1 Inside	100	0	SE1	
						2 Inside	104	0	SE1	
						3 Inside	116	0	SE1	
						4 Inside	94	0	SE1	
						5 Inside	107	0	SE1	
	AVG:	**140**			60	**AVG:**	**104**			50
	STD. DEV.	**2**				STD. DEV.	**8**			

BREAK DESCRIPTION (ASTM D6392 FUSION):

AD	ADHESION FAILURE.
BRK	BREAK IN SHEETING.
SE1	BREAK AT OUTER EDGE OF SEAM.
SE2	BREAK AT INNER EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
SIP	SEPARATION IN THE PLANE OF THE SHEET.

EXTRUSION:

AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
AD2	ADHESION FAILURE.
AD-WLD	BREAK THROUGH THE FILLET.
SE1	BREAK AT BOTTOM EDGE OF SEAM.
SE2	BREAK AT TOP EDGE OF SEAM.
SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
BRK1	BREAK IN BOTTOM SHEETING.
BRK2	BREAK IN TOP SHEETING.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
HT	BREAK AT EDGE OF HOT TACK
SIP	SEPARATION IN THE PLANE OF THE SHEET.

(End of Table 4)

TABLE 5.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: **GeoEngineers**
PROJECT: **Go East Landfill Closure**
DATE REC'D: **11-Feb-22**

MATERIAL: **40mil LLDPE SEAM**
SEAM TYPE: **Fusion Weld**
TRI JOB #: **CA220118**

QC'd By: Maria Espitia
TEST METHOD: ASTM D6392
DATE REPORT: 16-Feb-22

Crosshead Speed: 20 in/min		SHEAR EVALUATION				Crosshead Speed: 20 in/min	PEEL EVALUATION			
SAMPLE ID	TRI CONTROL #	MAXIMUM STRENGTH (lb/in width)	Elongation Run up to	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC. (lb/in width)
DS- 9	**161631**	132	>50%	SE1		1 Outside	108	0	SE1	
P68/ P69		135	>50%	SE1		2 Outside	100	0	SE1	
		134	>50%	SE1		3 Outside	108	0	SE1	
		137	>50%	SE1		4 Outside	104	0	SE1	
		136	>50%	SE1		5 Outside	108	0	SE1	
						AVG:	**106**			50
						STD. DEV.	**4**			
						1 Inside	111	0	SE1	
						2 Inside	108	0	SE1	
						3 Inside	112	0	SE1	
						4 Inside	109	0	SE1	
						5 Inside	111	0	SE1	
	AVG.	**135**			60	**AVG:**	**110**			50
	STD. DEV.	**2**				STD. DEV.	**2**			
DS- 10	**161632**	142	>50%	SE1		1 Outside	110	0	SE1	
P76/ P77		139	>50%	SE1		2 Outside	114	0	SE1	
		140	>50%	SE1		3 Outside	126	0	SE1	
		141	>50%	SE1		4 Outside	127	0	SE1	
		140	>50%	SE1		5 Outside	111	0	SE1	
						AVG:	**118**			50
						STD. DEV.	**8**			
						1 Inside	105	0	SE1	
						2 Inside	102	0	SE1	
						3 Inside	104	0	SE1	
						4 Inside	102	0	SE1	
						5 Inside	106	0	SE1	
	AVG:	**140**			60	**AVG:**	**104**			50
	STD. DEV.	**1**				STD. DEV.	**2**			

BREAK DESCRIPTION (ASTM D6392 FUSION):

AD	ADHESION FAILURE.
BRK	BREAK IN SHEETING.
SE1	BREAK AT OUTER EDGE OF SEAM.
SE2	BREAK AT INNER EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
SIP	SEPARATION IN THE PLANE OF THE SHEET.

EXTRUSION:

AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
AD2	ADHESION FAILURE.
AD-WLD	BREAK THROUGH THE FILLET.
SE1	BREAK AT BOTTOM EDGE OF SEAM.
SE2	BREAK AT TOP EDGE OF SEAM.
SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
BRK1	BREAK IN BOTTOM SHEETING.
BRK2	BREAK IN TOP SHEETING.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
HT	BREAK AT EDGE OF HOT TACK
SIP	SEPARATION IN THE PLANE OF THE SHEET.

(End of Table 5)

TABLE 6.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: **GeoEngineers**
PROJECT: **Go East Landfill Closure**
DATE REC'D: **11-Feb-22**

MATERIAL: **40mil LLDPE SEAM**
SEAM TYPE: **Fusion Weld**
TRI JOB #: **CA220118**

QC'd By: Maria Capitia
TEST METHOD: ASTM D6392
DATE REPORT: 16-Feb-22

Crosshead Speed: 20 in/min		SHEAR EVALUATION				Crosshead Speed: 20 in/min	PEEL EVALUATION			
SAMPLE ID	TRI CONTROL #	MAXIMUM STRENGTH (lb/in width)	Elongation Run up to	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC. (lb/in width)
DS- 11	**161633**	132	>50%	SE1		1 Outside	112	0	SE1	
P79/ P80		126	>50%	SE1		2 Outside	107	0	SE1	
		131	>50%	SE1		3 Outside	108	0	SE1	
		129	>50%	SE1		4 Outside	116	0	SE1	
		129	>50%	SE1		5 Outside	111	0	SE1	
						AVG:	**111**			50
						STD. DEV.	**4**			
						1 Inside	103	0	SE1	
						2 Inside	97	0	SE1	
						3 Inside	92	0	SE1	
						4 Inside	93	0	SE1	
						5 Inside	101	0	SE1	
	AVG.	**130**			60	**AVG:**	**97**			50
	STD. DEV.	**2**				STD. DEV.	**5**			
DS- 12	**161634**	133	>50%	SE1		1 Outside	98	0	SE1	
P87/ P88		135	>50%	SE1		2 Outside	99	0	SE1	
		132	>50%	SE1		3 Outside	99	0	SE1	
		133	>50%	SE1		4 Outside	95	0	SE1	
		133	>50%	SE1		5 Outside	107	0	SE1	
						AVG:	**100**			50
						STD. DEV.	**4**			
						1 Inside	105	0	SE1	
						2 Inside	99	0	SE1	
						3 Inside	111	0	SE1	
						4 Inside	107	0	SE1	
						5 Inside	113	0	SE1	
	AVG:	**133**			60	**AVG:**	**107**			50
	STD. DEV.	**1**				STD. DEV.	**6**			

BREAK DESCRIPTION (ASTM D6392 FUSION):

AD	ADHESION FAILURE.
BRK	BREAK IN SHEETING.
SE1	BREAK AT OUTER EDGE OF SEAM.
SE2	BREAK AT INNER EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
SIP	SEPARATION IN THE PLANE OF THE SHEET.

EXTRUSION:

AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
AD2	ADHESION FAILURE.
AD-WLD	BREAK THROUGH THE FILLET.
SE1	BREAK AT BOTTOM EDGE OF SEAM.
SE2	BREAK AT TOP EDGE OF SEAM.
SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
BRK1	BREAK IN BOTTOM SHEETING.
BRK2	BREAK IN TOP SHEETING.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
HT	BREAK AT EDGE OF HOT TACK
SIP	SEPARATION IN THE PLANE OF THE SHEET.

(End of Table 6)

TABLE 7.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: ***GeoEngineers*** | MATERIAL: ***40mil LLDPE SEAM*** | QC'd By: Maria Cipitia
PROJECT: ***Go East Landfill Closure*** | SEAM TYPE: ***Fusion Weld*** | TEST METHOD: ASTM D6392
DATE REC'D: ***11-Feb-22*** | TRI JOB #: ***CA220118*** | DATE REPORT: 16-Feb-22

Crosshead Speed: 20 in/min		SHEAR EVALUATION				Crosshead Speed: 20 in/min	PEEL EVALUATION			
SAMPLE ID	TRI CONTROL #	MAXIMUM STRENGTH (lb/in width)	Elongation Run up to	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC. (lb/in width)
DS- 13	**161635**	134	>50%	SE1		1 Outside	104	0	SE1	
P95/ P96		133	>50%	SE1		2 Outside	107	0	SE1	
		134	>50%	SE1		3 Outside	109	0	SE1	
		133	>50%	SE1		4 Outside	104	0	SE1	
		135	>50%	SE1		5 Outside	104	0	SE1	
						AVG:	**106**			50
						STD. DEV.	**3**			
						1 Inside	105	0	SE1	
						2 Inside	89	0	SE1	
						3 Inside	100	0	SE1	
						4 Inside	105	0	SE1	
						5 Inside	92	0	SE1	
	AVG.	**134**			60	**AVG:**	**98**			50
	STD. DEV.	**1**				STD. DEV.	**7**			
DS- 14	**161636**	139	>50%	SE1		1 Outside	93	0	SE1	
P49/ P107		138	>50%	SE1		2 Outside	86	0	SE1	
		139	>50%	SE1		3 Outside	81	0	SE1	
		137	>50%	SE1		4 Outside	87	0	SE1	
		139	>50%	SE1		5 Outside	91	0	SE1	
						AVG:	**88**			50
						STD. DEV.	**5**			
						1 Inside	114	0	SE1	
						2 Inside	109	0	SE1	
						3 Inside	110	0	SE1	
						4 Inside	113	0	SE1	
						5 Inside	116	0	SE1	
	AVG:	**138**			60	**AVG:**	**112**			50
	STD. DEV.	**1**				STD. DEV.	**3**			

BREAK DESCRIPTION (ASTM D6392 FUSION):

AD	ADHESION FAILURE.
BRK	BREAK IN SHEETING.
SE1	BREAK AT OUTER EDGE OF SEAM.
SE2	BREAK AT INNER EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
SIP	SEPARATION IN THE PLANE OF THE SHEET.

EXTRUSION:

AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
AD2	ADHESION FAILURE.
AD-WLD	BREAK THROUGH THE FILLET.
SE1	BREAK AT BOTTOM EDGE OF SEAM.
SE2	BREAK AT TOP EDGE OF SEAM.
SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
BRK1	BREAK IN BOTTOM SHEETING.
BRK2	BREAK IN TOP SHEETING.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
HT	BREAK AT EDGE OF HOT TACK
SIP	SEPARATION IN THE PLANE OF THE SHEET.

(End of Table 7)

TABLE 8.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: **GeoEngineers**
PROJECT: **Go East Landfill Closure**
DATE REC'D: **11-Feb-22**

MATERIAL: **40mil LLDPE SEAM**
SEAM TYPE: **Fusion Weld**
TRI JOB #: **CA220118**

QC'd By: Maria Capitia
TEST METHOD: ASTM D6392
DATE REPORT: 16-Feb-22

Crosshead Speed: 20 in/min		SHEAR EVALUATION				Crosshead Speed: 20 in/min	PEEL EVALUATION			
SAMPLE ID	TRI CONTROL #	MAXIMUM STRENGTH (lb/in width)	Elongation Run up to	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC. (lb/in width)
DS- 15	**161637**	131	>50%	SE1		1 Outside	103	0	SE1	
S19/ S20		131	>50%	SE1		2 Outside	106	0	SE1	
		131	>50%	SE1		3 Outside	107	0	SE1	
		130	>50%	SE1		4 Outside	102	0	SE1	
		128	>50%	SE1		5 Outside	105	0	SE1	
						AVG:	**105**			50
						STD. DEV.	**2**			
						1 Inside	103	0	SE1	
						2 Inside	109	0	SE1	
						3 Inside	111	0	SE1	
						4 Inside	111	0	SE1	
						5 Inside	110	0	SE1	
	AVG.	**130**			60	**AVG:**	**109**			50
	STD. DEV.	**1**				STD. DEV.	**4**			
DS- 16	**161638**	129	>50%	SE1		1 Outside	97	0	SE1	
S24/ S26		126	>50%	SE1		2 Outside	108	0	SE1	
		127	>50%	SE1		3 Outside	105	0	SE1	
		128	>50%	SE1		4 Outside	107	0	SE1	
		129	>50%	SE1		5 Outside	96	0	SE1	
						AVG:	**103**			50
						STD. DEV.	**5**			
						1 Inside	98	0	SE1	
						2 Inside	102	0	SE1	
						3 Inside	98	0	SE1	
						4 Inside	97	0	SE1	
						5 Inside	97	0	SE1	
	AVG:	**128**			60	**AVG:**	**98**			50
	STD. DEV.	**1**				STD. DEV.	**2**			

BREAK DESCRIPTION (ASTM D6392 FUSION):

AD	ADHESION FAILURE.
BRK	BREAK IN SHEETING.
SE1	BREAK AT OUTER EDGE OF SEAM.
SE2	BREAK AT INNER EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
SIP	SEPARATION IN THE PLANE OF THE SHEET.

EXTRUSION:

AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
AD2	ADHESION FAILURE.
AD-WLD	BREAK THROUGH THE FILLET.
SE1	BREAK AT BOTTOM EDGE OF SEAM.
SE2	BREAK AT TOP EDGE OF SEAM.
SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
BRK1	BREAK IN BOTTOM SHEETING.
BRK2	BREAK IN TOP SHEETING.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
HT	BREAK AT EDGE OF HOT TACK
SIP	SEPARATION IN THE PLANE OF THE SHEET.

(End of Table 8)

TABLE 9.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: **GeoEngineers**
PROJECT: **Go East Landfill Closure**
DATE REC'D: **11-Feb-22**

MATERIAL: **40mil LLDPE SEAM**
SEAM TYPE: **Fusion Weld**
TRI JOB #: **CA220118**

QC'd By: Maria Capitia
TEST METHOD: ASTM D6392
DATE REPORT: 16-Feb-22

Crosshead Speed: 20 in/min		SHEAR EVALUATION				Crosshead Speed: 20 in/min	PEEL EVALUATION			
SAMPLE ID	TRI CONTROL #	MAXIMUM STRENGTH (lb/in width)	Elongation Run up to	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC. (lb/in width)
DS- 17	**161639**	130	>50%	SE1		1 Outside	93	0	SE1	
S39/ S40		136	>50%	SE1		2 Outside	87	0	SE1	
		129	>50%	SE1		3 Outside	81	0	SE1	
		134	>50%	SE1		4 Outside	110	0	SE1	
		134	>50%	SE1		5 Outside	97	0	SE1	
						AVG:	**94**			50
						STD. DEV.	**11**			
						1 Inside	91	0	SE1	
						2 Inside	108	0	SE1	
						3 Inside	110	0	SE1	
						4 Inside	110	0	SE1	
						5 Inside	116	0	SE1	
	AVG.	**133**			60	**AVG:**	**107**			50
	STD. DEV.	**3**				STD. DEV.	**10**			
DS- 18	**161640**	135	>50%	SE1		1 Outside	108	0	SE1	
P84/ P112		134	>50%	SE1		2 Outside	83	0	SE1	
		134	>50%	SE1		3 Outside	92	0	SE1	
		135	>50%	SE1		4 Outside	93	0	SE1	
		130	>50%	SE1		5 Outside	92	0	SE1	
						AVG:	**94**			50
						STD. DEV.	**9**			
						1 Inside	94	0	SE1	
						2 Inside	85	0	SE1	
						3 Inside	92	0	SE1	
						4 Inside	104	0	SE1	
						5 Inside	91	0	SE1	
	AVG:	**134**			60	**AVG:**	**93**			50
	STD. DEV.	**2**				STD. DEV.	**7**			

BREAK DESCRIPTION (ASTM D6392 FUSION):

AD	ADHESION FAILURE.
BRK	BREAK IN SHEETING.
SE1	BREAK AT OUTER EDGE OF SEAM.
SE2	BREAK AT INNER EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
SIP	SEPARATION IN THE PLANE OF THE SHEET.

EXTRUSION:

AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
AD2	ADHESION FAILURE.
AD-WLD	BREAK THROUGH THE FILLET.
SE1	BREAK AT BOTTOM EDGE OF SEAM.
SE2	BREAK AT TOP EDGE OF SEAM.
SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
BRK1	BREAK IN BOTTOM SHEETING.
BRK2	BREAK IN TOP SHEETING.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
HT	BREAK AT EDGE OF HOT TACK
SIP	SEPARATION IN THE PLANE OF THE SHEET.

(End of Table 9)

TABLE 10.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: **GeoEngineers**
PROJECT: **Go East Landfill Closure**
DATE REC'D: **11-Feb-22**

MATERIAL: **40mil LLDPE SEAM**
SEAM TYPE: **Fusion Weld**
TRI JOB #: **CA220118**

QC'd By: Maria Capitia
TEST METHOD: ASTM D6392
DATE REPORT: 16-Feb-22

Crosshead Speed: 20 in/min		SHEAR EVALUATION				Crosshead Speed: 20 in/min	PEEL EVALUATION			
SAMPLE ID	TRI CONTROL #	MAXIMUM STRENGTH (lb/in width)	Elongation Run up to	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC. (lb/in width)
DS- 19	**161641**	109	>50%	SE1		1 Outside	104	0	SE1	
P123/ P127		113	>50%	SE1		2 Outside	107	0	SE1	
		113	>50%	SE1		3 Outside	113	0	SE1	
		113	>50%	SE1		4 Outside	106	0	SE1	
		112	>50%	SE1		5 Outside	103	0	SE1	
						AVG:	**107**			50
						STD. DEV.	**4**			
						1 Inside	111	0	SE1	
						2 Inside	97	0	SE1	
						3 Inside	101	0	SE1	
						4 Inside	108	0	SE1	
						5 Inside	102	0	SE1	
	AVG.	**112**			60	**AVG:**	**104**			50
	STD. DEV.	**2**				STD. DEV.	**6**			
DS- 20	**161642**	135	>50%	SE1		1 Outside	114	0	SE1	
P128/ P129		133	>50%	SE1		2 Outside	115	0	SE1	
		128	>50%	SE1		3 Outside	101	0	SE1	
		128	>50%	SE1		4 Outside	115	0	SE1	
		131	>50%	SE1		5 Outside	101	0	SE1	
						AVG:	**109**			50
						STD. DEV.	**7**			
						1 Inside	113	0	SE1	
						2 Inside	114	0	SE1	
						3 Inside	98	0	SE1	
						4 Inside	108	0	SE1	
						5 Inside	107	0	SE1	
	AVG:	**131**			60	**AVG:**	**108**			50
	STD. DEV.	**3**				STD. DEV.	**6**			

BREAK DESCRIPTION (ASTM D6392 FUSION):

AD	ADHESION FAILURE.
BRK	BREAK IN SHEETING.
SE1	BREAK AT OUTER EDGE OF SEAM.
SE2	BREAK AT INNER EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
SIP	SEPARATION IN THE PLANE OF THE SHEET.

EXTRUSION:

AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
AD2	ADHESION FAILURE.
AD-WLD	BREAK THROUGH THE FILLET.
SE1	BREAK AT BOTTOM EDGE OF SEAM.
SE2	BREAK AT TOP EDGE OF SEAM.
SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
BRK1	BREAK IN BOTTOM SHEETING.
BRK2	BREAK IN TOP SHEETING.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
HT	BREAK AT EDGE OF HOT TACK
SIP	SEPARATION IN THE PLANE OF THE SHEET.

(End of Table 10)

TABLE 11.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: **GeoEngineers**
PROJECT: **Go East Landfill Closure**
DATE REC'D: **11-Feb-22**

MATERIAL: **40mil LLDPE SEAM**
SEAM TYPE: **Fusion Weld**
TRI JOB #: **CA220118**

QC'd By: Maria Capitia
TEST METHOD: ASTM D6392
DATE REPORT: 16-Feb-22

Crosshead Speed: 20 in/min		SHEAR EVALUATION				Crosshead Speed: 20 in/min	PEEL EVALUATION			
SAMPLE ID	TRI CONTROL #	MAXIMUM STRENGTH (lb/in width)	Elongation Run up to	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC. (lb/in width)
DS- 24	**161643**	133	>50%	SE1		1 Outside	104	0	SE1	
P146/ P150		132	>50%	SE1		2 Outside	116	0	SE1	
		130	>50%	SE1		3 Outside	112	0	SE1	
		132	>50%	SE1		4 Outside	109	0	SE1	
		130	>50%	SE1		5 Outside	117	0	SE1	
						AVG:	**111**			50
						STD. DEV.	**5**			
						1 Inside	106	0	SE1	
						2 Inside	115	0	SE1	
						3 Inside	115	0	SE1	
						4 Inside	106	0	SE1	
						5 Inside	105	0	SE1	
	AVG.	**131**			60	**AVG:**	**109**			50
	STD. DEV.	**1**				STD. DEV.	**5**			
DS- 25	**161644**	86	>50%	SE1		1 Outside	78	0	SE1	
P158/ P159		88	>50%	SE1		2 Outside	78	0	SE1	
		86	>50%	SE1		3 Outside	79	0	SE1	
		81	>50%	SE1		4 Outside	80	0	SE1	
		85	>50%	SE1		5 Outside	82	0	SE1	
						AVG:	**79**			50
						STD. DEV.	**2**			
						1 Inside	82	0	SE1	
						2 Inside	88	0	SE1	
						3 Inside	82	0	SE1	
						4 Inside	85	0	SE1	
						5 Inside	85	0	SE1	
	AVG:	**85**			60	**AVG:**	**84**			50
	STD. DEV.	**3**				STD. DEV.	**3**			

BREAK DESCRIPTION (ASTM D6392 FUSION):

AD	ADHESION FAILURE.
BRK	BREAK IN SHEETING.
SE1	BREAK AT OUTER EDGE OF SEAM.
SE2	BREAK AT INNER EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
SIP	SEPARATION IN THE PLANE OF THE SHEET.

EXTRUSION:

AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
AD2	ADHESION FAILURE.
AD-WLD	BREAK THROUGH THE FILLET.
SE1	BREAK AT BOTTOM EDGE OF SEAM.
SE2	BREAK AT TOP EDGE OF SEAM.
SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
BRK1	BREAK IN BOTTOM SHEETING.
BRK2	BREAK IN TOP SHEETING.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
HT	BREAK AT EDGE OF HOT TACK
SIP	SEPARATION IN THE PLANE OF THE SHEET.

(End of Table 11)

February 18, 2022

GAI-LAP
Initial: CVZ #:0.13
DATE: 02/18/2022

Colton McInelly
Geo Engineers
17425 NE Union Hill Road, Ste 250
Redmond, WA 98052

Re: FINAL LABORATORY TEST REPORT

Dear Mr. McInelly:

Thank you for consulting TRI California for your material testing needs.

Enclosed is the ***final*** laboratory report for the Seam testing of five (5) LLDPE seam samples.

PROJECT NAME: Go East Landfill DATE REPORTED: February 18, 2022

REFERENCE TRI JOB NO.: CA220150

DATE RECEIVED: February 18, 2022

SAMPLES SENT BY: Geo Engineers

SAMPLE IDENTIFICATIONS:

SAMPLE ID	*TRI-CA CONTROL NUMBER*
DS-21 P133/ P134	161754
DS-22 P135/ P136	161755
DS-23 P141/ P142	161756
DS-26 P162/ P163	161757
DS-27 P177/ P179	161758

TESTS REQUIRED / PERFORMED:

TEST METHOD	*DESCRIPTION*
1. ASTM D6392	Shear Bond Strength
2. ASTM D6392	Peel Bond Adhesion

TEST RESULTS: The test results are summarized in the attached Tables 1 to 3.

Note: The general conditioning and testing of the material samples identified in this report were performed within the range of the laboratory environmental conditions; i.e., 20-24°C and 45-65% RH. Otherwise, the actual environmental conditions are indicated in the respective test method reported.

Respectfully,

TRI Environmental, Inc. - California

Maria Espitia
Quality Assurance

Chad Blackwell
TRI-CA Director

Signatures are on file

4 Pages Total *(including this sheet)*

TABLE 1.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: **GeoEngineers**
PROJECT: **Go East Landfill Closure**
DATE REC'D: **18-Feb-22**

MATERIAL: **40mil LLDPE SEAM**
SEAM TYPE: **Fusion Weld**
TRI JOB #: **CA220150**

QC'd By: Maria Espitia
TEST METHOD: ASTM D6392
DATE REPORT: 18-Feb-22

Crosshead Speed: 20 in/min		SHEAR EVALUATION				Crosshead Speed: 20 in/min	PEEL EVALUATION			
SAMPLE ID	TRI CONTROL #	MAXIMUM STRENGTH (lb/in width)	Elongation Run up to	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC. (lb/in width)
DS- 21	**161754**	137	>50%	SE1		1 Outside	94	0	SE1	
P133/ P134		137	>50%	SE1		2 Outside	102	0	SE1	
		138	>50%	SE1		3 Outside	101	0	SE1	
		137	>50%	SE1		4 Outside	84	0	SE1	
		136	>50%	SE1		5 Outside	108	0	SE1	
						AVG:	**98**			50
						STD. DEV.	**9**			
						1 Inside	98	0	SE1	
						2 Inside	112	0	SE1	
						3 Inside	109	0	SE1	
						4 Inside	105	0	SE1	
						5 Inside	105	0	SE1	
	AVG.	**137**			60	**AVG:**	**106**			50
	STD. DEV.	**1**				STD. DEV.	**5**			
DS- 22	**161755**	137	>50%	SE1		1 Outside	108	0	SE1	
P135/ P136		139	>50%	SE1		2 Outside	105	0	SE1	
		136	>50%	SE1		3 Outside	109	0	SE1	
		141	>50%	SE1		4 Outside	114	0	SE1	
		138	>50%	SE1		5 Outside	106	0	SE1	
						AVG:	**108**			50
						STD. DEV.	**3**			
						1 Inside	104	0	SE1	
						2 Inside	111	0	SE1	
						3 Inside	102	0	SE1	
						4 Inside	119	0	SE1	
						5 Inside	103	0	SE1	
	AVG:	**138**			60	**AVG:**	**108**			50
	STD. DEV.	**2**				STD. DEV.	**7**			

BREAK DESCRIPTION (ASTM D6392 FUSION):

AD	ADHESION FAILURE.
BRK	BREAK IN SHEETING.
SE1	BREAK AT OUTER EDGE OF SEAM.
SE2	BREAK AT INNER EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
SIP	SEPARATION IN THE PLANE OF THE SHEET.

EXTRUSION:

AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
AD2	ADHESION FAILURE.
AD-WLD	BREAK THROUGH THE FILLET.
SE1	BREAK AT BOTTOM EDGE OF SEAM.
SE2	BREAK AT TOP EDGE OF SEAM.
SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
BRK1	BREAK IN BOTTOM SHEETING.
BRK2	BREAK IN TOP SHEETING.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
HT	BREAK AT EDGE OF HOT TACK
SIP	SEPARATION IN THE PLANE OF THE SHEET.

(End of Table 1)

TABLE 2.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: **GeoEngineers**
PROJECT: **Go East Landfill Closure**
DATE REC'D: **18-Feb-22**

MATERIAL: **40mil LLDPE SEAM**
SEAM TYPE: **Fusion Weld**
TRI JOB #: **CA220150**

QC'd By: Maria Espitia
TEST METHOD: ASTM D6392
DATE REPORT: 18-Feb-22

Crosshead Speed: 20 in/min						Crosshead Speed: 20 in/min				
		SHEAR EVALUATION				PEEL EVALUATION				
SAMPLE ID	TRI CONTROL #	MAXIMUM STRENGTH (lb/in width)	Elongation Run up to	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC. (lb/in width)
DS- 23	**161756**	141	>50%	SE1		1 Outside	102	0	SE1	
P141/ P142		141	>50%	SE1		2 Outside	97	0	SE1	
		138	>50%	SE1		3 Outside	113	0	SE1	
		141	>50%	SE1		4 Outside	115	0	SE1	
		140	>50%	SE1		5 Outside	106	0	SE1	
						AVG:	**107**			50
						STD. DEV.	**8**			
						1 Inside	115	0	SE1	
						2 Inside	105	0	SE1	
						3 Inside	112	0	SE1	
						4 Inside	119	0	SE1	
						5 Inside	116	0	SE1	
	AVG.	**140**			60	**AVG:**	**113**			50
	STD. DEV.	**1**				STD. DEV.	**5**			
DS- 26	**161757**	94	>50%	SE1		1 Outside	75	0	SE1	
P162/ P163		95	>50%	SE1		2 Outside	81	0	SE1	
		93	>50%	SE1		3 Outside	80	0	SE1	
		93	>50%	SE1		4 Outside	77	0	SE1	
		94	>50%	SE1		5 Outside	80	0	SE1	
						AVG:	**79**			50
						STD. DEV.	**3**			
						1 Inside	79	0	SE1	
						2 Inside	82	0	SE1	
						3 Inside	78	0	SE1	
						4 Inside	83	0	SE1	
						5 Inside	79	0	SE1	
	AVG:	**94**			60	**AVG:**	**80**			50
	STD. DEV.	**1**				STD. DEV.	**2**			

BREAK DESCRIPTION (ASTM D6392 FUSION):

AD	ADHESION FAILURE.
BRK	BREAK IN SHEETING.
SE1	BREAK AT OUTER EDGE OF SEAM.
SE2	BREAK AT INNER EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
SIP	SEPARATION IN THE PLANE OF THE SHEET.

EXTRUSION:

AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
AD2	ADHESION FAILURE.
AD-WLD	BREAK THROUGH THE FILLET.
SE1	BREAK AT BOTTOM EDGE OF SEAM.
SE2	BREAK AT TOP EDGE OF SEAM.
SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
BRK1	BREAK IN BOTTOM SHEETING.
BRK2	BREAK IN TOP SHEETING.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
HT	BREAK AT EDGE OF HOT TACK
SIP	SEPARATION IN THE PLANE OF THE SHEET.

(End of Table 2)

TABLE 3.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: **GeoEngineers**
PROJECT: **Go East Landfill Closure**
DATE REC'D: **18-Feb-22**

MATERIAL: **40mil LLDPE SEAM**
SEAM TYPE: **Fusion Weld**
TRI JOB #: **CA220150**

QC'd By: Maria Espitia
TEST METHOD: ASTM D6392
DATE REPORT: 18-Feb-22

Crosshead Speed: 20 in/min		SHEAR EVALUATION				Crosshead Speed: 20 in/min	PEEL EVALUATION			
SAMPLE ID	TRI CONTROL #	MAXIMUM STRENGTH (lb/in width)	Elongation Run up to	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC. (lb/in width)
DS- 27	**161758**	107	>50%	SE1		1 Outside	70	0	SE1	
P177/ P179		106	>50%	SE1		2 Outside	73	0	SE1	
		100	>50%	SE1		3 Outside	82	0	SE1	
		106	>50%	SE1		4 Outside	83	0	SE1	
		102	>50%	SE1		5 Outside	84	0	SE1	
						AVG:	**79**			50
						STD. DEV.	**7**			
						1 Inside	75	0	SE1	
						2 Inside	83	0	SE1	
						3 Inside	53	0	SE1	
						4 Inside	87	0	SE1	
						5 Inside	69	0	SE1	
	AVG.	**104**			60	**AVG:**	**74**			50
	STD. DEV.	**3**				STD. DEV.	**13**			

BREAK DESCRIPTION (ASTM D6392 FUSION):

AD	ADHESION FAILURE.
BRK	BREAK IN SHEETING.
SE1	BREAK AT OUTER EDGE OF SEAM.
SE2	BREAK AT INNER EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
SIP	SEPARATION IN THE PLANE OF THE SHEET.

EXTRUSION:

AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
AD2	ADHESION FAILURE.
AD-WLD	BREAK THROUGH THE FILLET.
SE1	BREAK AT BOTTOM EDGE OF SEAM.
SE2	BREAK AT TOP EDGE OF SEAM.
SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
BRK1	BREAK IN BOTTOM SHEETING.
BRK2	BREAK IN TOP SHEETING.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
HT	BREAK AT EDGE OF HOT TACK
SIP	SEPARATION IN THE PLANE OF THE SHEET.

(End of Table 3)

APPENDIX C
Dynamic Compaction Summary Letter

GeoEngineers
17425 NE Union Hill Road, Suite 250
Redmond, Washington 98052
425.861.6000

February 11, 2022

PACE Engineers, Inc.
11255 Kirkland Way, Suite 300
Kirkland, Washington 98033

Attention: Marty Penhallegon

Subject: Summary Letter
Deep Dynamic Compaction Construction Observation
Go East Landfill Closure
Snohomish County, Washington
File No. 6694-002-02

This letter presents a summary of Geoengineers' construction observation services during deep dynamic compaction activities for the Go East Landfill Closure (LDA #1) project located in Snohomish County, Washington. The projects consist of the closure of the Go East Landfill by consolidating approximately 45,000 cubic yards of landfill material prior to capping the landfill footprint and constructing a development around the closed landfill. Deep dynamic compaction was completed at the location of the future detention ponds. The deep dynamic compaction was completed to reduce potential long-term settlement under the future detention ponds by compacting landfill debris beneath the ponds.

OBSERVATIONS

GeoEngineers visited the site on a full-time basis on three occasions between April 21 and April 23, 2021 to observe the deep dynamic compaction activities. Detailed reports of our construction observation services are presented in our daily field reports for the project, numbers GT-003 (Revised) through GT-005 (Revised). Copies of these field reports were provided to PACE Engineers, AERO Construction, Snohomish County and others during construction. The field reports are provided in Appendix A.

The deep dynamic compaction process consisted of 297 drop point locations spaced at 12-feet on-center in an equilateral triangle spacing within in the detention pond footprint. A track-mounted crane (Liebherr HS 885 HD) with a 25-ton 6-foot-high by 8-foot-diameter tamper was used to complete the dynamic compaction.

The deep dynamic compaction was performed by raising the 25-ton tamper to a height of 40 feet above the working pad (1-foot-thick quarry spalls) and dropping it at the specified drop point location. The tamper was dropped at each drop point location at least four times. Compaction of the drop point craters generally decreased significantly on the final two drops, indicating the material beneath it was compacting as

planned. Crater depths typically ranged from 3 to 6 feet deep and were based on observations during the compaction process and were estimated to the nearest quarter foot. Additional drops were added at drop point locations where the craters did not significantly decrease in depth on the final two drops.

CONCLUSIONS

Based on our observations of the deep dynamic compaction process completed for the project, we conclude that the work discussed herein for the Go East Landfill Closure (LDA #1) project has been completed in accordance with the intent of our recommendations and the approve project plans and specifications.

We trust this letter meets your current needs. Please call if you have any questions regarding this letter.

Respectfully submitted,
GeoEngineers, Inc.

Colton W. McInelly, PE
Geotechnical Engineer

Robert C. Metcalfe, PE, LEG
Principal

CWM:RCM:nld

Attachments:

Appendix A. Deep Dynamic Compaction Field Reports GT-003 (revised), GT-004 (revised), GT-005 (revised)

APPENDIX A
Deep Dynamic Compaction Field Reports

GeoEngineers	Geotechnical Field Report		File Number: 6694-002-02
17425 NE Union Hill Road, Suite 250 Redmond, WA 98052 425.861.6000	Project: Go East Landfill Closure – LDA #1		Date: 4/21/2021
	Owner: P&GE, LLC	Time of Arrival: 1000	Report Number: GT-003 (Revised)
Prepared by: James Eng	Location: 4330 108th Street SE, Everett, WA	Time of Departure: 1500	Page: 1 of 4
Purpose of visit: Dynamic Compaction Monitoring	Weather: Sunny; 70s °F	Travel Time: ~1.5 hrs.	Permit Number: 20-118246 LDA

Upon arrival to the site I assessed personal safety hazards: ☒ Yes or ☐ Referred to Site Safety Plan and Safety Tailgate if applicable

Safety Hazards Were Addressed by : ☒ Staying Alert to Construction and Equipment Hazards ☒ Other (describe): PPE

A site visit was made today to observe deep dynamic compaction activities at the Go East Landfill Closure – LDA #1 project located at 4330 108th Street SE in Everett, Washington. During the site visit we met with representatives of the general contractor (Aero Construction) and the deep dynamic compaction contractor (Malcolm). Colton McInelly (GeoEngineers) was also on site today. The following is a summary of our observations:

Deep Dynamic Compaction

The deep dynamic compaction (DDC) contractor (Malcolm) completed 51 drop points in the northeast area of the detention pond today (see attached site plan). The contractor used a track-mounted crane (Liebherr HS 885 HD) with a 25-ton, 6-foot-high by 8-foot-diameter tamper to complete the dynamic compaction.

Dynamic compaction at northeast end of detention pond. Looking east.

Offset survey hubs were located along the east and west ends of each drop point row. The contractor ran a string between the two survey hubs and measured off them to determine the location of each drop point. The drop points were spaced at 12 feet on center in an equilateral triangular spacing, as specified in the plans and specifications.

The deep dynamic compaction was performed by raising the 25-ton tamper to a height of 40 feet above the working pad (1-foot-thick quarry spalls) and dropping it at the specified drop point. The tamper was dropped at each drop point location at least 4 times as summarized in the table below. Compaction of the drop point craters generally decreased significantly on the final two drops, indicating that the material beneath it was compacting to the extent possible. Crater depths ranged from 3 to 4.5 feet deep. These were based on visual estimates during the compaction process and are estimated to the nearest quarter foot.

The table below summarizes the deep dynamic compaction completed today.

☐ **THIS FIELD REPORT IS PRELIMINARY** A preliminary report is provided solely as evidence that field observation was performed. Observations and/or conclusions and/or recommendations conveyed in the final report may vary from and shall take precedence over those indicated in a preliminary report.	**FIELD REPRESENTATIVE** James Y. Eng	**DATE** 4/21/21
☑ **THIS FIELD REPORT IS FINAL** A final report is an instrument of professional service. Any conclusions drawn from this report should be discussed with and evaluated by the professional involved.	**REVIEWED BY** Colton W. McInelly, PE	**DATE** 5/4/21

Attachment: Site Plan

Distribution: PACE Engineers, AERO Construction, Malcolm, Snohomish County, File

Drop Point ID	Number of Drops	Crater Depth (ft)	Crater Depth After Each Drop (ft)	Comments
1	4	3	1.5, 2.5, 3, 3	
2	4	3	1.5, 2.5, 3, 3	
3	4	3.5	2, 3, 3.5, 3.5	
4	4	3.5	1.5, 3, 3.5, 3.5	
5	4	3.5	1.5, 2.5, 3.5, 3.5	
6	4	3.5	1.5, 3, 3.25, 3.5	
7	4	3.5	2, 3, 3.5, 3.5	
8	4	3	1.5, 3, 3, 3	
9	4	3.5	1.5, 2.5, 3.25, 3.5	
10	4	3	1.5, 2.5, 3, 3	
11	4	3	2, 2.5, 3, 3	
12	4	3	1.5, 3, 3, 3	
13	4	3	1.5, 2, 3, 3	
14	4	3	1, 2, 3, 3	
15	4	3	1, 2.5, 3, 3	
16	4	3.5	2, 3, 3.5, 3.5	
17	4	3	2, 2.5, 3, 3	
18	4	3.5	1.5, 3, 3.5, 3.5	
19	4	3	2, 2.5, 3, 3	
20	4	3	1.5, 3, 3, 3	
21	4	3	1.5, 2.5, 3, 3	
22	4	3	1, 2, 3, 3	
23	4	3	1.5, 3, 3, 3	
24	4	3.5	2, 3, 3.5, 3	
25	4	3	2, 2.5, 3, 3	
26	4	3.5	1.5, 3, 3.5, 3.5	
27	4	3.5	1.5, 2.5, 3.25, 3.5	
28	4	3.5	1.25, 2.75, 3.5, 3.5	
29	4	3.5	1.5, 3, 3.5, 3.5	
30	4	3.5	2, 3, 3.5, 3.5	
31	4	3.5	1.5, 3, 3.5, 3.5	
32	4	3.5	1.5, 2.5, 3.25, 3.5	
33	4	3	2, 3, 3, 3	
34	4	3	1.5, 2.5, 3, 3	
35	4	3	1.5, 3, 3, 3	
36	4	3	1, 2, 3, 3	
37	4	3	1.5, 2.5, 3, 3	
38	4	4	1.5, 3, 3.75, 4	Potential extra drop needed
39	4	4	2, 3.5, 3.75, 4	Potential extra drop needed
40	4	3.5	1.5, 3, 3.5, 3.5	
41	4	4.5	1.5, 3, 4, 4.5	Potential extra drop needed
42	4	4	1.5, 3.5, 4, 4	
43	4	3	1.5, 2.5, 3, 3	
44	4	3.5	2, 2.5, 3.5, 3.5	
45	4	3.5	1.5, 3, 3.5, 3.5	
46	4	3.5	1.5, 2.5, 3.5, 3.5	
47	4	3	1.5, 3, 3, 3	
48	4	3	1.5, 2.5, 3, 3	
49	4	3	1.5, 3, 3, 3	
50	4	3	1.5, 2, 3, 3	

Drop Point ID	Number of Drops	Crater Depth (ft)	Crater Depth After Each Drop (ft)	Comments
51	4	3	1.5, 2.5, 3, 3	

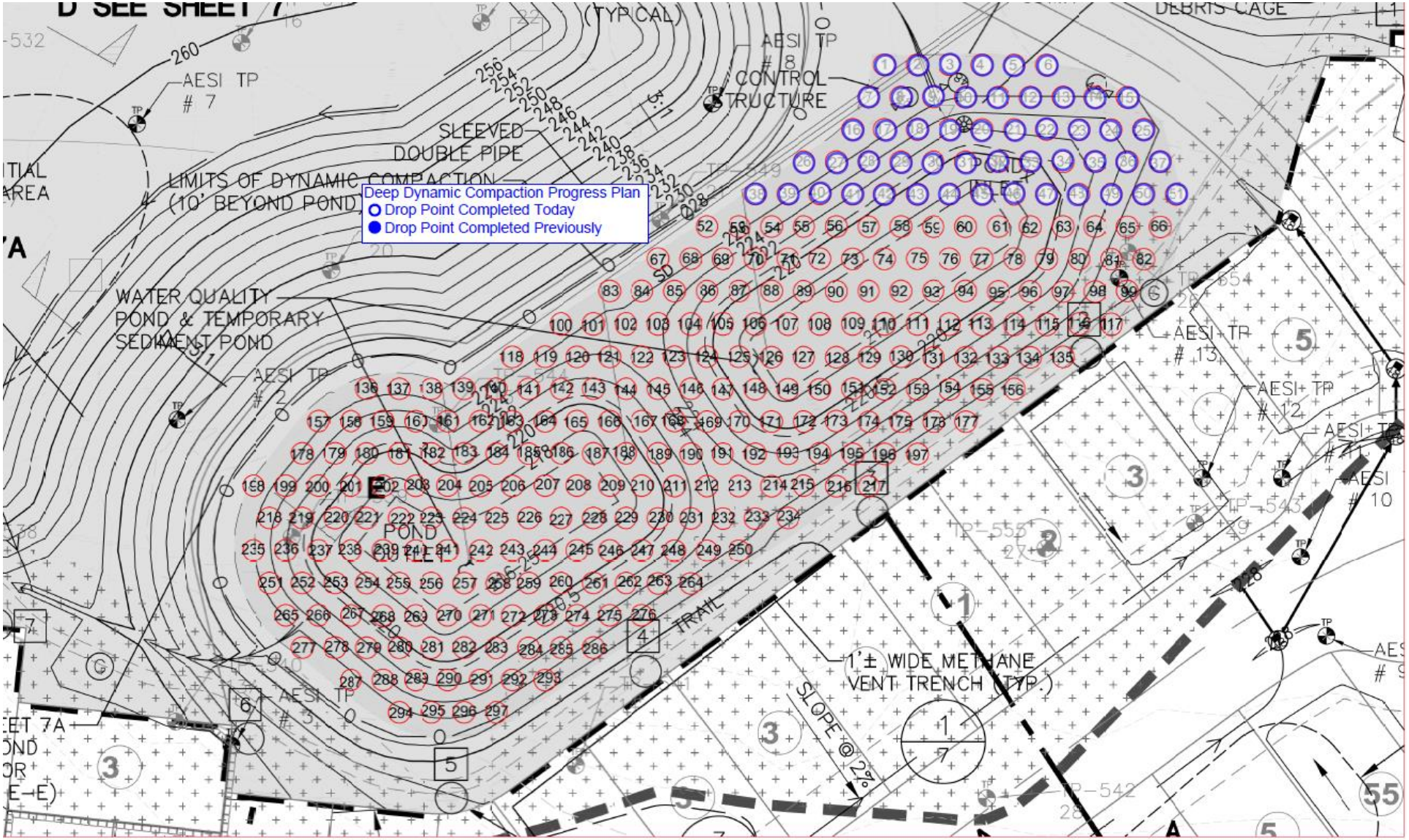
Based on our observations, it is our opinion that the deep dynamic compaction was completed in general accordance with the geotechnical aspects of the project plans and specifications, and our recommendations.

Vibration Monitoring

Vibration monitoring equipment was previously set up at the site to monitor vibrations during construction. Two vibration monitoring stations were set up and are located near the north and northwest property lines and adjacent to the closest residential homes. Based on review of the vibration monitoring data today, peak particle velocities (PPVs) did not exceed 0.035 inches/second.

We also stood near the northern vibration monitoring equipment during deep dynamic compaction and we could not perceive any vibrations. The noise of each dynamic compaction drop was also relatively minor.

Site Plan


Deep Dynamic Compaction Progress Plan
Drop Point Completed Today
Drop Point Completed Previously
SLEEVED DOUBLE PIPE
LIMITS OF DYNAMIC COMPACTION (10' BEYOND POND)
WATER QUALITY POND & TEMPORARY SEDIMENT POND
AESI TP # 7
AESI TP # 8
CONTROL STRUCTURE
AESI TP # 2
AESI TP # 3
AESI TP # 13
AESI TP # 12
AESI TP # 10
POND 1
TRAIL
1'± WIDE METHANE VENT TRENCH (TYP.)
SLOPE @ 2%
DEBRIS CAGE
(TYP CAL)

GeoEngineers	Geotechnical Field Report		File Number: 6694-002-02
17425 NE Union Hill Road, Suite 250 Redmond, WA 98052 425.861.6000	Project: Go East Landfill Closure – LDA #1		Date: 4/22/2021
	Owner: P&GE, LLC	Time of Arrival: 800	Report Number: GT-004 (Revised)
Prepared by: James Eng	Location: 4330 108th Street SE, Everett, WA	Time of Departure: 1700	Page: 1 of 5
Purpose of visit: Dynamic Compaction Monitoring	Weather: Sunny; 70s °F	Travel Time: ~1.5 hrs.	Permit Number: 20-118246 LDA

Upon arrival to the site, I assessed personal safety hazards: ☒ Yes or ☐ Referred to Site Safety Plan and Safety Tailgate if applicable.

Safety Hazards Were Addressed by : ☒ Staying Alert to Construction and Equipment Hazards ☒ Other (describe): PPE

A site visit was made today to observe deep dynamic compaction activities at the Go East Landfill Closure – LDA #1 project located at 4330 108th Street SE in Everett, Washington. During the site visit we met with representatives of the general contractor (Aero Construction) and the deep dynamic compaction contractor (Malcolm). The following is a summary of our observations:

Deep Dynamic Compaction

The deep dynamic compaction (DDC) contractor (Malcolm) completed 126 drop points in the detention pond footprint today (see attached site plan). The contractor used a track-mounted crane (Liebherr HS 885 HD) with a 25-ton, 6-foot-high by 8-foot-diameter tamper to complete the dynamic compaction.

Dynamic compaction at north end of detention pond. Looking southwest.

Offset survey hubs were located along the east and west ends of each drop point row. The contractor ran a string between the two survey hubs and measured off them to determine the location of each drop point. The drop points were spaced at 12 feet on center in an equilateral triangular spacing, as specified in the plans and specifications.

The deep dynamic compaction was performed by raising the 25-ton tamper to a height of 40 feet above the working pad (1-foot-thick quarry spalls) and dropping it at the specified drop point. The tamper was dropped at each drop point location at least 4 times as summarized in the table below. Compaction of the drop point craters generally decreased significantly on the final two drops, indicating that the material beneath it was compacting to the extent possible. Crater depths ranged from 3 to 6 feet deep. These were based on visual estimates during the compaction process and are estimated to the nearest quarter foot.

The table below summarizes the deep dynamic compaction completed today.

☐ **THIS FIELD REPORT IS PRELIMINARY** A preliminary report is provided solely as evidence that field observation was performed. Observations and/or conclusions and/or recommendations conveyed in the final report may vary from and shall take precedence over those indicated in a preliminary report.	**FIELD REPRESENTATIVE** James Y. Eng	**DATE** 4/22/21
☑ **THIS FIELD REPORT IS FINAL** A final report is an instrument of professional service. Any conclusions drawn from this report should be discussed with and evaluated by the professional involved.	**REVIEWED BY** Colton W. McInelly, PE	**DATE** 5/4/21

Attachment: Site Plan

Distribution: PACE Engineers, AERO Construction, Malcolm, Snohomish County, File

Drop Point ID	Number of Drops	Crater Depth (ft)	Crater Depth After Each Drop (ft)	Comments
38	1	4.25	4.25	Additional drop added to drop point yesterday
39	1	4.25	4.25	Additional drop added to drop point yesterday
41	1	4.75	4.75	Additional drop added to drop point yesterday
52	4	3	1.5, 2.5, 3, 3	
53	4	3	1.5, 2.5, 3, 3	
54	4	3	1.5, 2.5, 3, 3	
55	4	3.25	1.5, 2.5, 3, 3.25	
56	4	3.25	1.5, 2.5, 3, 3.25	
57	4	3.25	1.5, 2.5, 3, 3.25	
58	4	3.25	1.5 ,2.5, 3, 3.25	
59	4	3.25	1.5, 2.5, 3, 3.25	
60	4	3.25	1.5, 2.5, 3, 3.25	
61	4	3.25	1.5, 2.5, 3, 3.25	
62	4	3.25	1.5, 2.5, 3, 3.25	
63	4	3.25	1.5, 2.5, 3, 3.25	
64	4	3.25	1.5, 2.5, 3, 3.25	
65	4	3.25	1.5, 2.5, 3, 3.25	
66	4	3.25	1.5, 2.5, 3, 3.25	
67	4	3.25	1.5, 2.5, 3, 3.25	
68	4	3.25	1.5, 2.5, 3, 3.25	
69	4	3.25	1.5, 2.5, 3, 3.25	
70	4	3.25	1.5, 2.5, 3, 3.25	
71	4	3.25	1.5, 2.5, 3, 3.25	
72	4	3.25	1.5, 2.5, 3, 3.25	
73	4	3.25	1.5, 2.5, 3, 3.25	
74	4	3.25	1.5, 2.5, 3, 3.25	
75	4	3.25	1.5, 2.5, 3, 3.25	
76	4	3.25	1.5, 2.5, 3, 3.25	
77	4	3.25	1.5, 2.5, 3, 3.25	
78	4	3.25	1.5, 2.5, 3, 3.25	
79	4	3.25	1.5, 2.5, 3, 3.25	
80	4	3	1.5, 2.5, 3, 3	
81	4	3	1.5, 2.5, 3, 3	
82	4	3	1.5, 2.5, 3, 3	
83	4	3.25	1.5, 2.5, 3, 3.25	
84	4	3.25	1.5, 2.5, 3, 3.25	
85	4	3.25	1.5, 2.5, 3, 3.25	
86	4	3.25	1.5, 2.5, 3, 3.25	
87	4	3.25	1.5, 2.5, 3, 3.25	
88	4	3.25	1.5, 2.5, 3, 3.25	
89	4	3.25	1.5, 2.5, 3, 3.25	
90	4	3.25	1.5, 2.5, 3, 3.25	
91	4	3.25	1.5, 2.5, 3, 3.25	
92	4	3.5	1.5, 2.5, 3.25, 3.5	
93	4	3.5	1.5, 2.5, 3.25, 3.5	
94	4	3.25	1.5, 2.5, 3, 3.25	
95	4	3.25	1.5, 2.5, 3, 3.25	

Drop Point ID	Number of Drops	Crater Depth (ft)	Crater Depth After Each Drop (ft)	Comments
96	4	3.25	1.5, 2.5, 3, 3.25	
97	4	3.25	1.5, 2.5, 3, 3.25	
98	4	3.25	1.5, 2.5, 3, 3.25	
99	4	3.25	1.5, 2.5, 3, 3.25	
100	4	3.25	1.5, 2.5, 3.25, 3.25	
101	4	3.25	1.5, 2.5, 3.25, 3.25	
102	4	3.25	1.5, 2.5, 3, 3.25	
103	4	3	1.5, 2.5, 3, 3	
104	4	3.25	1.5, 2.5, 3, 3.25	
105	4	3	1.5, 2.5, 3, 3	
106	4	3	1.5, 2.5, 3, 3	
107	4	3	1.5, 2.5, 3, 3	
108	4	3.25	1.5, 2.5, 3, 3.25	
109	4	3.25	1.5, 2.5, 3, 3.25	
110	4	3.5	1.5, 2.5, 3.25, 3.5	
111	4	3.5	1.5, 2.5, 3.25, 3.5	
112	4	3.25	1.5, 2.5, 3, 3.25	
113	4	3.25	1.5, 2.5, 3, 3.25	
114	4	3.25	1.5, 2.5, 3, 3.25	
115	4	3.25	1.5, 2.5, 3, 3.25	
116	4	3.25	1.5, 2.5, 3, 3.25	
117	4	3.25	1.5, 2.5, 3, 3.25	
118	4	3.5	1.5, 2.5, 3.25, 3.5	
119	4	3.5	1.5, 2.5, 3.25, 3.5	
120	4	3.25	1.5, 2.5, 3, 3.25	
121	4	3.25	1.5, 2.5, 3, 3.25	
122	4	3.25	1.5, 2.5, 3, 3.25	
123	4	3	1.5, 2.5, 3, 3	
124	4	3	1.5, 2.5, 3, 3	
125	4	3.5	1.5, 2.5, 3.25, 3.5	
126	4	3.5	1.5, 2.5, 3.25, 3.5	
127	4	3.5	1.5, 2.5, 3.25, 3.5	
128	4	3.5	1.5, 2.5, 3.25, 3.5	
129	5	5.5	2, 4, 4.5, 5.25, 5.5	Additional drop added
130	5	5	2, 3.5, 4.5, 4.75, 5	Additional drop added
131	4	3.5	1.5, 2.5, 3.25, 3.5	
132	4	3.5	1.5, 2.5, 3.25, 3.5	
133	4	3.5	1.5, 2.5, 3.25, 3.5	
134	4	3.5	1.5, 2.5, 3.25, 3.5	
135	4	3.5	1.5, 2.5, 3.25, 3.5	
136	4	3.5	1.5, 2.5, 3.25, 3.5	
137	5	6	2, 4, 5, 5.75, 6	Additional drop added
138	5	6	2, 4, 5, 5.75, 6	Additional drop added
139	4	3.5	1.5, 2.5, 3.25, 3.5	
140	4	3.5	1.5, 2.5, 3.25, 3.5	
141	4	3.5	1.5, 2.5, 3.25, 3.5	
142	4	3.5	1.5, 2.5, 3.25, 3.5	
143	4	3.5	1.5, 2.5, 3.25, 3.5	
144	4	3.5	1.5, 2.5, 3.25, 3.5	
145	4	3.5	1.5, 2.5, 3.25, 3.5	

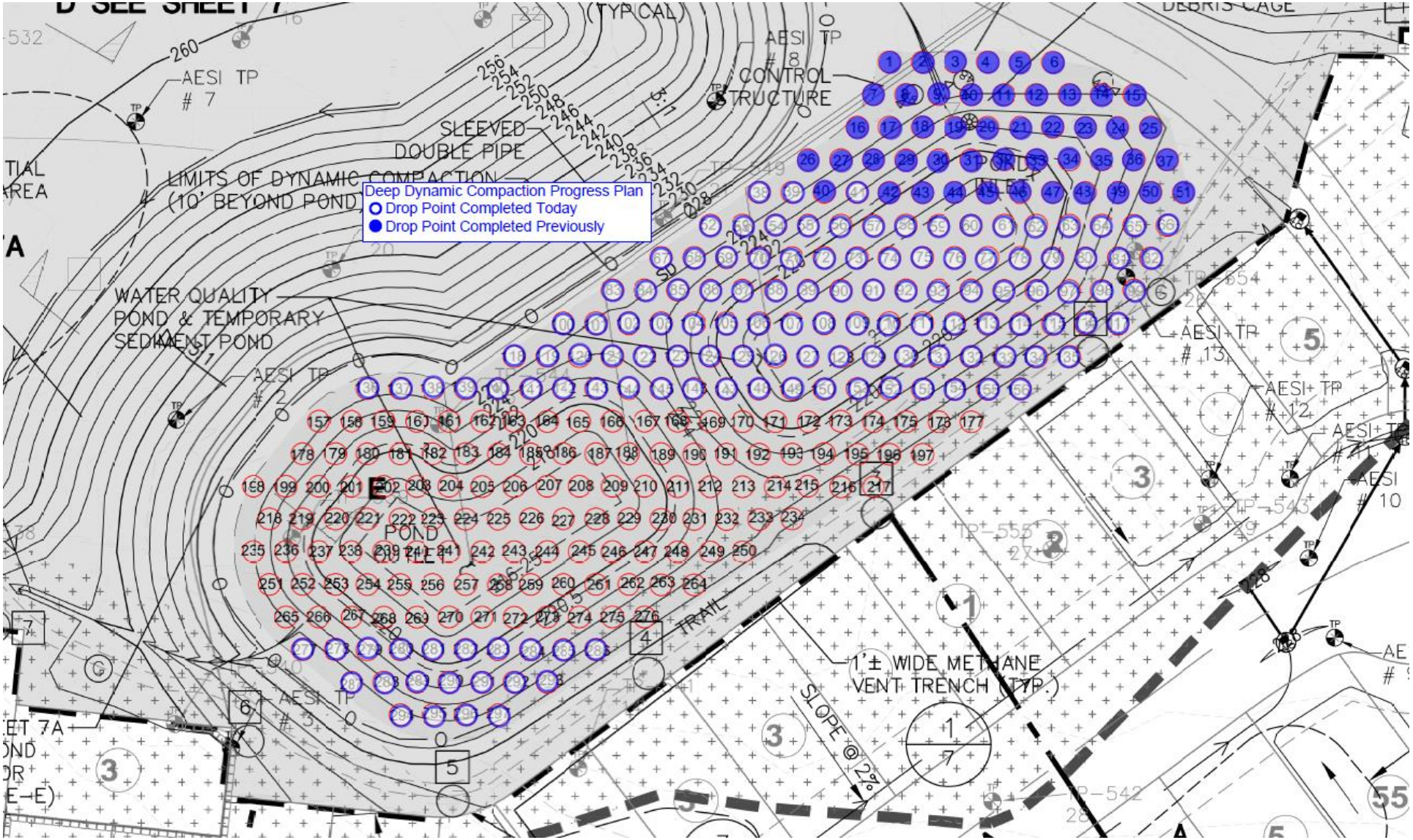
Drop Point ID	Number of Drops	Crater Depth (ft)	Crater Depth After Each Drop (ft)	Comments
146	4	3.5	1.5, 2.5, 3.25, 3.5	
147	4	3.5	1.5, 2.5, 3.25, 3.5	
148	4	3.5	1.5, 2.5, 3.25, 3.5	
149	4	3	1.5, 2.5, 3, 3	
150	5	5.5	2, 4, 4.5, 5.25, 5.5	Additional drop added
151	4	3.5	1.5, 2.5, 3.25, 3.5	
152	4	3.5	1.5, 2.5, 3.25, 3.5	
153	4	3.5	1.5, 2.5, 3.25, 3.5	
154	4	3.5	1.5, 2.5, 3.25, 3.5	
155	4	3.5	1.5, 2.5, 3.25, 3.5	
156	4	3.5	1.5, 2.5, 3.25, 3.5	
277	4	3.5	1.5, 2.5, 3.25, 3.5	
278	4	3.5	1.5, 2.5, 3.25, 3.5	
279	4	3.5	1.5, 2.5, 3.25, 3.5	
280	4	4	2, 3, 3.75, 4	
281	5	5.5	2, 4, 4.5, 5.25, 5.5	Additional drop added
282	5	5.5	2, 4, 4.5, 5.25, 5.5	Additional drop added
283	4	4	2, 3, 3.75, 4	
284	4	3.5	1.5, 2.5, 3.25, 3.5	
285	4	3.5	1.5, 2.5, 3.25, 3.5	
286	4	3.5	1.5, 2.5, 3.25, 3.5	
287	4	4	2, 3, 3.75, 4	
288	4	4	2, 3, 3.75, 4	
289	4	4	2, 3, 3.75, 4	
290	4	4	2, 3, 3.75, 4	
291	4	4	2, 3, 3.75, 4	
292	4	4	2, 3, 3.75, 4	
293	4	4	2, 3, 3.75, 4	
294	5	6	2, 4, 5, 5.75, 6	Additional drop added
295	5	5	2, 3.5, 4.5, 4.75, 5	Additional drop added
296	5	5	2, 3.5, 4.5, 4.75, 5	Additional drop added
297	4	4	2, 3, 3.75, 4	

Based on our observations, it is our opinion that the deep dynamic compaction was completed in general accordance with the geotechnical aspects of the project plans and specifications, and our recommendations.

Vibration Monitoring

Vibration monitoring equipment was previously set up at the site to monitor vibrations during construction. Two vibration monitoring stations were set up and are located near the north and northwest property lines and adjacent to the closest residential homes. Based on review of the vibration monitoring data today, peak particle velocities (PPVs) did not exceed 0.105 inches/second.

Site Plan – Dynamic Compaction



GeoEngineers	Geotechnical Field Report		File Number: 6694-002-02
17425 NE Union Hill Road, Suite 250 Redmond, WA 98052 425.861.6000	Project: Go East Landfill Closure – LDA #1		Date: 4/23/2021
	Owner: P&GE, LLC	Time of Arrival: 800	Report Number: GT-005 (Revised)
Prepared by: James Eng	Location: 4330 108th Street SE, Everett, WA	Time of Departure: 1400	Page: 1 of 6
Purpose of visit: Dynamic Compaction Monitoring	Weather: Sunny; 70s °F	Travel Time: ~1.5 hrs.	Permit Number: 20-118246 LDA

Upon arrival to the site, I assessed personal safety hazards: ☒ Yes or ☐ Referred to Site Safety Plan and Safety Tailgate if applicable.

Safety Hazards Were Addressed by : ☒ Staying Alert to Construction and Equipment Hazards ☒ Other (describe): PPE

A site visit was made today to observe deep dynamic compaction activities at the Go East Landfill Closure – LDA #1 project located at 4330 108th Street SE in Everett, Washington. During the site visit we met with representatives of the general contractor (Aero Construction) and the deep dynamic compaction contractor (Malcolm). Bob Metcalfe (GeoEngineers) was also on site. The following is a summary of our observations:

Deep Dynamic Compaction

The deep dynamic compaction (DDC) contractor (Malcolm) completed the final 120 drop points in the detention pond footprint today (see attached site plan). The contractor used a track-mounted crane (Liebherr HS 885 HD) with a 25-ton, 6-foot-high by 8-foot-diameter tamper to complete the dynamic compaction.

Dynamic compaction at southeast end of detention pond. Looking northwest.

Offset survey hubs were located along the east and west ends of each drop point row. The contractor ran a string between the two survey hubs and measured off them to determine the location of each drop point. The drop points were spaced at 12 feet on center in an equilateral triangular spacing, as specified in the plans and specifications.

The deep dynamic compaction was performed by raising the 25-ton tamper to a height of 40 feet above the working pad (1-foot-thick quarry spalls) and dropping it at the specified drop point. The tamper was dropped at each drop point location at least 4 times as summarized in the table below. Compaction of the drop point craters generally decreased significantly on the final two drops, indicating that the material beneath it was compacting to the extent possible. Crater depths ranged from 3 to 6 feet deep. These were based on visual estimates during the compaction process and are estimated to the nearest quarter foot.

The table below summarizes the deep dynamic compaction completed today.

☐ **THIS FIELD REPORT IS PRELIMINARY** A preliminary report is provided solely as evidence that field observation was performed. Observations and/or conclusions and/or recommendations conveyed in the final report may vary from and shall take precedence over those indicated in a preliminary report.	**FIELD REPRESENTATIVE** James Y. Eng	**DATE** 4/23/21
☑ **THIS FIELD REPORT IS FINAL** A final report is an instrument of professional service. Any conclusions drawn from this report should be discussed with and evaluated by the professional involved.	**REVIEWED BY** Colton W. McInelly, PE	**DATE** 5/4/21

Attachment: Site Plans

Distribution: PACE Engineers, AERO Construction, Malcolm, Snohomish County, File

Drop Point ID	Number of Drops	Crater Depth (ft)	Crater Depth After Each Drop (ft)	Comments
157	4	4	2, 3, 3.75, 4	
158	4	4	2, 3, 3.75, 4	
159	4	4	2, 3, 3.75, 4	
160	4	3	1.5, 2.5, 3, 3	
161	4	3.5	1.5, 2.5, 3.25, 3.5	
162	4	4	2, 3, 3.75, 4	
163	5	5.5	2, 4, 4.5, 5.25, 5.5	Additional drop added
164	4	3.5	1.5, 2.5, 3.25, 3.5	
165	4	3.5	1.5, 2.5, 3.25, 3.5	
166	4	4	2, 3, 3.75, 4	
167	4	4	2, 3, 3.75, 4	
168	4	3.5	1.5, 2.5, 3.25, 3.5	
169	4	3.5	1.5, 2.5, 3.25, 3.5	
170	4	4	2, 3, 3.75, 4	
171	4	3.5	1.5, 2.5, 3.25, 3.5	
172	4	3.5	1.5, 2.5, 3.25, 3.5	
173	4	4	2, 3, 3.75, 4	
174	4	4	2, 3, 3.75, 4	
175	4	3.5	1.5, 2.5, 3.25, 3.5	
176	4	4	2, 3, 3.75, 4	
177	5	5	2, 3.5, 4.5, 4.75, 5	Additional drop added
178	4	3.5	1.5, 2.5, 3.25, 3.5	
179	4	3.5	1.5, 2.5, 3.25, 3.5	
180	4	3.5	1.5, 2.5, 3.25, 3.5	
181	4	3.5	1.5, 2.5, 3.25, 3.5	
182	4	3.5	1.5, 2.5, 3.25, 3.5	
183	4	4	2, 3, 3.75, 4	
184	4	4	2, 3, 3.75, 4	
185	4	4	2, 3, 3.75, 4	
186	4	4	2, 3, 3.75, 4	
187	4	4	2, 3, 3.75, 4	
188	4	3.5	1.5, 2.5, 3.25, 3.5	
189	4	3.5	1.5, 2.5, 3.25, 3.5	
190	4	3.5	1.5, 2.5, 3.25, 3.5	
191	4	3.5	1.5, 2.5, 3.25, 3.5	
192	4	3.5	1.5, 2.5, 3.25, 3.5	
193	4	4	2, 3, 3.75, 4	
194	4	4	2, 3, 3.75, 4	
195	4	4	2, 3, 3.75, 4	
196	4	4	2, 3, 3.75, 4	
197	5	5.5	2, 4, 4.5, 5.25, 5.5	Additional drop added
198	4	3.5	1.5, 2.5, 3.25, 3.5	
199	4	3.5	1.5, 2.5, 3.25, 3.5	
200	4	3.5	1.5, 2.5, 3.25, 3.5	
201	4	3.5	1.5, 2.5, 3.25, 3.5	
202	4	3.5	1.5, 2.5, 3.25, 3.5	
203	4	3	1.5, 2.5, 3, 3	
204	4	4	2, 3, 3.75, 4	
205	4	4	2, 3, 3.75, 4	
206	4	4	2, 3, 3.75, 4	

Drop Point ID	Number of Drops	Crater Depth (ft)	Crater Depth After Each Drop (ft)	Comments
207	4	3.5	1.5, 2.5, 3.25, 3.5	
208	4	4	2, 3, 3.75, 4	
209	4	3.5	1.5, 2.5, 3.25, 3.5	
210	4	4	2, 3, 3.75, 4	
211	4	4	2, 3, 3.75, 4	
212	4	4	2, 3, 3.75, 4	
213	4	3.5	1.5, 2.5, 3.25, 3.5	
214	4	3.5	1.5, 2.5, 3.25, 3.5	
215	4	4	2, 3, 3.75, 4	
216	4	3.5	1.5, 2.5, 3.25, 3.5	
217	4	4	2, 3, 3.75, 4	
218	4	3.5	1.5, 2.5, 3.25, 3.5	
219	4	3.5	1.5, 2.5, 3.25, 3.5	
220	4	3.5	1.5, 2.5, 3.25, 3.5	
221	4	3.5	1.5, 2.5, 3.25, 3.5	
222	4	3.5	1.5, 2.5, 3.25, 3.5	
223	4	4	2, 3, 3.75, 4	
224	4	4	2, 3, 3.75, 4	
225	4	4	2, 3, 3.75, 4	
226	4	4	2, 3, 3.75, 4	
227	4	4	2, 3, 3.75, 4	
228	4	4	2, 3, 3.75, 4	
229	4	4	2, 3, 3.75, 4	
230	4	4	2, 3, 3.75, 4	
231	4	4	2, 3, 3.75, 4	
232	4	4	2, 3, 3.75, 4	
233	4	4	2, 3, 3.75, 4	
234	5	6	2, 4, 5, 5.75, 6	Additional drop added
235	4	4	2, 3, 3.75, 4	
236	4	4	2, 3, 3.75, 4	
237	4	4	2, 3, 3.75, 4	
238	4	4	2, 3, 3.75, 4	
239	4	4	2, 3, 3.75, 4	
240	4	3.5	1.5, 2.5, 3.25, 3.5	
241	4	3.5	1.5, 2.5, 3.25, 3.5	
242	4	4	2, 3, 3.75, 4	
243	4	4	2, 3, 3.75, 4	
244	4	4	2, 3, 3.75, 4	
245	4	4	2, 3, 3.75, 4	
246	4	4	2, 3, 3.75, 4	
247	4	4	2, 3, 3.75, 4	
248	4	4	2, 3, 3.75, 4	
249	4	4	2, 3, 3.75, 4	
250	5	5.5	2, 4, 4.5, 5.25, 5.5	Additional drop added
251	4	3.5	1.5, 2.5, 3.25, 3.5	
252	4	3.5	1.5, 2.5, 3.25, 3.5	
253	4	3.5	1.5, 2.5, 3.25, 3.5	
254	4	4	2, 3, 3.75, 4	
255	4	4	2, 3, 3.75, 4	
256	4	4	2, 3, 3.75, 4	

Drop Point ID	Number of Drops	Crater Depth (ft)	Crater Depth After Each Drop (ft)	Comments
257	4	4	2, 3, 3.75, 4	
258	4	4	2, 3, 3.75, 4	
259	4	4	2, 3, 3.75, 4	
260	4	4	2, 3, 3.75, 4	
261	4	4	2, 3, 3.75, 4	
262	4	4	2, 3, 3.75, 4	
263	4	4	2, 3, 3.75, 4	
264	5	6	2, 4, 5, 5.75, 6	Additional drop added
265	4	4	2, 3, 3.75, 4	
266	4	4	2, 3, 3.75, 4	
267	4	4	2, 3, 3.75, 4	
268	4	4	2, 3, 3.75, 4	
269	4	4	2, 3, 3.75, 4	
270	5	5	2, 3.5, 4.5, 4.75, 5	Additional drop added
271	4	4	2, 3, 3.75, 4	
272	4	4	2, 3, 3.75, 4	
273	4	4	2, 3, 3.75, 4	
274	4	4	2, 3, 3.75, 4	
275	4	4	2, 3, 3.75, 4	
276	5	6	2, 4, 5, 5.75, 6	Additional drop added

Based on our observations, it is our opinion that the deep dynamic compaction was completed in general accordance with the geotechnical aspects of the project plans and specifications, and our recommendations.

We understand that Malcolm plans to demobilize the dynamic compaction equipment from the site on Monday.

Vibration Monitoring

Vibration monitoring equipment was previously set up at the site to monitor vibrations during construction. Two vibration monitoring stations were set up and are located near the north and northwest property lines and adjacent to the closest residential homes. Based on review of the vibration monitoring data today, peak particle velocities (PPVs) did not exceed 0.035 inches/second.

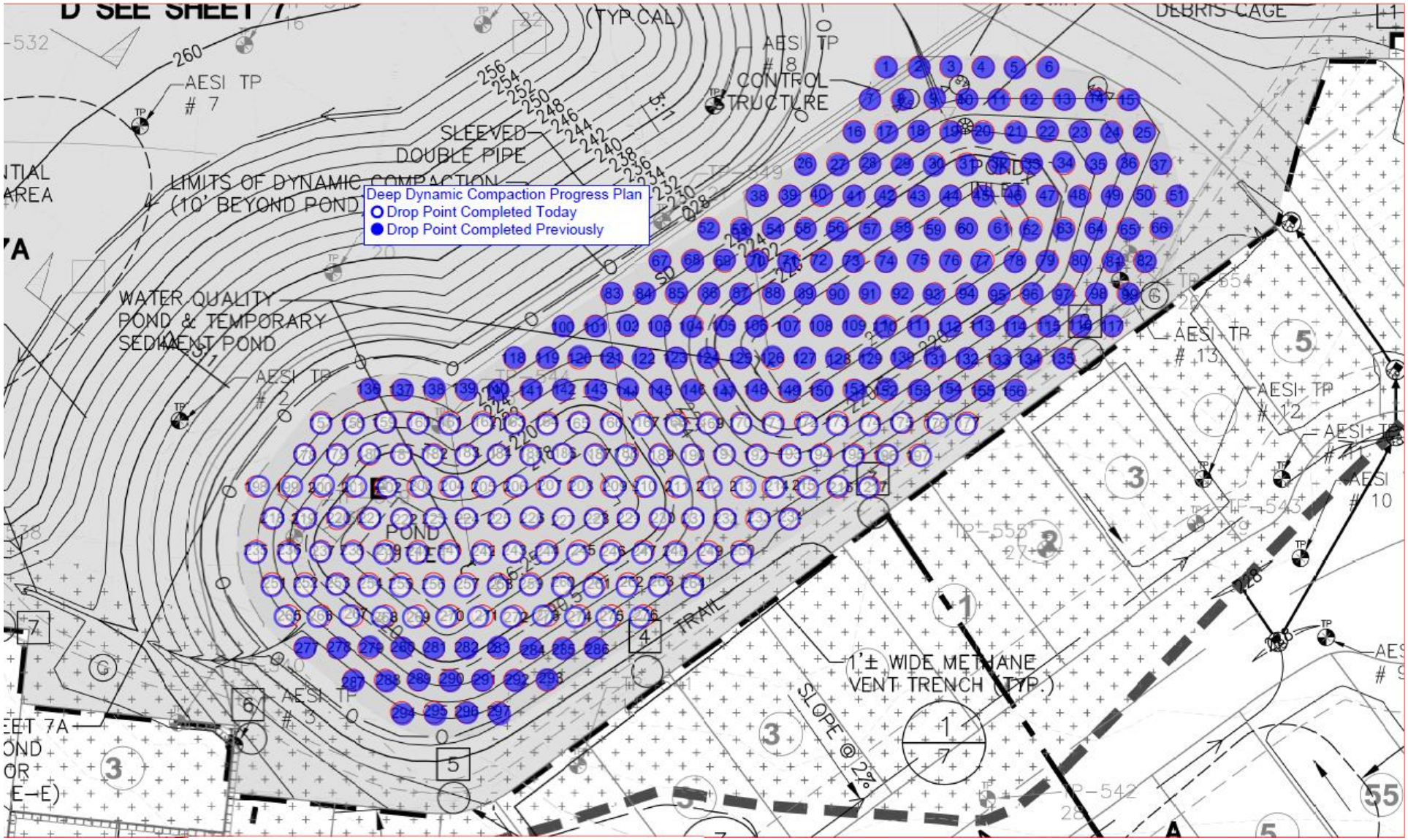
Landfill Material Relocation

The contractor began grading and compacting landfill surface located north of the detention ponds today (see attached site plan). The contractor graded the landfill surface using a Cat D9 dozer before compacting the surface using an Ingersoll Rand 100D landfill roller compactor. The compactor made a minimum of 4 passes over the prepared landfill surface while in vibratory mode to compact the material.

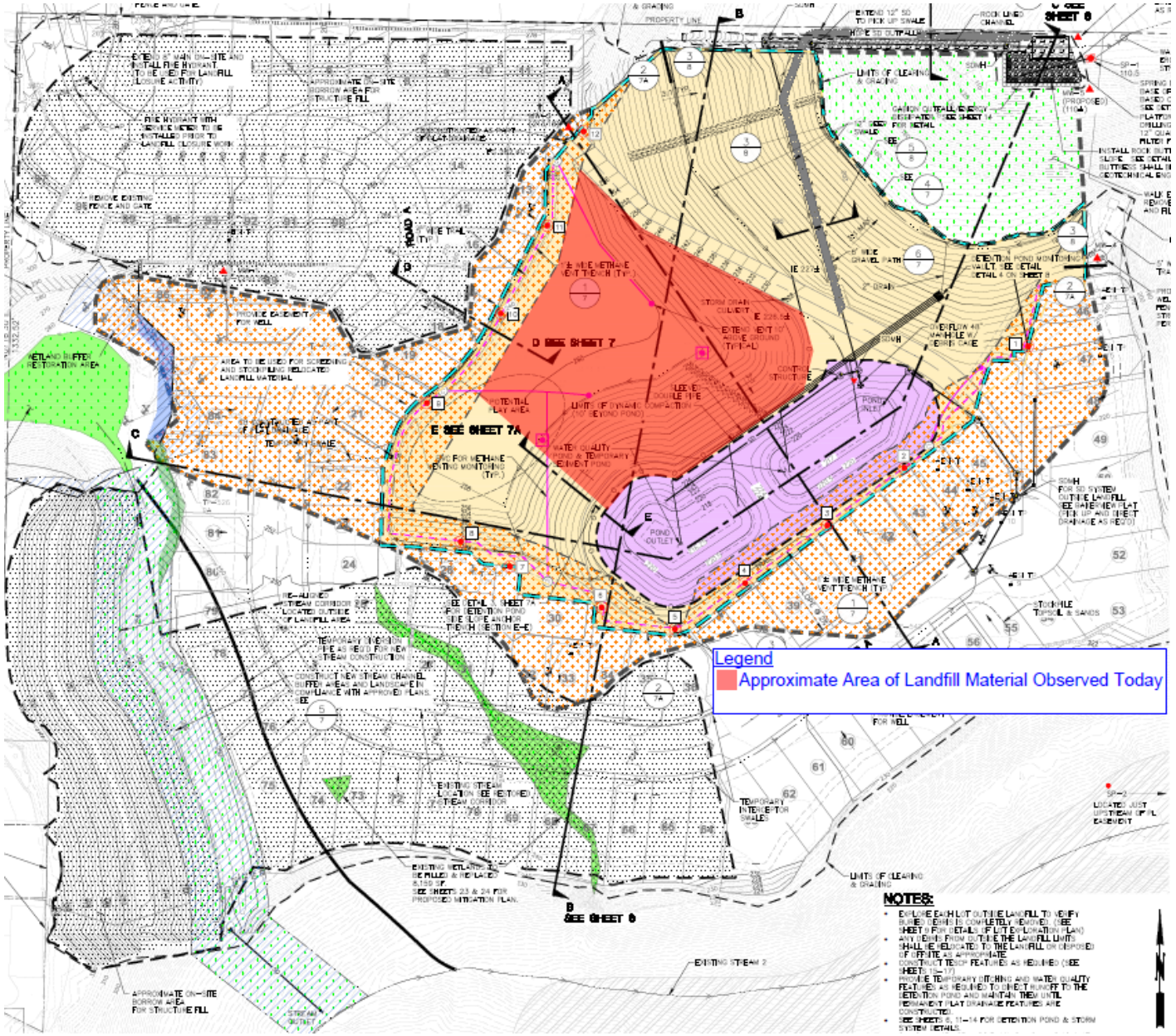
Once the landfill surface was prepared, the contractor began spreading landfill material generated from the detention pond excavation for the dynamic compaction pad. The material was spread in approximately 10- to 12-inch-thick loose level lifts. After each lift was spread out, the landfill compactor made a minimum of 4 passes over each lift while in vibratory mode. The landfill elevation ranged from about 234 to 235 feet.

Based on our observations, the landfill material observed today has been placed and compacted in general accordance with the project plans and specifications, and our recommendations.

Site Plan – Dynamic Compaction



Site Plan


Legend
Approximate Area of Landfill Material Observed Today
NOTES:
SEE SHEET 7
SEE SHEET 7A
SEE SHEET 6
EXISTING STREAM 2
APPROXIMATE ON-SITE BORROW AREA FOR STRUCTURE FILL

APPENDIX D
Vibration Monitoring Summary Letter

GeoEngineers
17425 NE Union Hill Road, Suite 250
Redmond, Washington 98052
425.861.6000

May 26, 2021

PACE Engineers, Inc.
11255 Kirkland Way, Suite 300
Kirkland, Washington 98033

Attention: Marty Penhallegon

Subject: Summary Letter
Vibration Monitoring Services
Go East Landfill Closure and Bakerview Development
Snohomish County, Washington
File No. 6694-002-02

This letter presents a summary of Geoengineers' review of the vibration monitoring data for the Go East Landfill Closure (LDA #1) and Bakerview Residential Development (LDA #2) projects located in Snohomish County, Washington. The projects consist of the closure of the Go East Landfill by consolidating approximately 45,000 cubic yards of landfill material prior to capping the landfill footprint and constructing a development around the closed landfill. Vibration monitoring equipment was installed at two locations along the north and northwest property lines, as shown on the attached Site Plan. Vibration monitoring station M1 was installed adjacent to Lot 64 and vibration monitoring station M2 was installed adjacent to Lot 23. Vibrations were monitored from March 29 to May 17, 2021. The primary purpose of the vibration monitoring program was to measure vibrations to assess potential impacts from deep dynamic compaction activities on the nearby residences located closest to where deep dynamic compaction was planned.

BACKGROUND

Many studies have been completed to assess potential damage to structures resulting from vibrations during construction. For this study, published vibration monitoring thresholds from the Transportation and Construction Vibration Guidance Manual (Caltrans 2013) were used to interpret the vibration monitoring data obtained for the project. The 2013 Caltrans manual summarizes a compilation of vibration studies that have been performed as well as guidelines in evaluating construction vibrations. Peak particle velocity (PPV) thresholds have been developed from studies by:

- Chae, 1978,
- Dowding, 1996, and
- AASHTO, 1990.

The PPV thresholds for damage to residential buildings range from 0.4 to 2 inches per second (in/sec). The low threshold (0.4 in/sec) is generally used for poor construction and the high threshold (2 in/sec) is generally used for new sound construction. The threshold range represents vibrations that may begin to cause very minor damage to a structure, although for many structures damage still may not occur.

OBSERVATIONS

The vibration monitoring stations (M1 and M2) were located adjacent to Lots 64 and 23, respectively (see attached Site Plan). M1 and M2 were located approximately 645 feet northwest and 450 feet north of the deep dynamic compaction area, respectively. The equipment monitored vibrations continuously from March 29 to May 17, 2021. Deep dynamic compaction activities were performed from April 21 through April 23, 2021. Other construction activities including site clearing and grading, landfill material relocation, wedge excavation, and wedge backfilling commenced on April 27, 2021 and are ongoing. In general, vibration levels were at non-detect levels during most all construction activities each day, with the exception of some 5- to 60-minute intervals where vibrations were recorded. The typical peak particle velocity range during these short periods indicate PPV between 0.01 and 0.185 in/sec at the monitoring stations. The vibration monitoring data is included in Appendix A.

Measured peak particle velocity values above the typical range were detected on April 14 and May 10, 2021 at station M1 and April 9 and May 13, 2021 at station M2. The dates at station M1 coincide with falling trees (part of clearing for the site) and augering and installing a new fence about 10 feet from the station (including driving and laying down equipment immediately adjacent to the station). The dates at station M2 coincide with falling trees and operating excavators and dozers immediately adjacent to the monitoring equipment. Each of these activities were expected to cause vibrations at the monitoring stations because of the proximity of the construction work to the monitoring stations. The vibration equipment measured peak velocities of 0.26 and 10.0 in/sec at M1 and 0.205 and 0.57 in/sec at M2. These PPVs were all measured for less than 4 seconds (single-event source). The peak velocity of 10.0 in/sec is associated with the fence installation and includes vehicles and equipment that were driven and placed within a couple of feet of the vibration monitoring station.

Vibrations attenuate (reduce in amplitude) with distance. The closest residence is about 40 feet west and 50 feet north of monitoring stations M1 and M2, respectively. Given the distance between the residences and the location where the monitoring stations, the vibrations at the residences will be much lower than where measured. The Transportation and Construction Vibration Guidance Manual suggests that potential vibrations experienced at the residences were likely at least 50 to 60 percent lower than recorded at the monitoring instrument. Potential vibrations experienced at the residences were even lower for other construction activities that occurred immediately adjacent to the monitoring stations, on the order of 80 to 90 percent. We estimate that the maximum PPV at the closest residence was between 0.11 and 2 in/sec during the monitoring period. The upper values may be even lower at the residence considering the proximity of the falling trees and the construction of the fence directly adjacent to the vibration monitoring stations.

CONCLUSIONS

The vibration monitoring data, and extrapolations from the data, demonstrate that the potential maximum PPV experienced at the closest residence was likely between 0.11 and 2 in/sec during the construction for the monitoring period. These vibrations are below the range of vibrations (0.4 to 2 in/sec) that adversely impact residential buildings. In addition, deep dynamic compaction activities in the detention pond area did not produce any vibrations that were detected at the monitoring stations.

REFERENCES

American Association of State Highway and Transportation Officials (AASHTO), 1993, "AASHTO Guide for Design of Pavement Structures."

California Department of Transportation, 2013, "Transportation and Construction Vibration Guidance Manual."

Chae, Y.S., 1978. Design of Excavation Blasts to Prevent Damage," Civil Engineering, ASCE, Vol. 48, No. 4, pp. 77-79

Dowding, C.H., 1996. Construction Vibrations, Prentice-Hall.

We trust this letter meets your current needs. Please call if you have any questions regarding this letter.

Respectfully submitted,
GeoEngineers, Inc.

Colton W. McInelly, PE
Geotechnical Engineer

Robert C. Metcalfe, PE, LEG
Principal

CWM:RCM:nld

Attachments:
Site Plan
Appendix A. Vibration Monitoring Results

SE 1/4, SEC 21, T 28 N, R 5 E, W.M.

Vibration Monitoring Station, M2

Vibration Monitoring Station, M1

Approximate location of deep dynamic compaction

MATCHLINE, SEE SHEET 3

LEGEND

- WATER VALVE
- HYDRANT
- WATER METER
- MANHOLES (SS/SD)
- CB
- POWER/UTILITY POLE
- GUY ANCHOR
- POWER TRANSFORMER
- POWER/TELEPHONE VAULT
- POWER METER
- TELEPHONE/TV RISER
- GAS VALVE
- GAS METER
- STREET LIGHT
- SPOT ELEVATION
- SIGN
- ROCKERY
- FOUND CASED MONUMENT
- TEST PIT SYMBOL
- AESI TP # 5 — AESI EXPLORATION PITS
- TP-548 6 — MCNAUGHTONS EXPLORATION PITS
- 12" — CONIFEROUS TREE
- 12"c — ALL DECIDUOUS TREES ARE MOSTLY ALDER, MAPLE
- 12"C — 12" CEDAR
- NOTE: ALL TREE DIAMETERS MEASURED AT STANDARD HIEGHT
- WRAN 5 — WETLAND FLAG AND DESIGNATION
- MONITORING WELL
- GP-2 — GAS PROBE SYMBOL
- CENTER LINES
- PROPERTY LINES
- RIGHT-OF-WAY LINES
- LOT LINES
- W — WATER LINE
- SS — SANITARY SEWER LINE
- SD — STORM DRAIN LINE
- G — GAS LINE
- UP — UNDERGROUND POWER LINES
- UT — UNDERGROUND TELEPHONE LINES
- UTV — UNDERGROUND CABLE TV LINES
- P — OVERHEAD POWER LINES
- OHL — OVERHEAD UTILITY LINES
- CHAIN LINK FENCE
- WIRE FENCE
- WOOD FENCE

SURVEY NOTES:

HORIZONTAL DATUM: NAD83/91 PER W.S.D.O.T. CONTROL POINTS NO. GP31009-98, GP31005-88 AND GP31005-87 AND SNOHOMISH COUNTY CONTROL POINTS NO. 2805P09 AND 2805R11.

BASIS OF BEARINGS: HELD BEARING OF N88°55'17"W ALONG MONUMENTED CENTERLINE OF 116TH STREET SE.

VERTICAL DATUM: NAVD 88 PER SNOHOMISH COUNTY AND W.S.D.O.T. CONTROL POINTS LISTED ABOVE.

SITE AREA: ±1,781,717 SQUARE FEET (±40.9026 ACRES)

ALL DISTANCES SHOWN ARE GROUND DISTANCES UNLESS OTHERWISE NOTED.

THE LOCATION AND DESCRIPTION OF ALL SURVEY MARKERS SHOWN HEREON ARE BASED ON FIELD OBSERVATIONS TAKEN ON JUNE 2009 – JUNE, 2019, UNLESS OTHERWISE INDICATED.

PROPERTY DESCRIPTIONS AND EASEMENT INFORMATION IS PER CHICAGO TITLE INSURANCE COMPANY ORDER NO. 5242740 DATED MARCH 3, 2009.

WORK PERFORMED IN CONJUNCTION WITH THIS SURVEY UTILIZED THE FOLLOWING EQUIPMENT AND PROCEDURES: (A) 2" GEODIMETER 600 SERIES ELECTRONIC TOTAL STATION, MAINTAINED TO THE MANUFACTURER'S SPECIFICATIONS PER W.A.C. 332-130-100. (B) FIELD TRAVERSE, EXCEEDING REQUIREMENTS SET FORTH IN W.A.C. 332-130-090.

THIS TOPOGRAPHIC SURVEY DRAWING ACCURATELY PRESENTS SURFACE FEATURES LOCATED DURING THE COURSE OF THIS SURVEY. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED SOLELY UPON INFORMATION PROVIDED BY OTHERS AND PACE ENGINEERS, INC. DOES NOT ACCEPT RESPONSIBILITY OR ASSUME LIABILITY FOR THEIR ACCURACY OR COMPLETENESS. CONTRACTOR/ENGINEERS SHALL VERIFY EXACT SIZE AND LOCATION PRIOR TO CONSTRUCTION.
CALL FOR LOCATE: UTILITY LOCATION SERVICE: 1-800-425-5555.

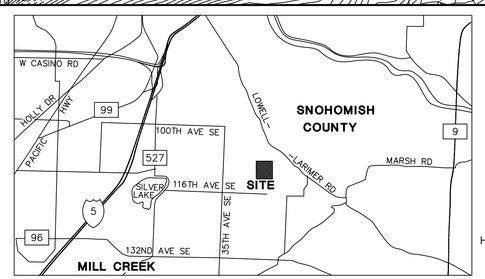
NOTE: CONTOURS BY PACE GROUND SURVEY METHODS ARE DASHED, CONTOURS FROM PUGET SOUND LIDAR CONSORTIUM ARE CONTINUOUS.

RECORD LEGAL DESCRIPTION:

NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 21, TOWNSHIP 28 NORTH, RANGE 5 EAST, W.M., RECORDS OF SNOHOMISH COUNTY, WASHINGTON.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

PORTION OF NW QUARTER OF THE SE QUARTER OF SECTION 21, TOWNSHIP 28 NORTH, RANGE 5 EAST, W.M.,



VICINITY MAP:

HORIZ. 0 25 50 100
Scale In Feet

Snohomish County Planning Development Services
APPROVED FOR CONSTRUCTION
By:
R/W Permit No.
Date:

CONSTRUCTION DOCUMENTS - PFN 18-126823 LDA

FILE NAME: P:\P09\09382.00 GO EAST\CAD\FIGURES\SHEETS\LANDFILL CLOSURE\2018\P09382_EC.DWG
SAVE TIME: 12/16/2020 3:11:56 PM
PLOT TIME: 12/16/2020 10:19 AM
USER NAME: MONTGOMERY
XREF FILES: PACE34X22.

DATE
REVISION
SYM

PACE
An Engineering Services Company
11255 Kirkland Way, Suite 300
Kirkland, WA 98033
p. 425.827.2014 | f. 425.827.5043
Civil | Structural | Planning | Survey
paceengrs.com

AARON B. BLAJ LOVELL
STATE OF WASHINGTON
11278
REGISTERED
PROFESSIONAL LAND SURVEYOR

GO EAST
LANDFILL CLOSURE

EXISTING CONDITIONS

SCALE: 1"=50'	DATE: 11/20/2020
DESIGNED BY: SC	CHECKED BY: MP
JOB NUMBER P09382.00	
DWG NAME: P09382_EC	
SHEET 2 OF 25	

APPENDIX A
Vibration Monitoring Results

Start	13:57:32 March 29, 2021
Finish	01:10:01 March 30, 2021
Intervals	2690.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

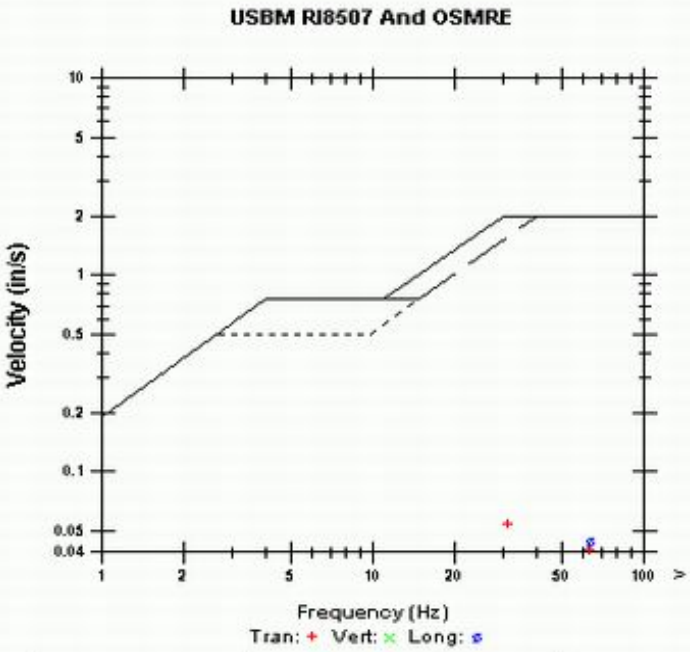
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M4401WW8.RW0H

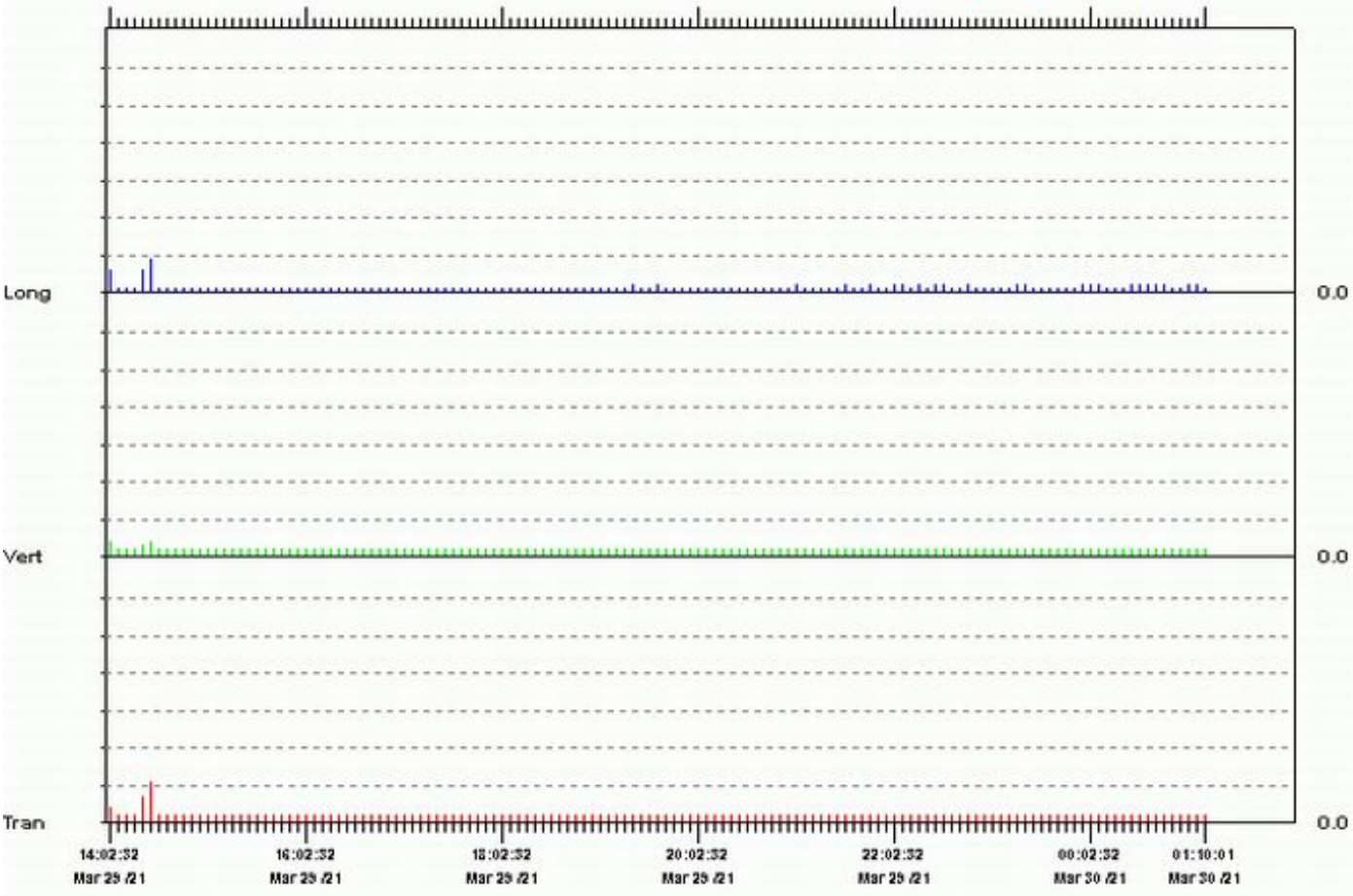
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0550	0.0200	0.0450	in/s
ZC Freq	32	>100	64	Hz
Date	Mar 29 /21	Mar 29 /21	Mar 29 /21	
Time	14:24:47	13:58:02	14:25:17	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0579 in/s on March 29, 2021 At 14:24:47





Start	01:12:42 March 31, 2021
Finish	01:10:01 April 1, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- MI

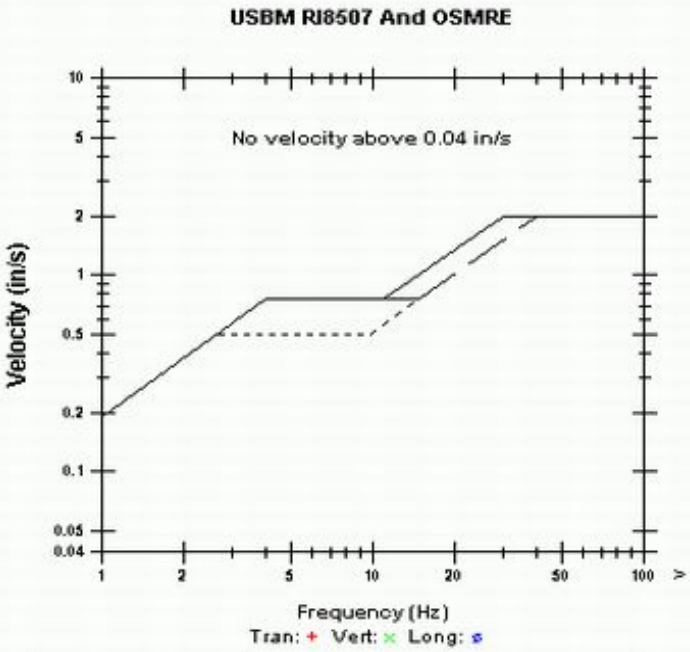
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M4401WYW.P60H

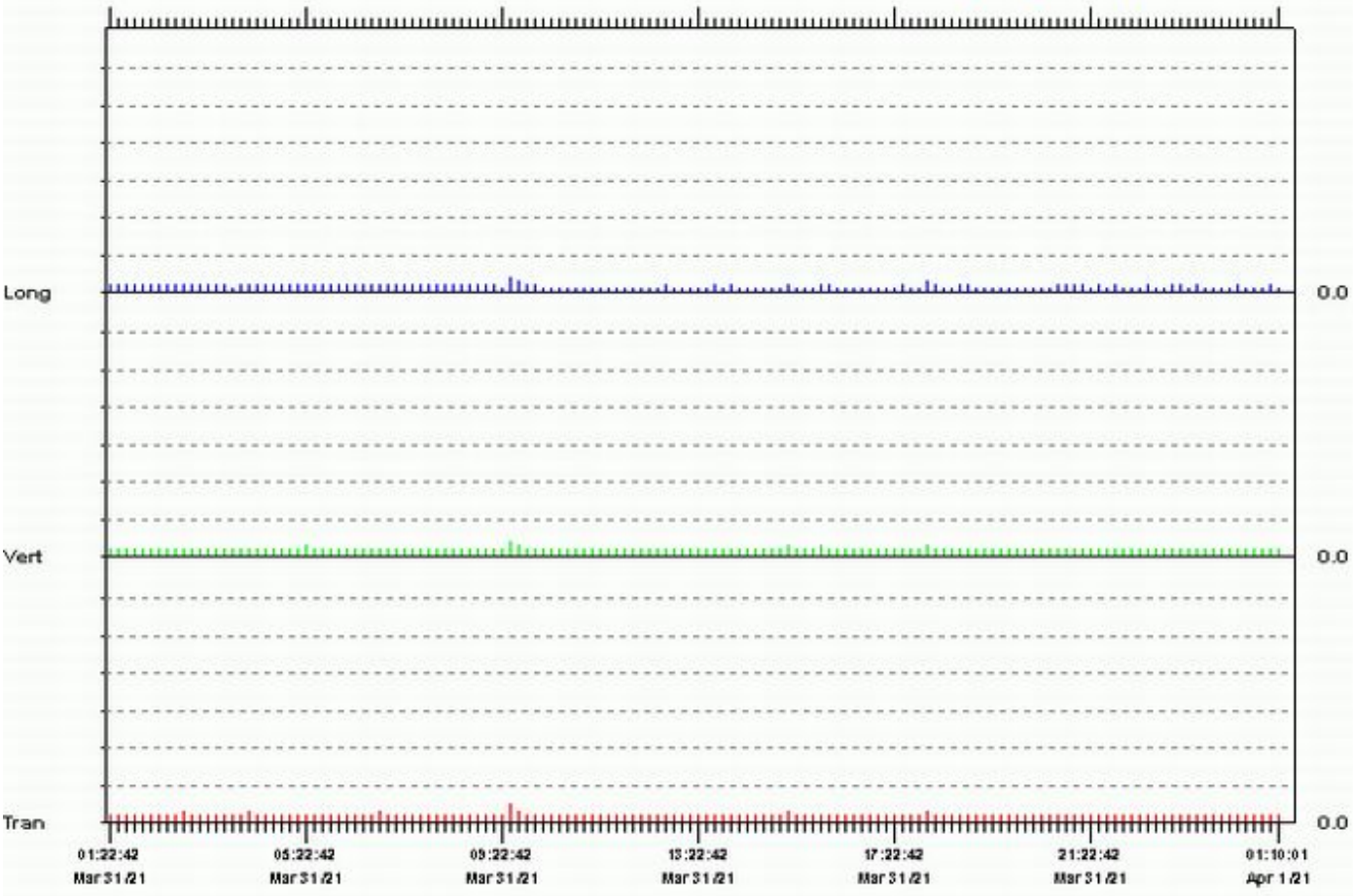
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0250	0.0200	0.0200	in/s
ZC Freq	21	18	23	Hz
Date	Mar 31 /21	Mar 31 /21	Mar 31 /21	
Time	09:24:12	09:24:12	09:24:12	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0320 in/s on March 31, 2021 At 09:24:12





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 1, 2021 (V - 10.40)

Start	01:12:46 April 1, 2021
Finish	01:10:01 April 2, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

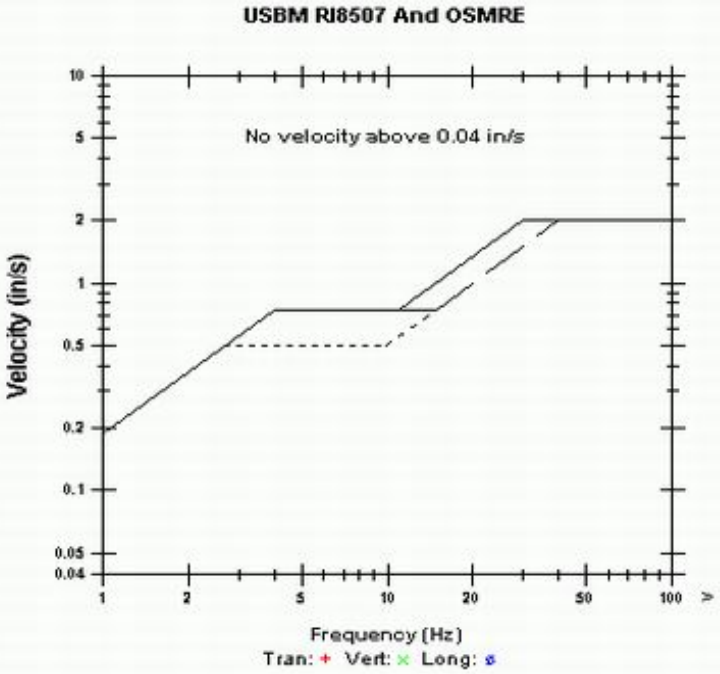
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IX0R.DA0H

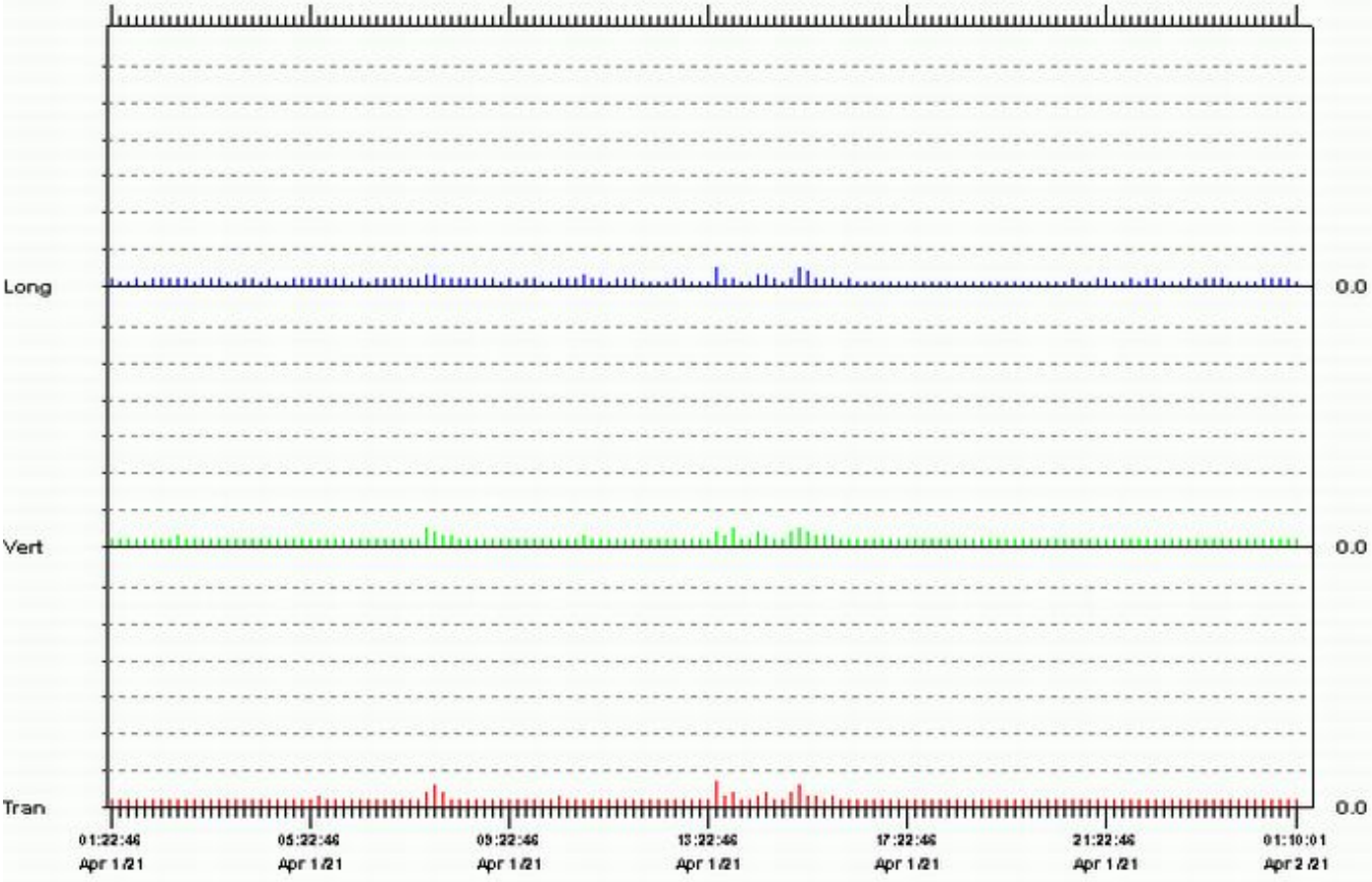
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0350	0.0250	0.0250	in/s
ZC Freq	21	30	23	Hz
Date	Apr 1 /21	Apr 1 /21	Apr 1 /21	
Time	13:30:31	07:41:16	13:30:31	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0406 in/s on April 1, 2021 At 13:30:31





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 2, 2021 (V - 10.40)

Start	01:12:47 April 2, 2021
Finish	01:10:01 April 3, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

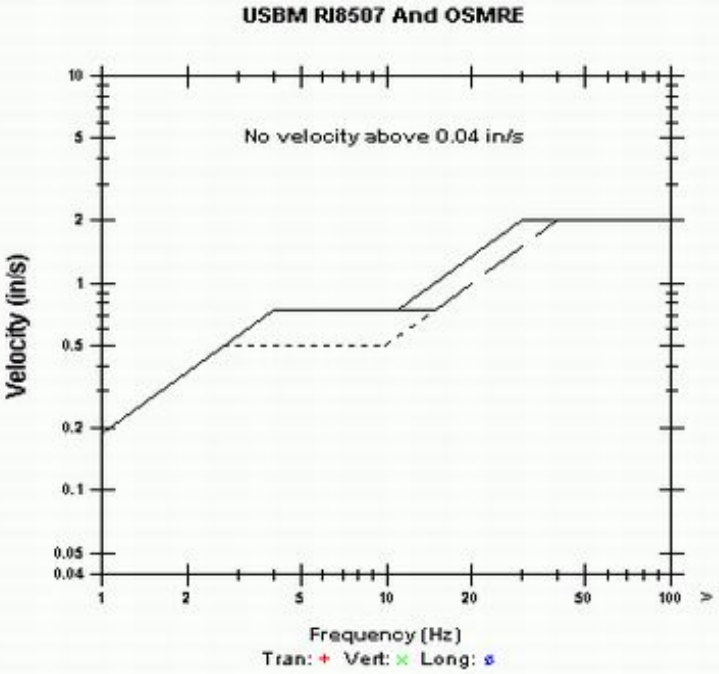
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IX2M.1B0H

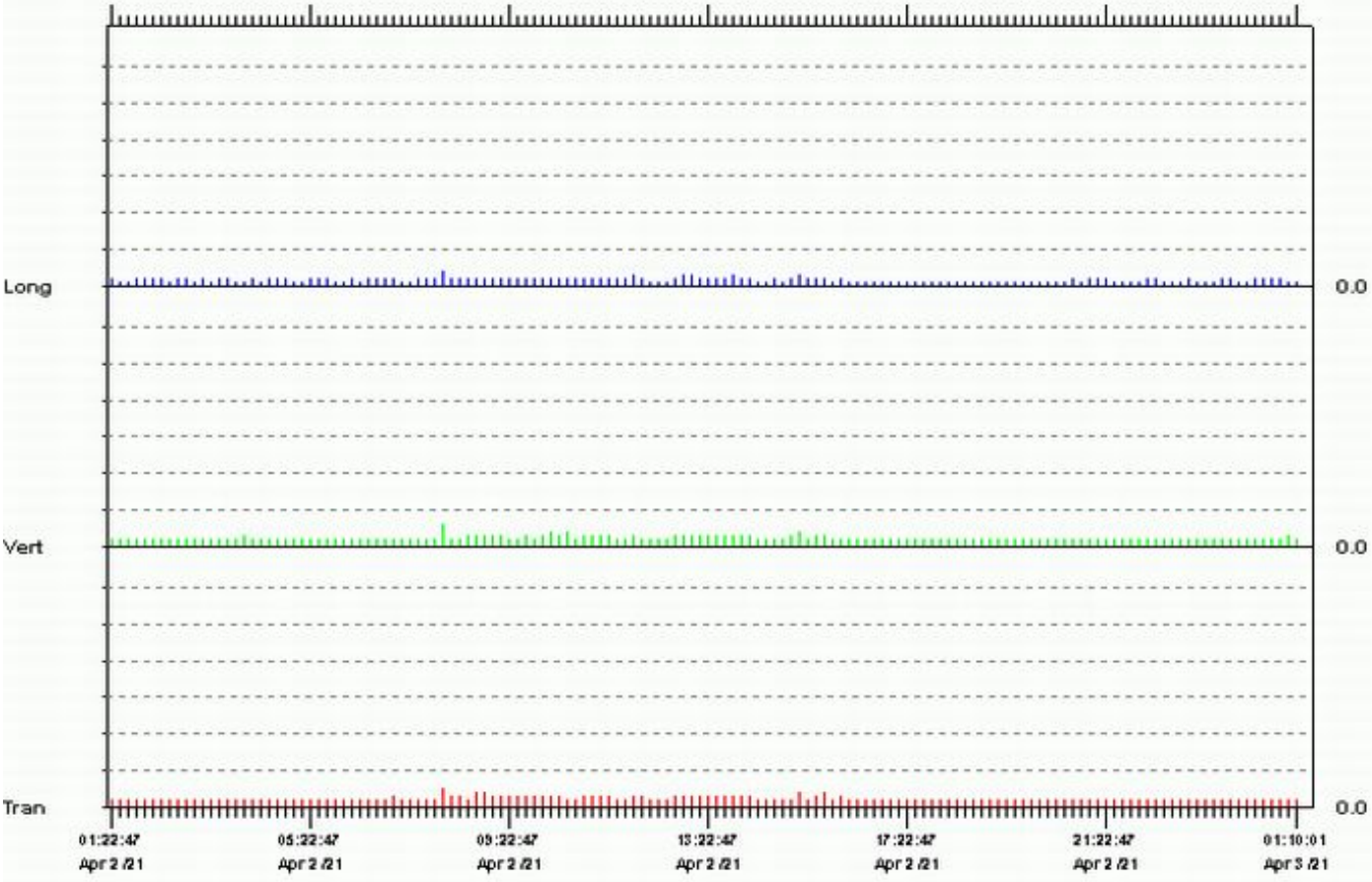
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0250	0.0300	0.0200	in/s
ZC Freq	20	20	26	Hz
Date	Apr 2 /21	Apr 2 /21	Apr 2 /21	
Time	07:54:17	07:54:17	07:54:17	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0354 in/s on April 2, 2021 At 07:54:17





Created: April 3, 2021 (V - 10.40)

Start	01:12:48 April 3, 2021
Finish	01:10:01 April 4, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IX4G.PCOH

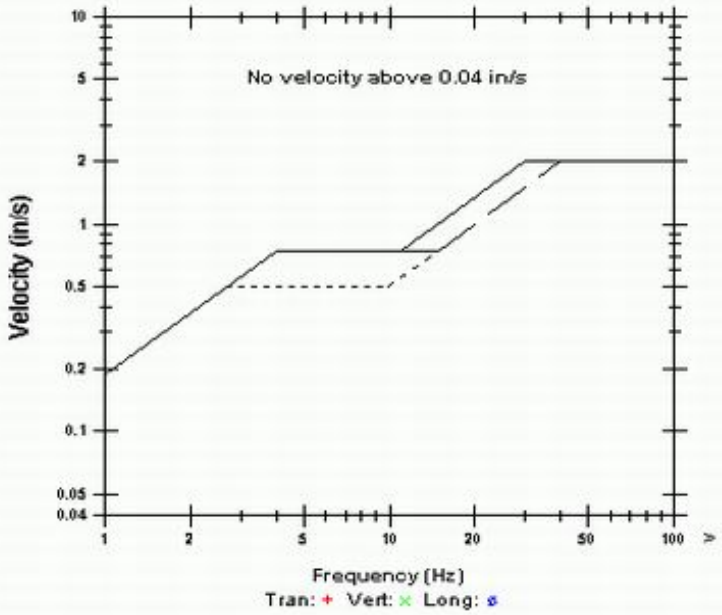
Post Event Notes

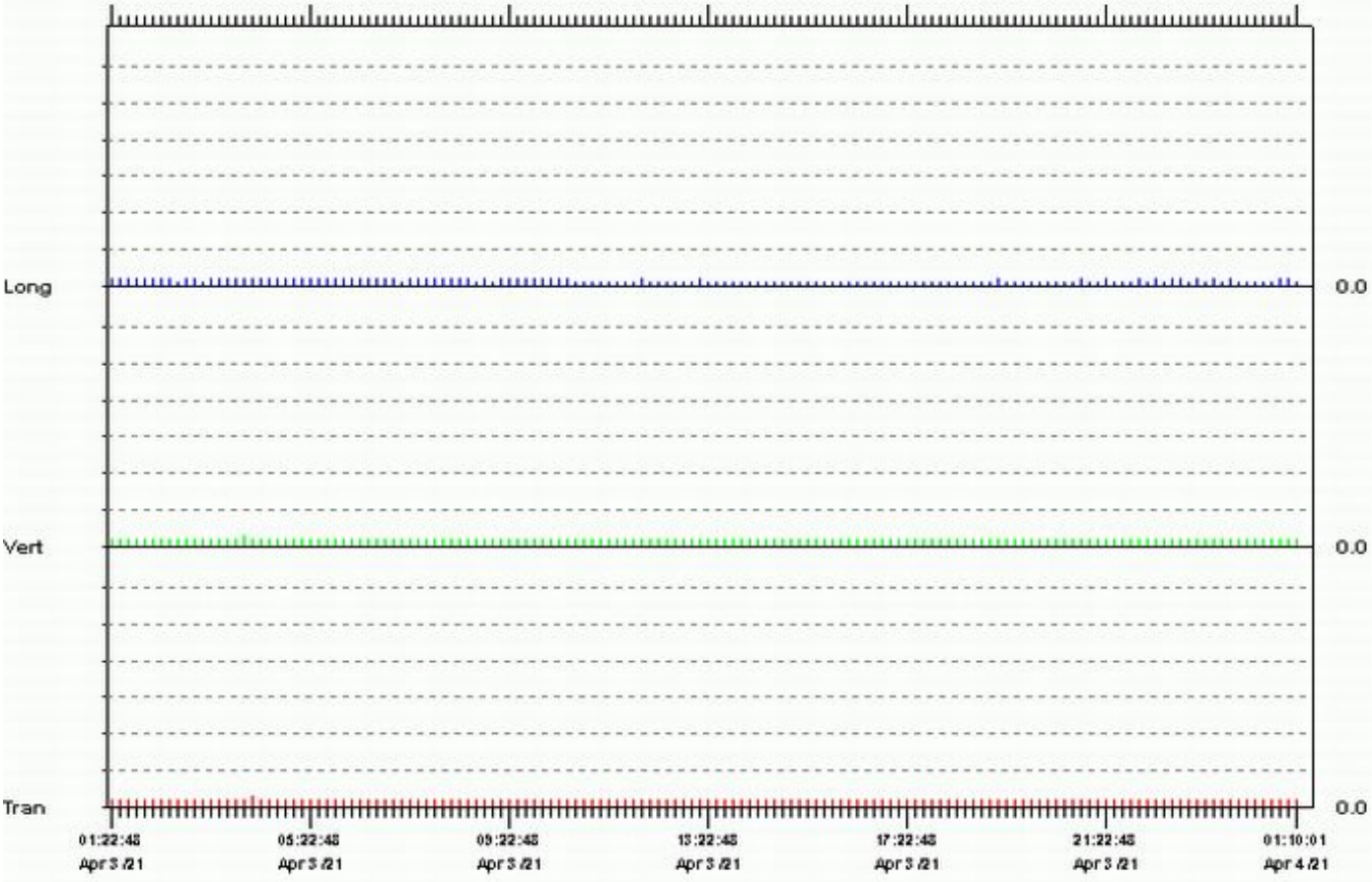
Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.0150	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	Apr 3 /21	Apr 3 /21	Apr 3 /21	
Time	04:10:03	04:01:03	01:18:03	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0158 in/s on April 3, 2021 At 04:01:03

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 4, 2021 (V - 10.40)

Start	01:12:46 April 4, 2021
Finish	01:10:01 April 5, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

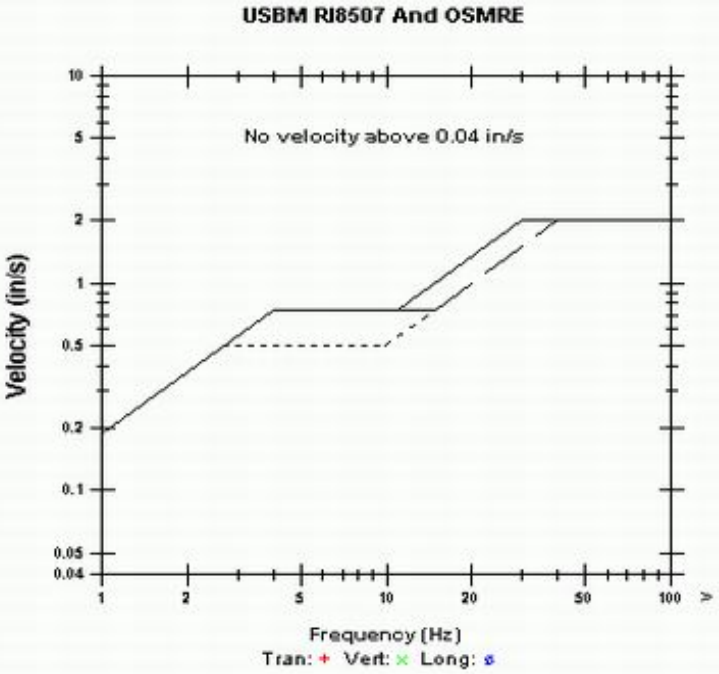
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IX6B.DA0H

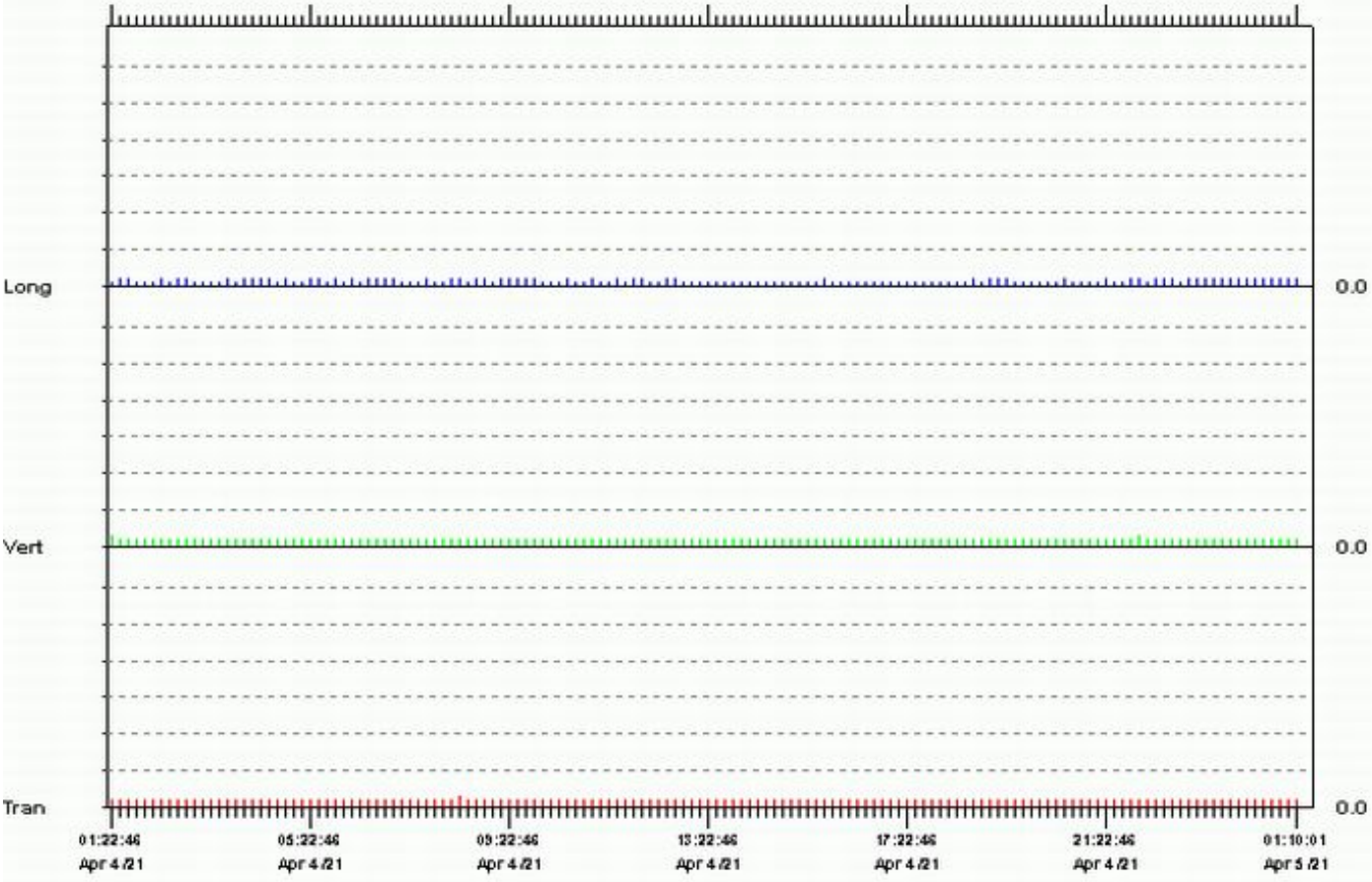
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.0150	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	Apr 4 /21	Apr 4 /21	Apr 4 /21	
Time	08:18:01	01:19:01	01:25:31	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0187 in/s on April 4, 2021 At 21:59:01





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 5, 2021 (V - 10.40)

Start	01:12:46 April 5, 2021
Finish	01:10:01 April 6, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

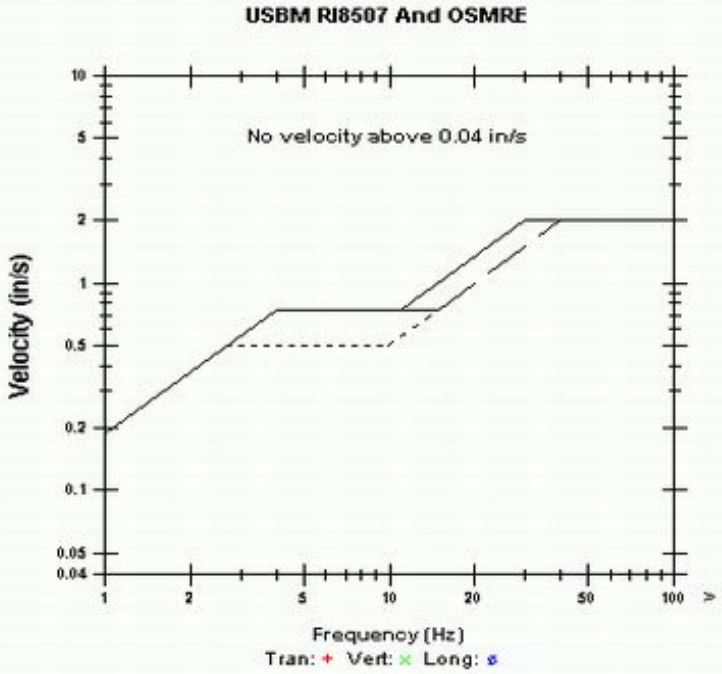
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IX86.1A0H

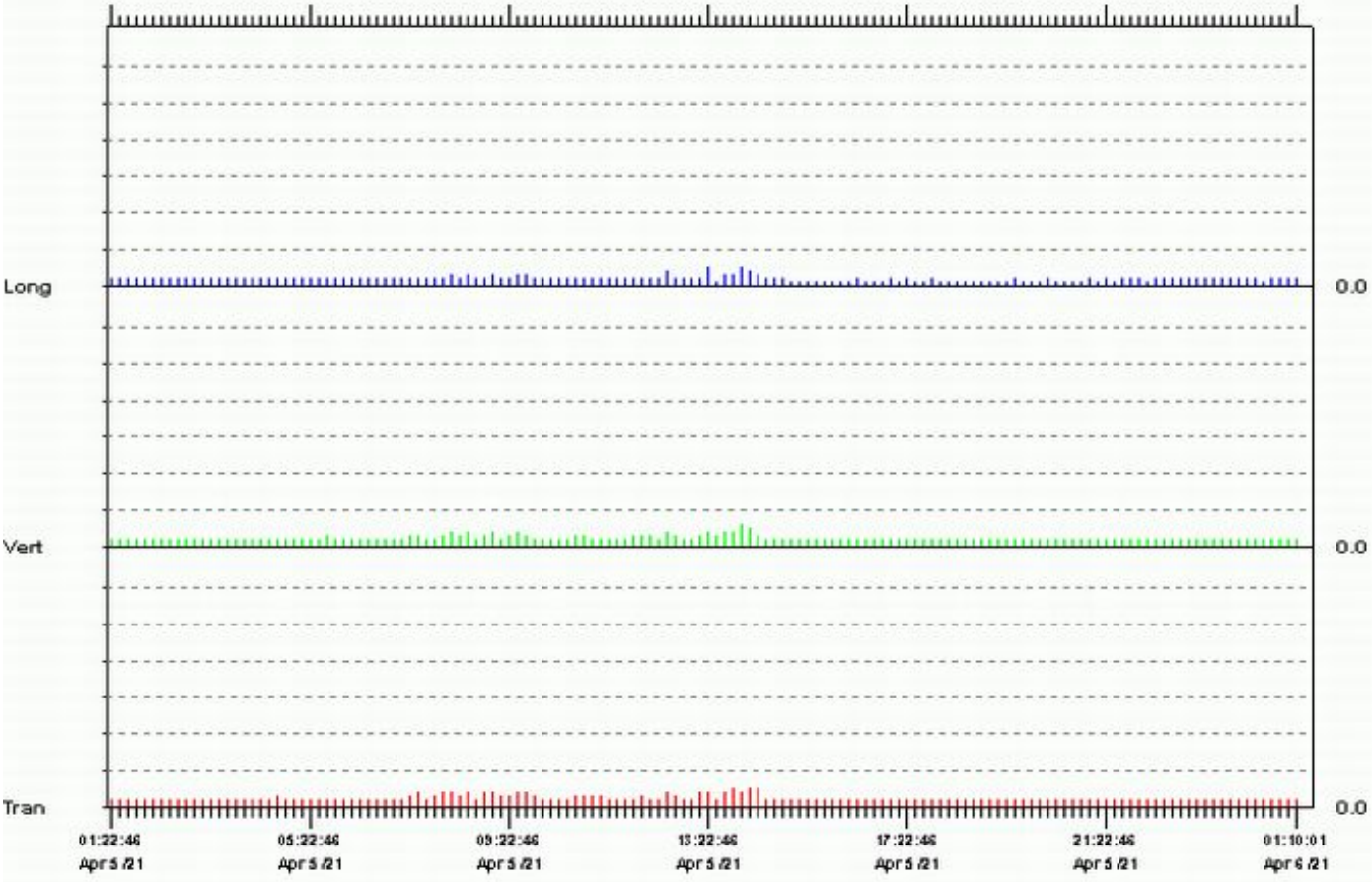
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0250	0.0300	0.0250	in/s
ZC Freq	26	39	47	Hz
Date	Apr 5 /21	Apr 5 /21	Apr 5 /21	
Time	13:44:46	13:58:01	13:17:46	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0391 in/s on April 5, 2021 At 13:58:01





Created: April 6, 2021 (V - 10.40)

Start	01:12:48 April 6, 2021
Finish	01:10:01 April 7, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

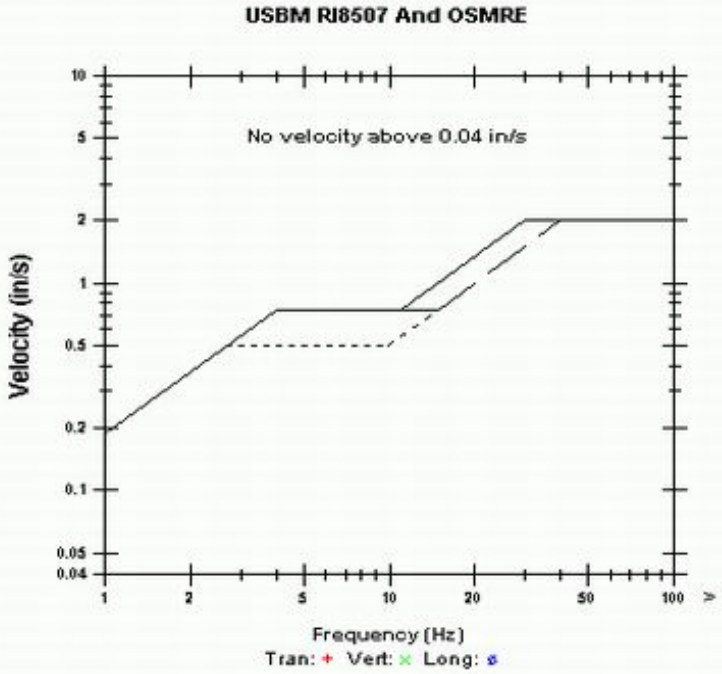
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IXA0.PCOH

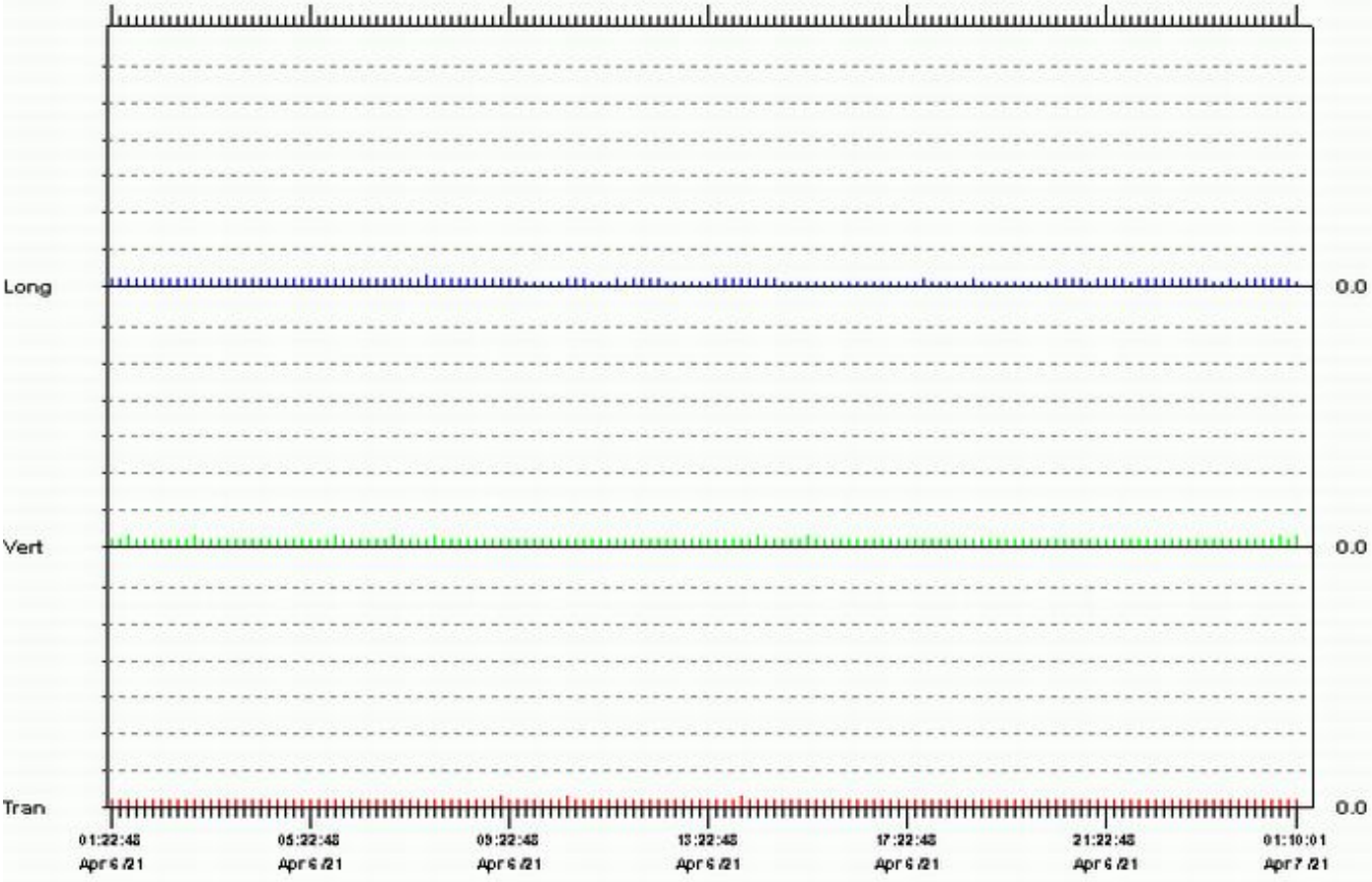
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.0150	0.0150	in/s
ZC Freq	9.3	>100	16	Hz
Date	Apr 6 /21	Apr 6 /21	Apr 6 /21	
Time	09:06:33	01:35:03	07:42:48	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0187 in/s on April 6, 2021 At 07:42:48





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 7, 2021 (V - 10.40)

Start	01:12:47 April 7, 2021
Finish	01:10:01 April 8, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

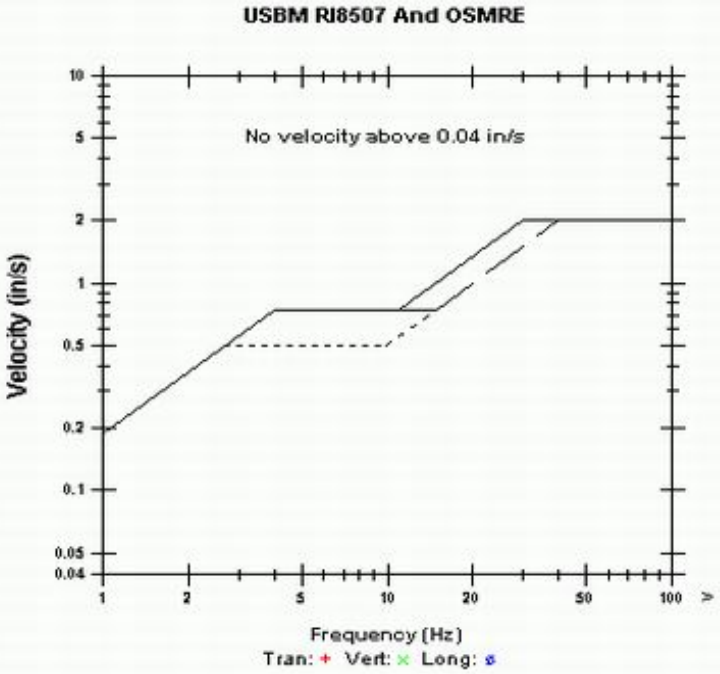
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IXBV.DB0H

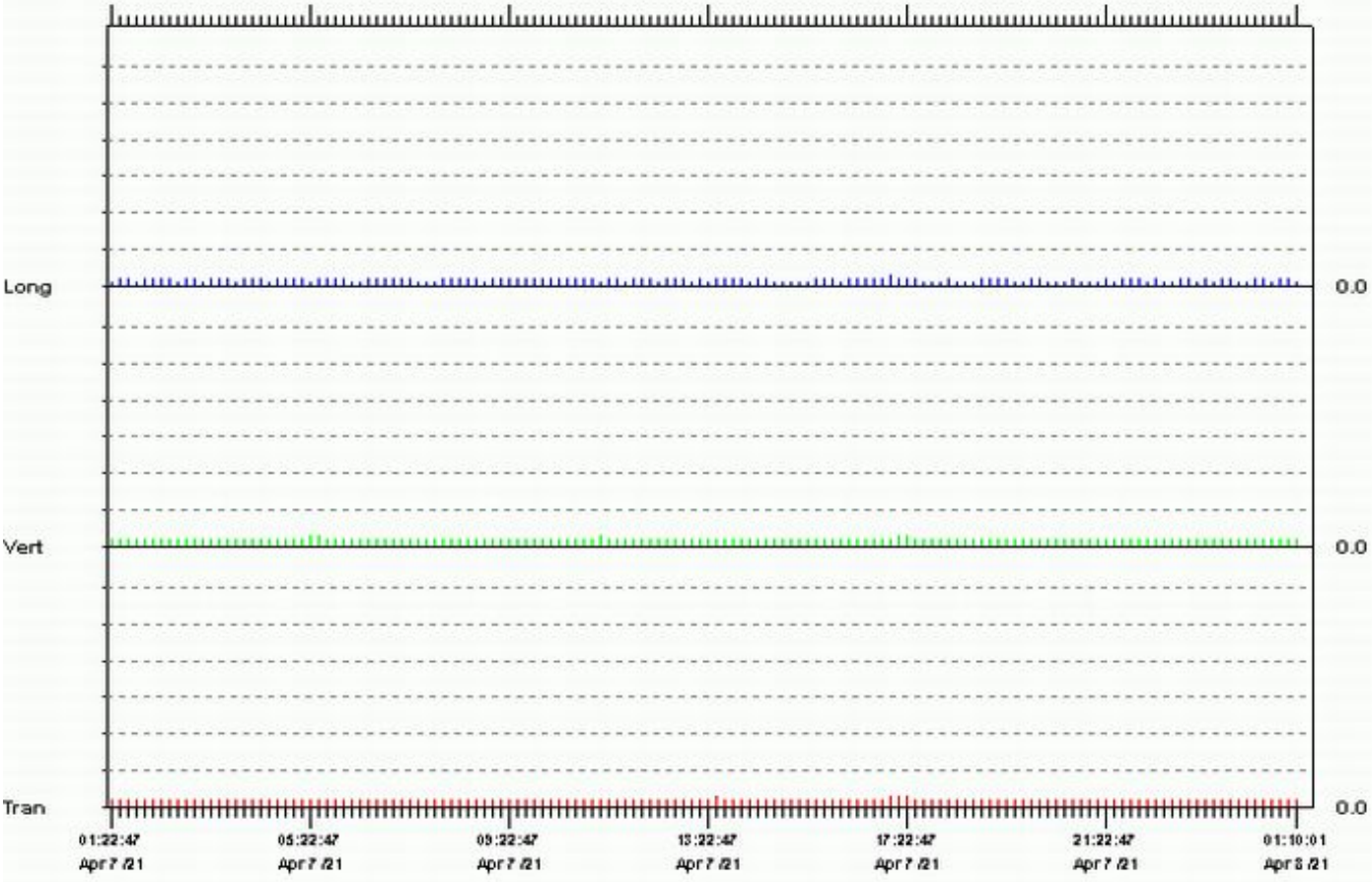
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.0150	0.0150	in/s
ZC Freq	>100	>100	18	Hz
Date	Apr 7 /21	Apr 7 /21	Apr 7 /21	
Time	13:30:02	05:21:02	16:57:47	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0206 in/s on April 7, 2021 At 17:06:02





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 8, 2021 (V - 10.40)

Start	01:12:47 April 8, 2021
Finish	01:10:01 April 9, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IXDQ.1B0H

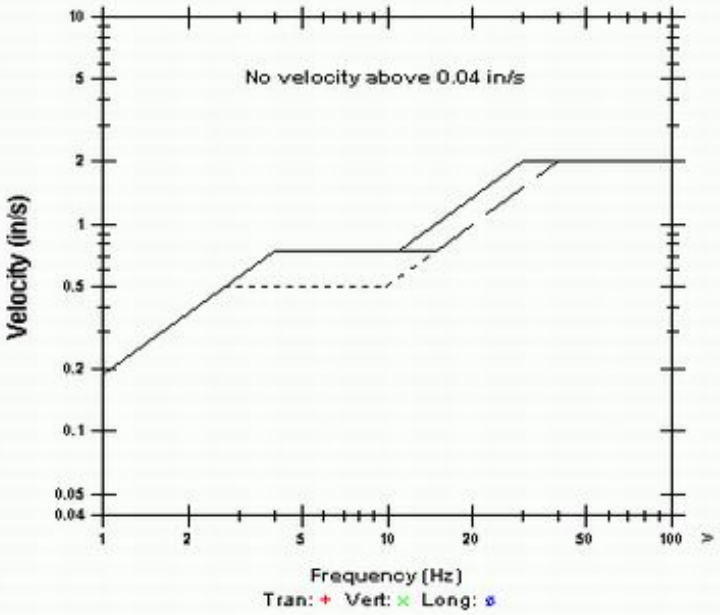
Post Event Notes

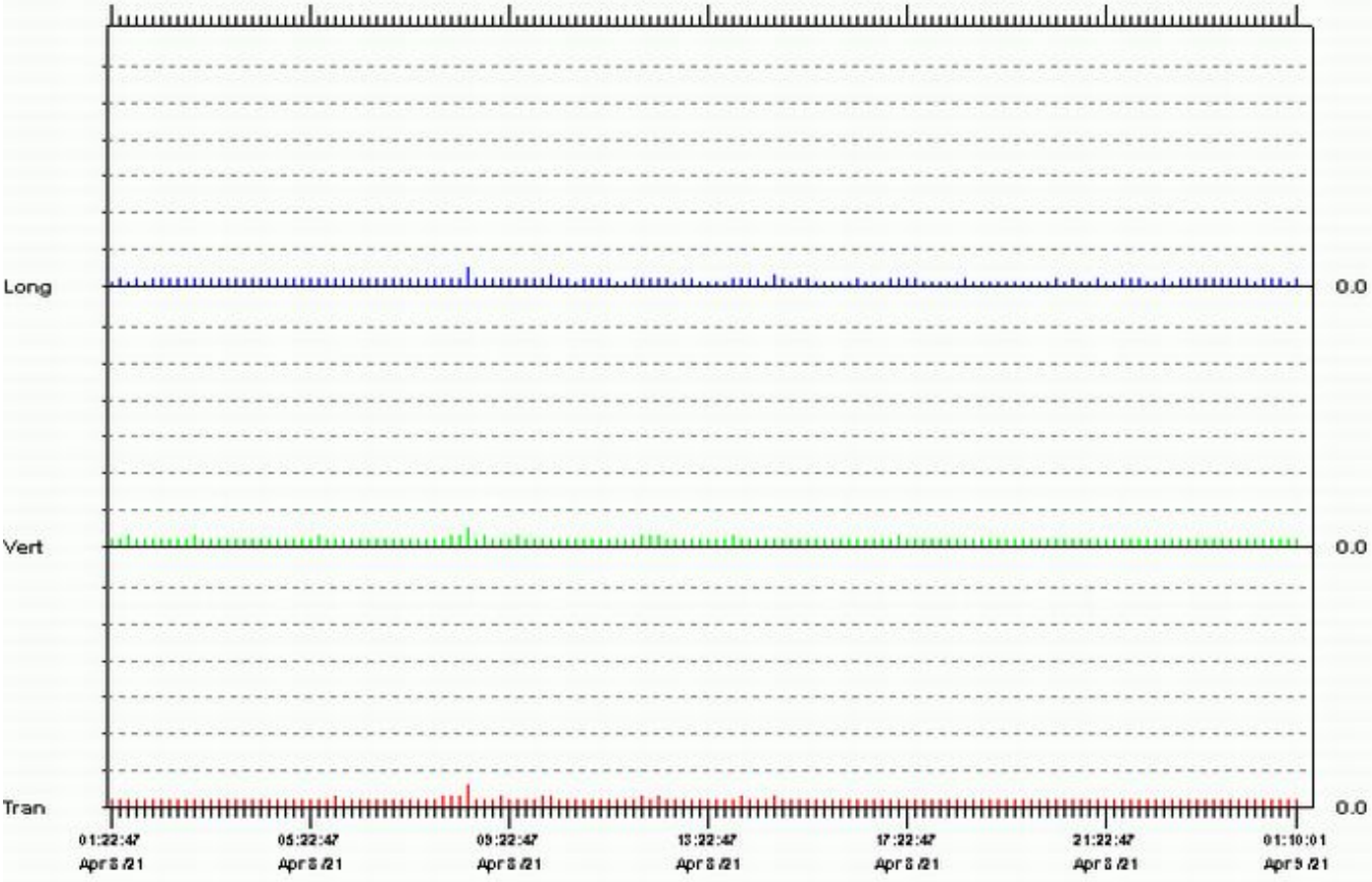
Extended Notes

	Tran	Vert	Long	
PPV	0.0300	0.0250	0.0250	in/s
ZC Freq	19	26	26	Hz
Date	Apr 8 /21	Apr 8 /21	Apr 8 /21	
Time	08:28:02	08:25:47	08:25:47	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0354 in/s on April 8, 2021 At 08:25:47

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 9, 2021 (V - 10.40)

Start	01:12:44 April 9, 2021
Finish	01:10:01 April 10, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

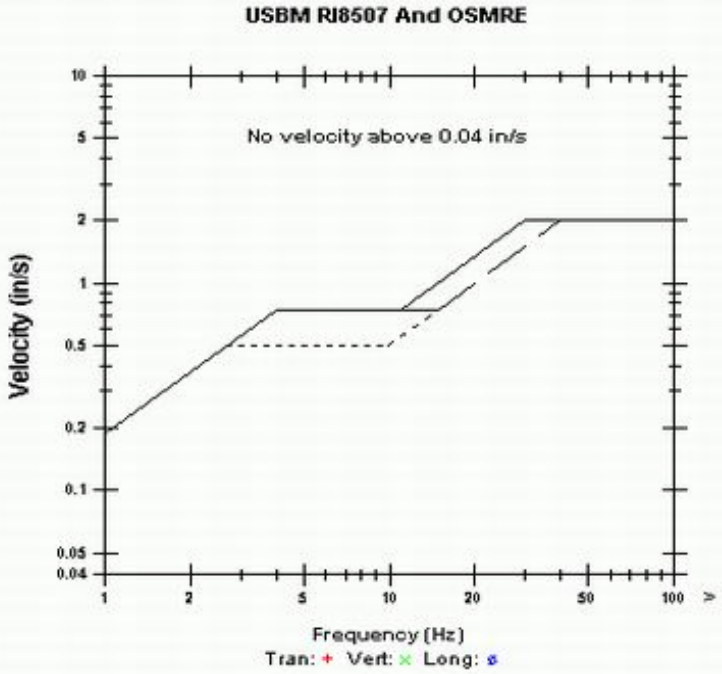
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IXFK.P80H

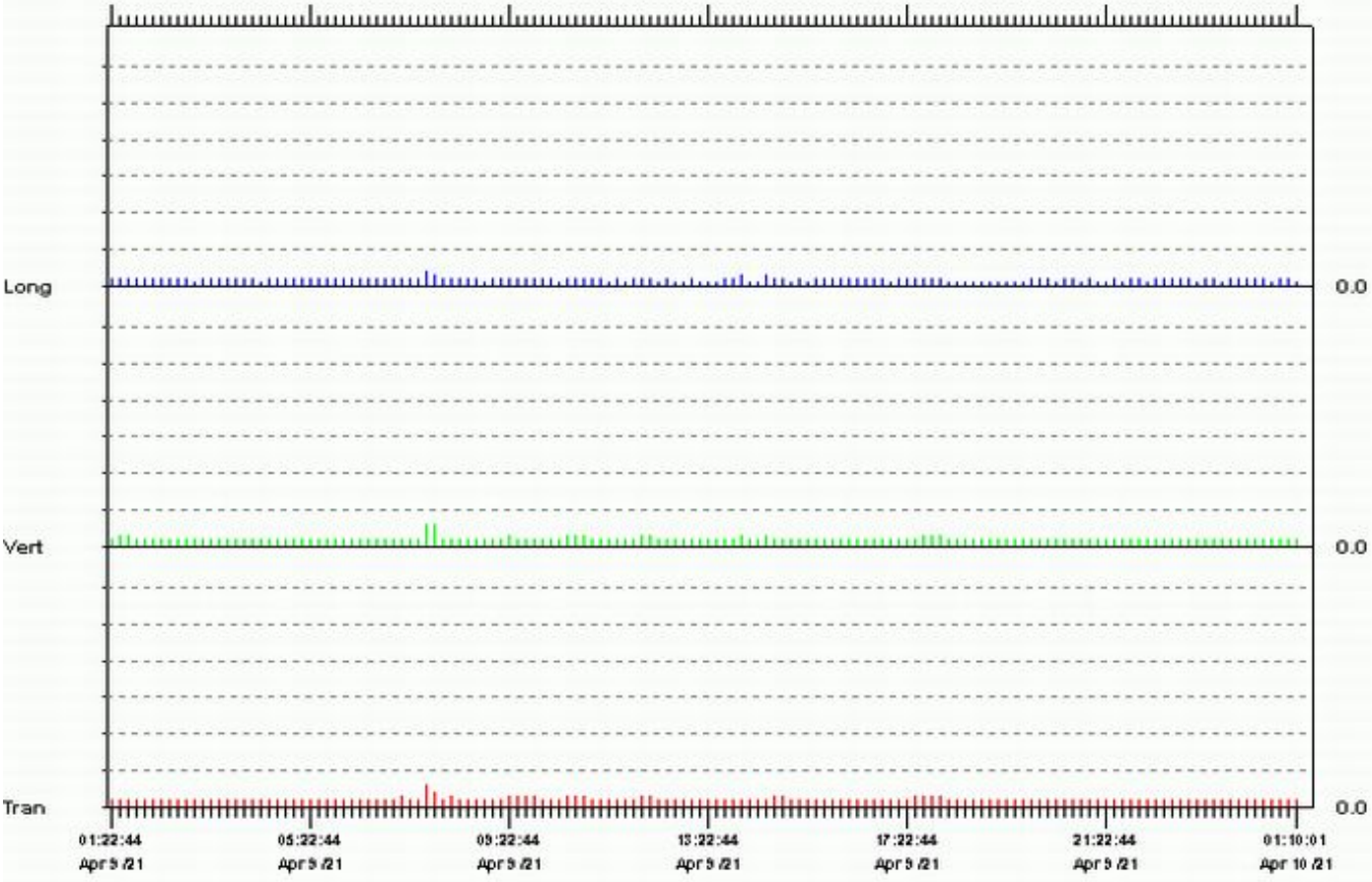
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0300	0.0300	0.0200	in/s
ZC Freq	20	22	24	Hz
Date	Apr 9 /21	Apr 9 /21	Apr 9 /21	
Time	07:35:29	07:35:29	07:35:29	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0339 in/s on April 9, 2021 At 07:35:29





Created: April 10, 2021 (V - 10.49)

Start	01:12:47 April 10, 2021
Finish	01:10:01 April 11, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

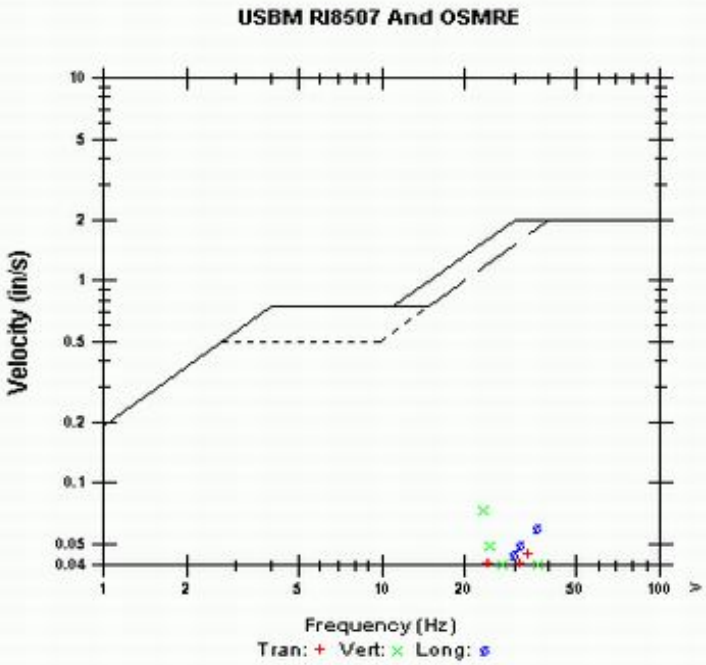
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IXHF.DB0H

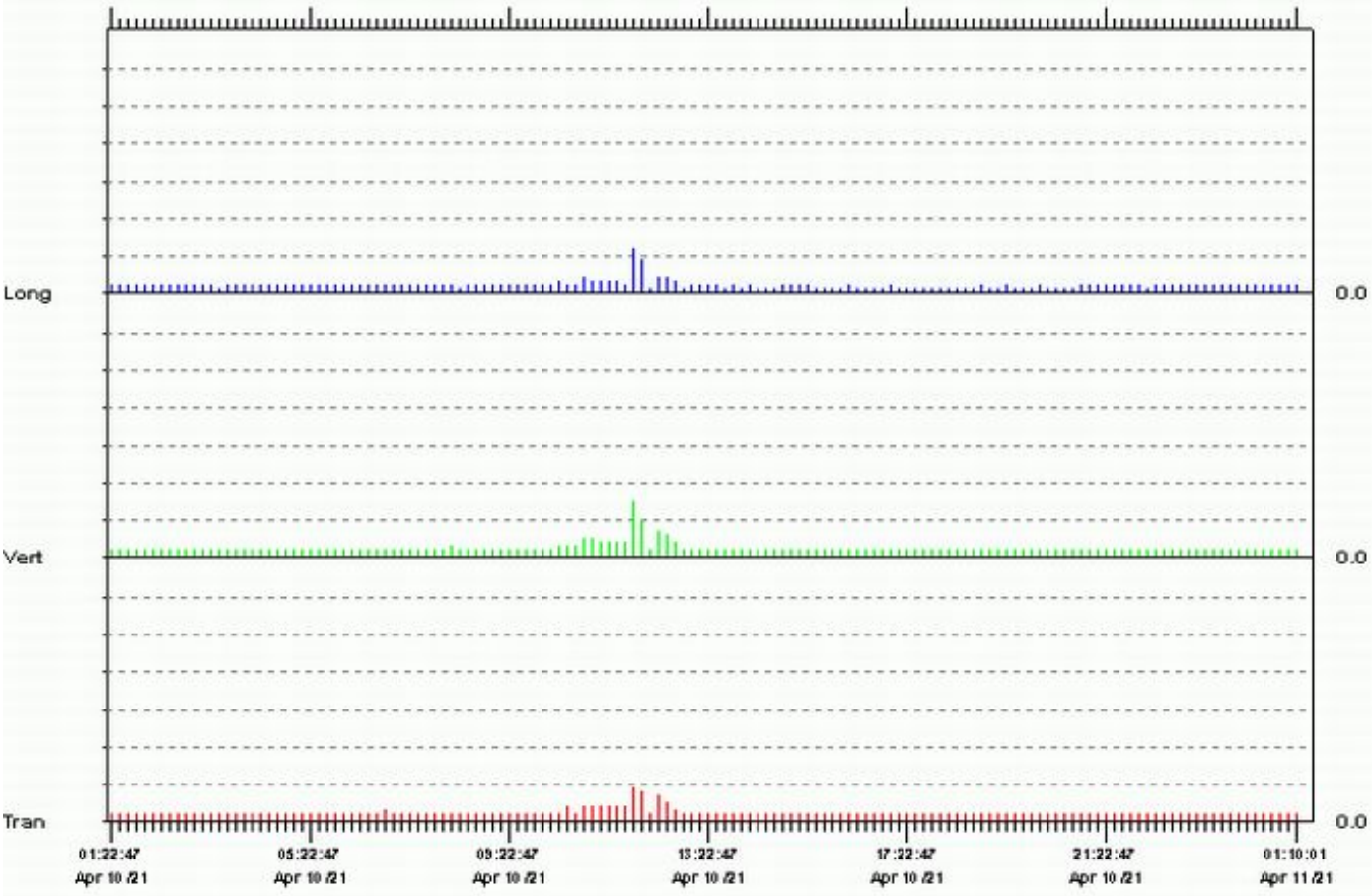
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0450	0.0750	0.0600	in/s
ZC Freq	34	23	37	Hz
Date	Apr 10 /21	Apr 10 /21	Apr 10 /21	
Time	11:50:47	11:52:32	11:50:47	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0873 in/s on April 10, 2021 At 11:52:32





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 11, 2021 (V - 10.49)

Start	01:12:46 April 11, 2021
Finish	01:10:01 April 12, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IXJA.1A0H

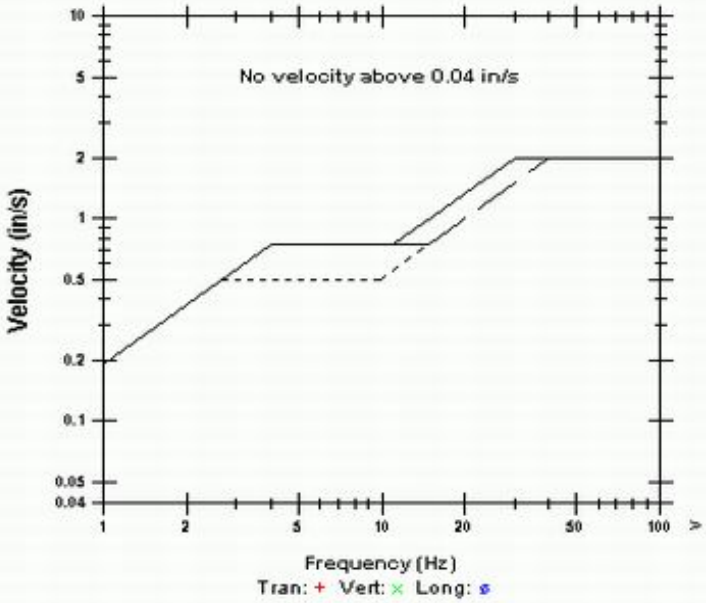
Post Event Notes

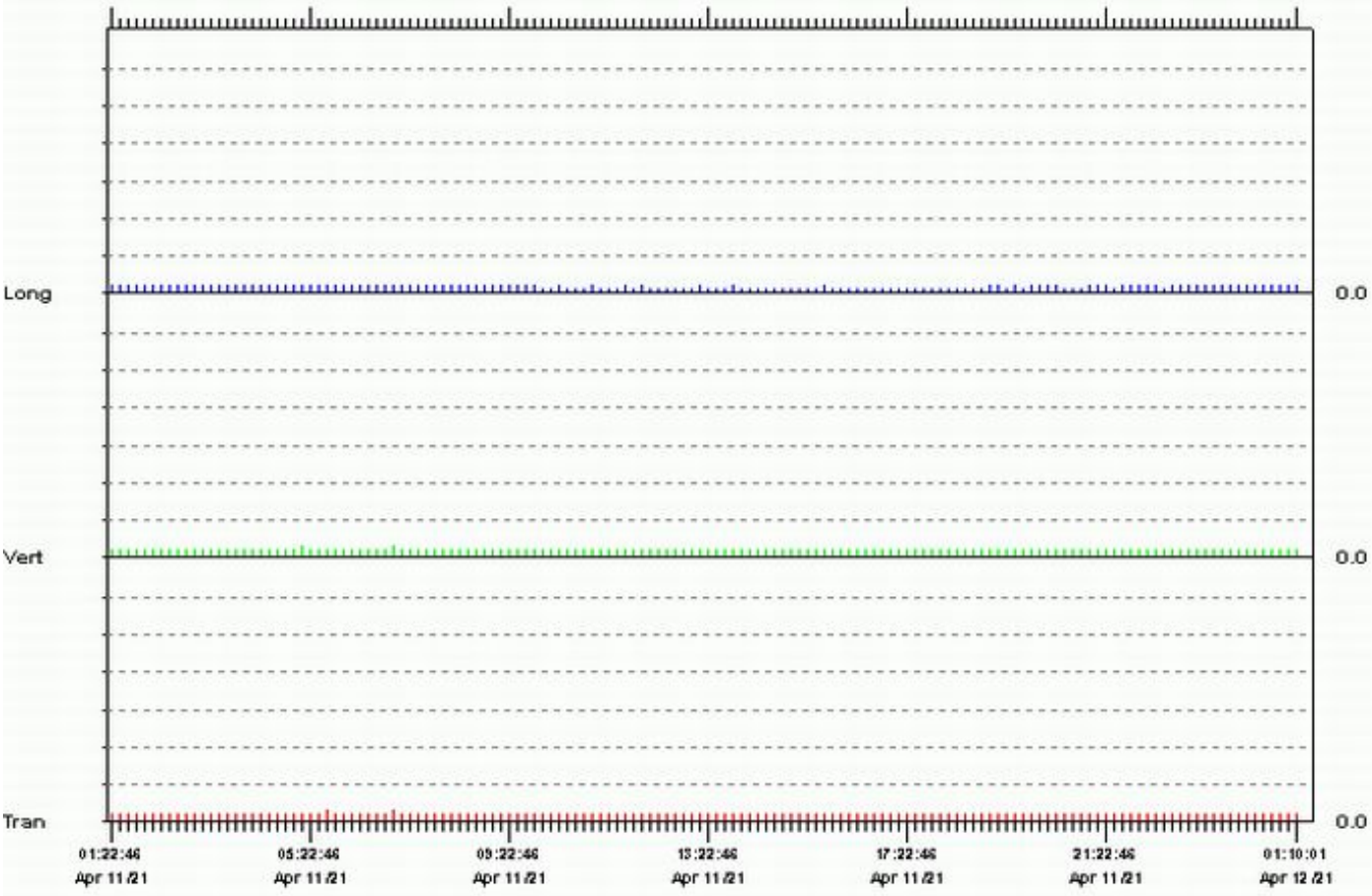
Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.0150	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	Apr 11 /21	Apr 11 /21	Apr 11 /21	
Time	05:35:01	05:09:01	01:14:31	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0212 in/s on April 11, 2021 At 06:57:01

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 12, 2021 (V - 10.49)

Start	01:12:46 April 12, 2021
Finish	01:10:01 April 13, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

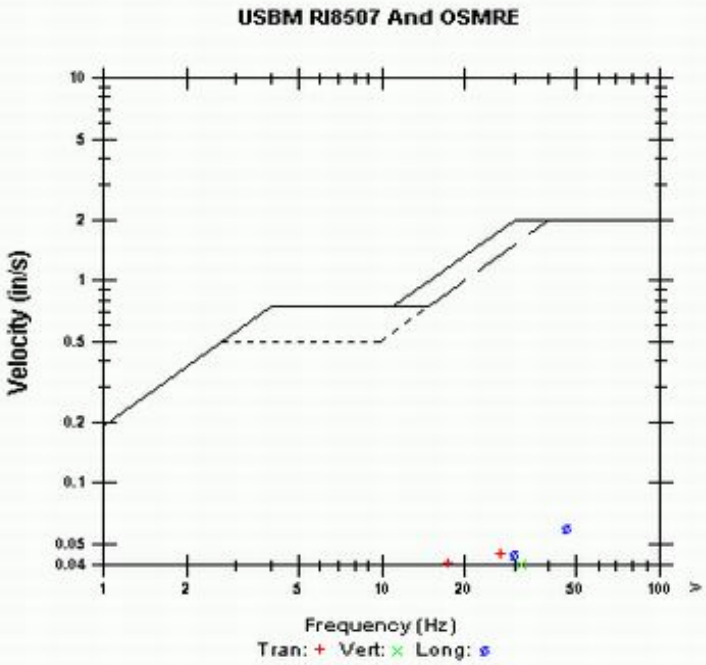
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IXL4.PA0H

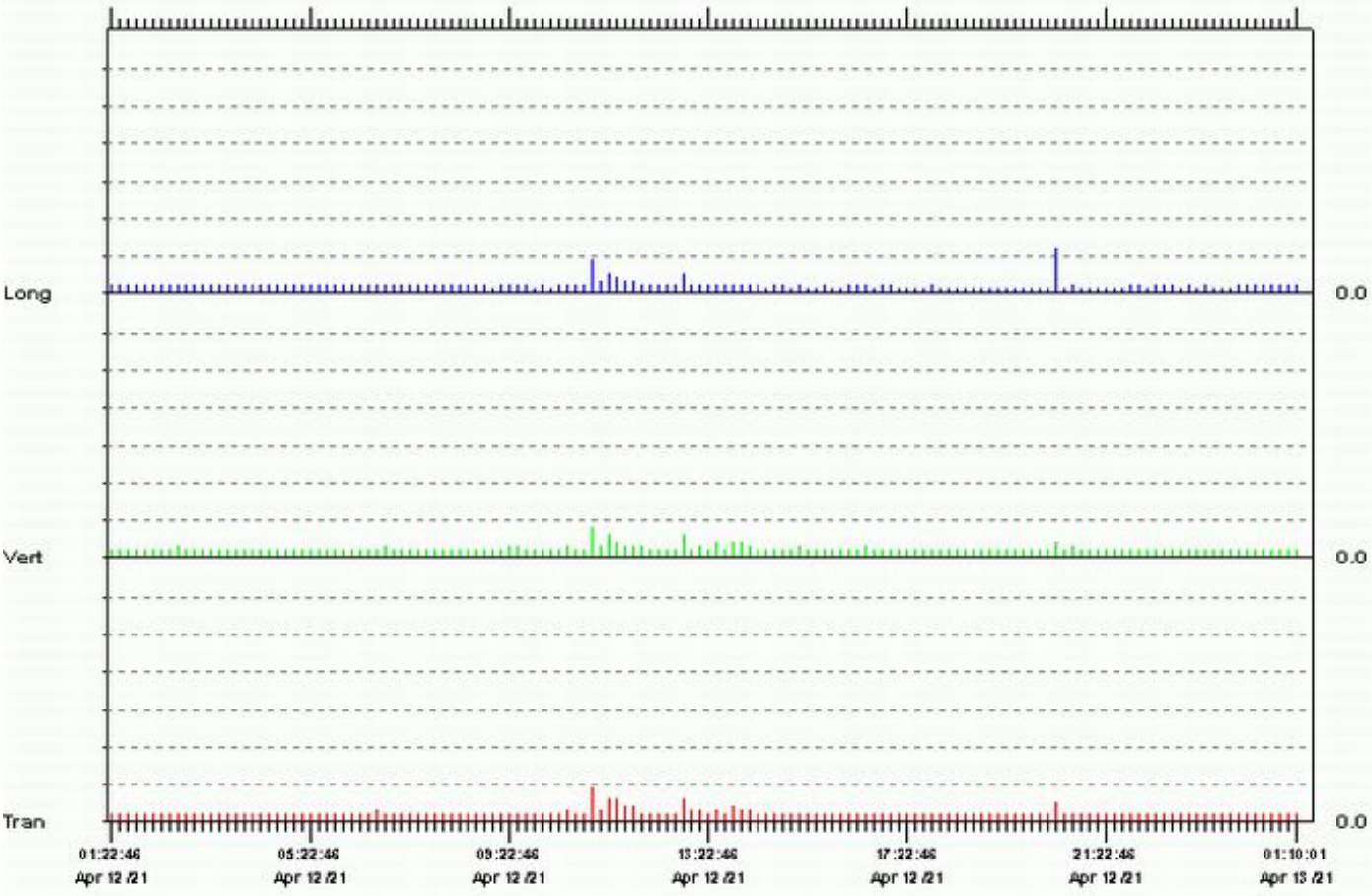
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0450	0.0400	0.0600	in/s
ZC Freq	27	32	47	Hz
Date	Apr 12 /21	Apr 12 /21	Apr 12 /21	
Time	11:00:46	10:59:16	20:19:31	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0634 in/s on April 12, 2021 At 10:59:16





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 13, 2021 (V - 10.49)

Start	01:12:42 April 13, 2021
Finish	01:10:01 April 14, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit LocationI:	Everett- MI

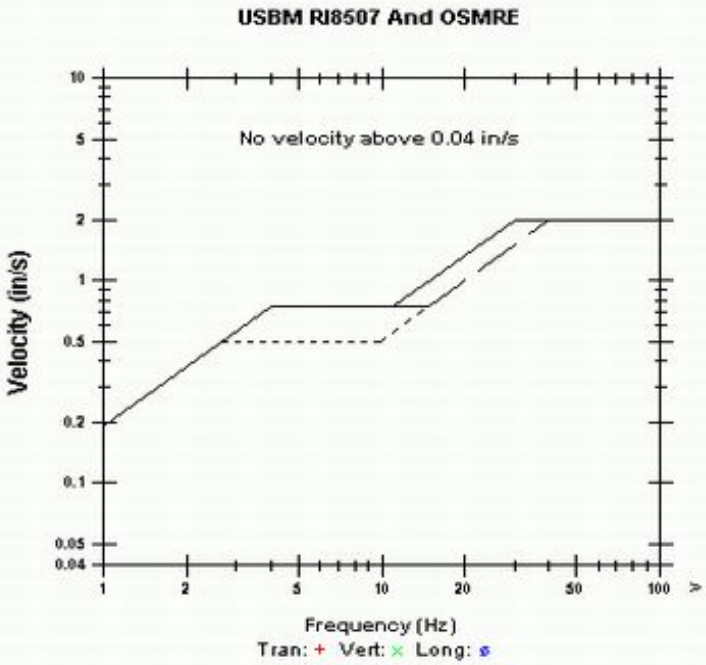
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IXMZ.D60H

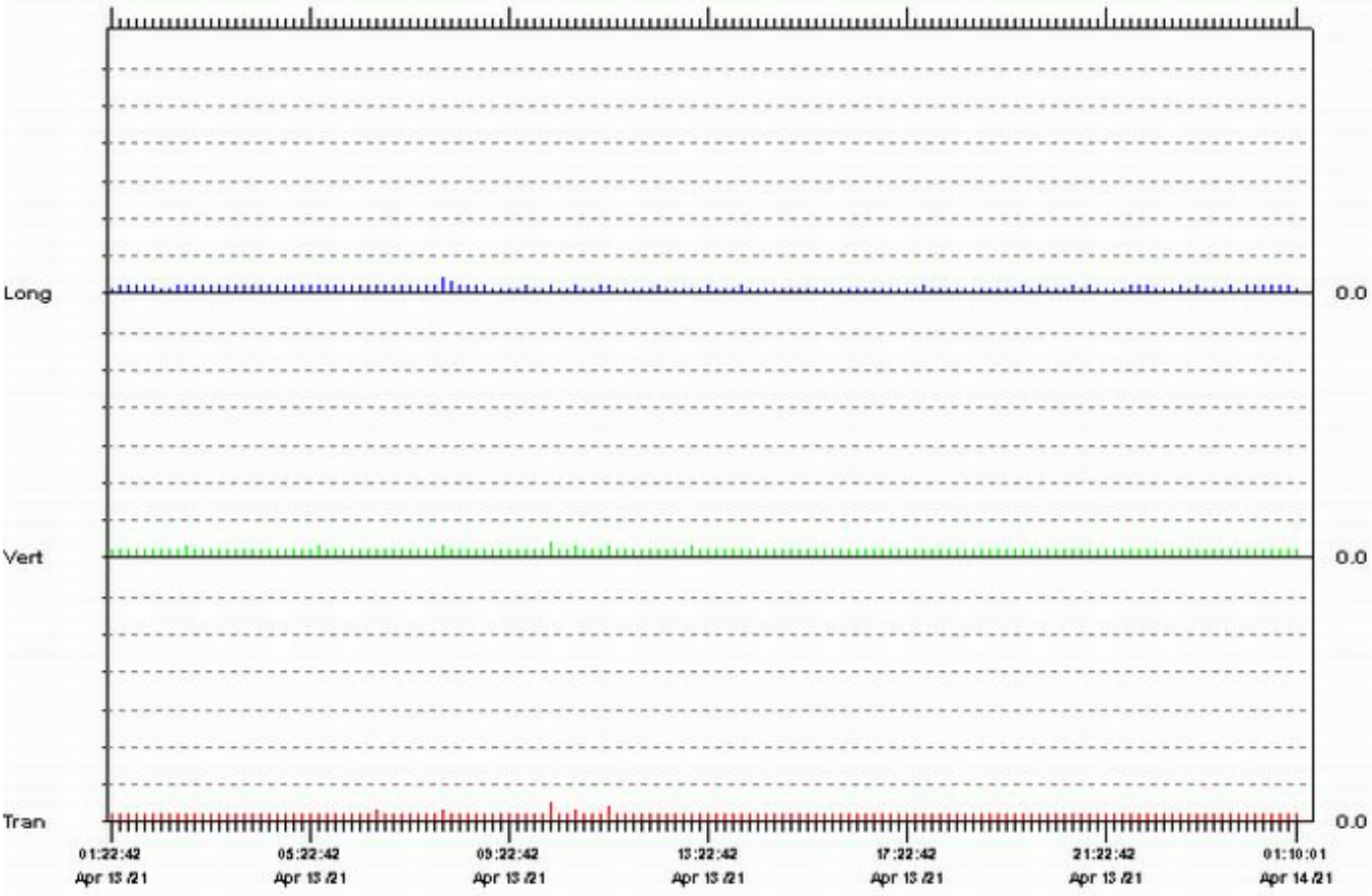
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0250	0.0200	0.0200	in/s
ZC Freq	18	21	47	Hz
Date	Apr 13 /21	Apr 13 /21	Apr 13 /21	
Time	10:09:42	10:09:42	07:53:27	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0296 in/s on April 13, 2021 At 10:09:42





Created: April 14, 2021 (V - 10.49)

Start	01:12:45 April 14, 2021
Finish	01:10:01 April 15, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

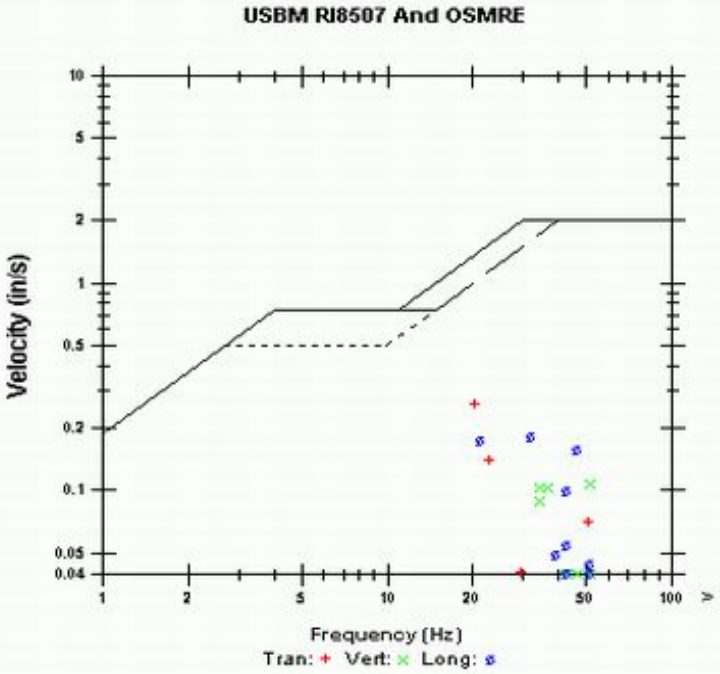
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IXOU.190H

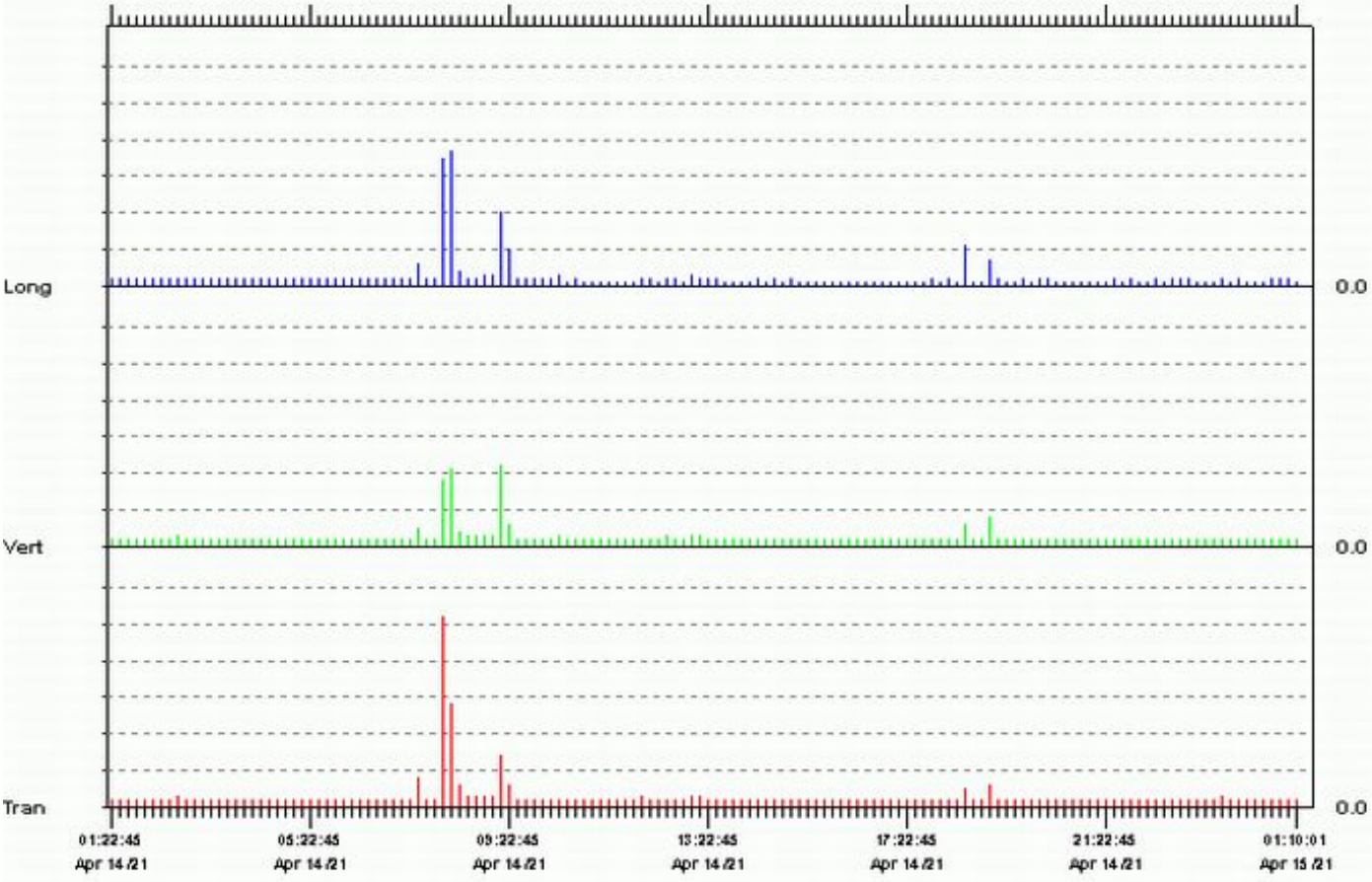
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.260	0.110	0.185	in/s
ZC Freq	20	51	32	Hz
Date	Apr 14 /21	Apr 14 /21	Apr 14 /21	
Time	08:00:30	09:03:00	08:09:45	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.320 in/s on April 14, 2021 At 08:00:30





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 15, 2021 (V - 10.49)

Start	01:12:51 April 15, 2021
Finish	01:10:01 April 16, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IXQO.PF0H

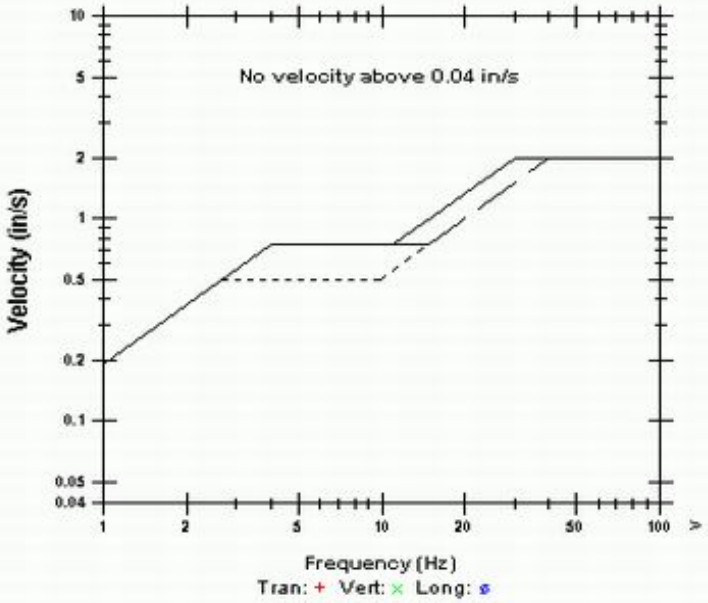
Post Event Notes

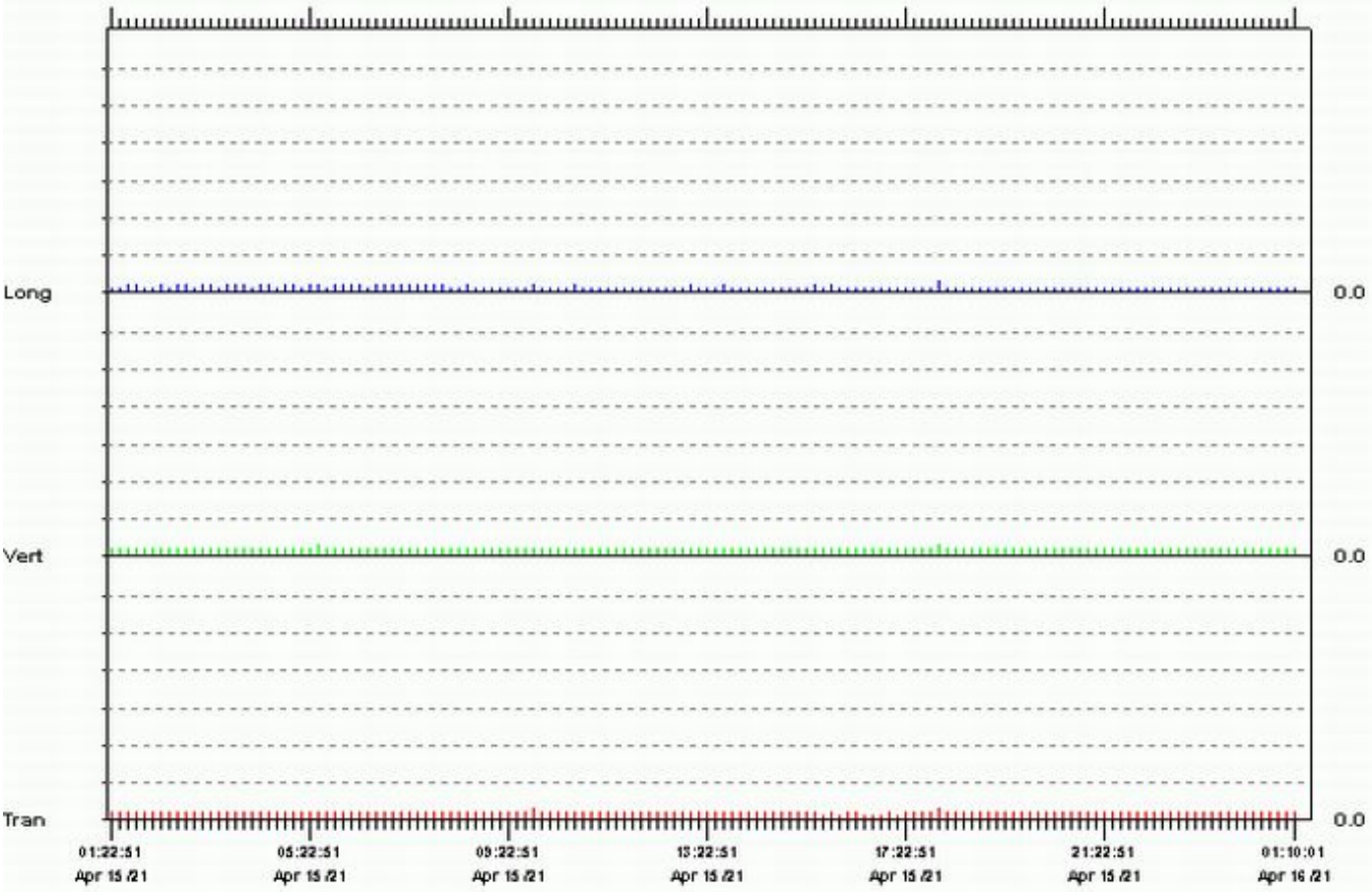
Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.0150	0.0150	in/s
ZC Freq	43	>100	>100	Hz
Date	Apr 15 /21	Apr 15 /21	Apr 15 /21	
Time	09:45:06	05:23:06	17:58:21	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0180 in/s on April 15, 2021 At 05:23:06

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 16, 2021 (V - 10.49)

Start	01:12:43 April 16, 2021
Finish	01:10:01 April 17, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IXSJ.D70H

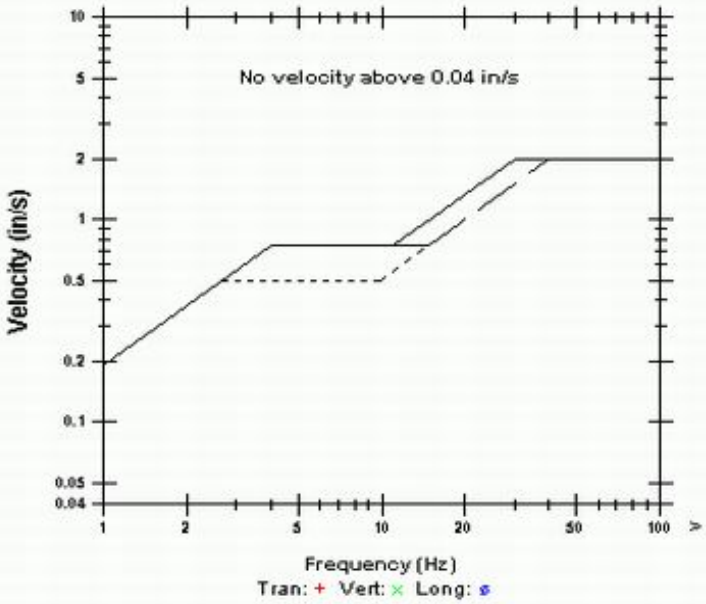
Post Event Notes

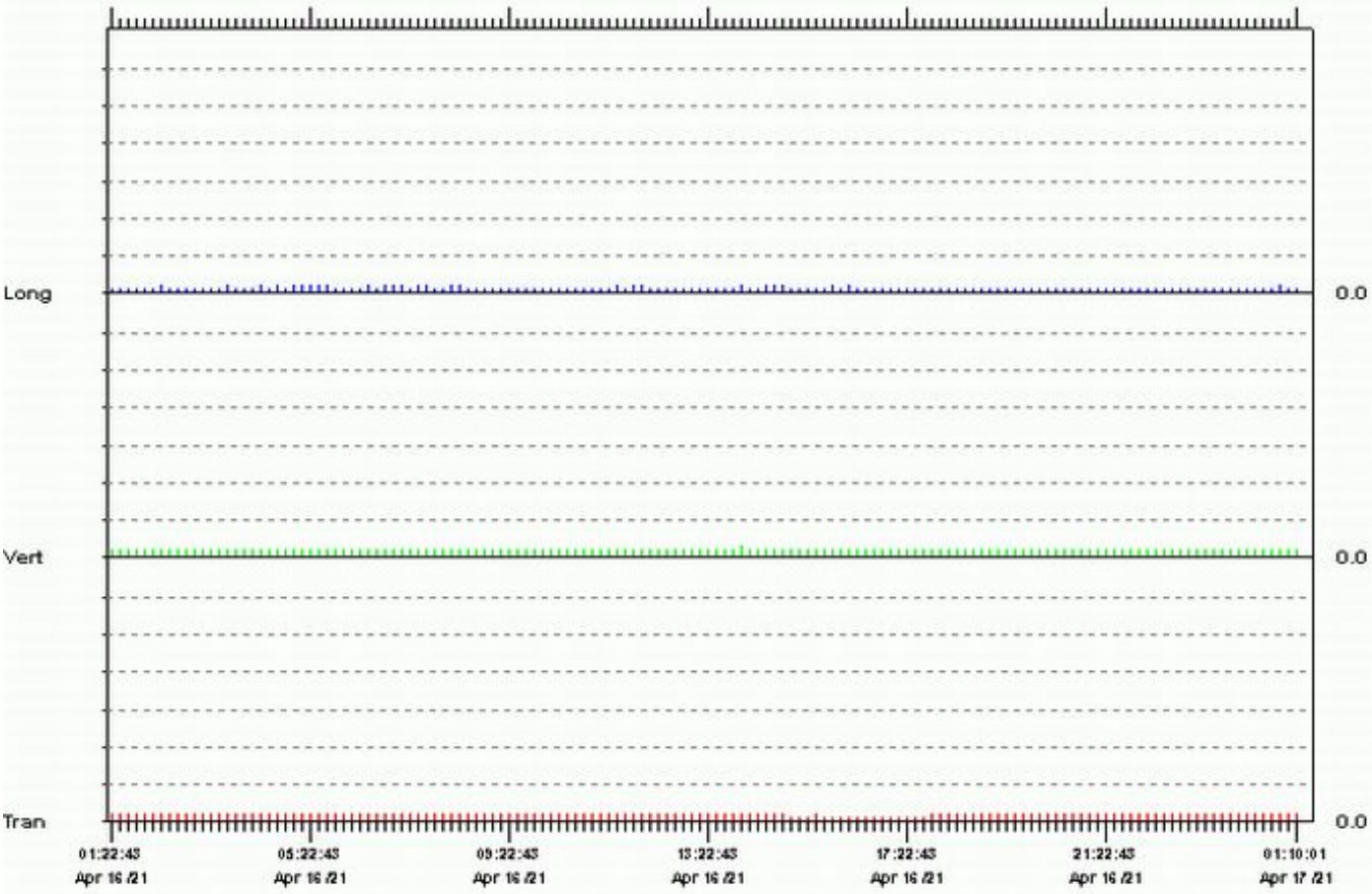
Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.0150	0.01000	in/s
ZC Freq	>100	18	>100	Hz
Date	Apr 16 /21	Apr 16 /21	Apr 16 /21	
Time	01:12:58	13:59:13	02:17:28	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0173 in/s on April 16, 2021 At 13:59:13

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 17, 2021 (V - 10.49)

Start	01:12:42 April 17, 2021
Finish	01:10:01 April 18, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

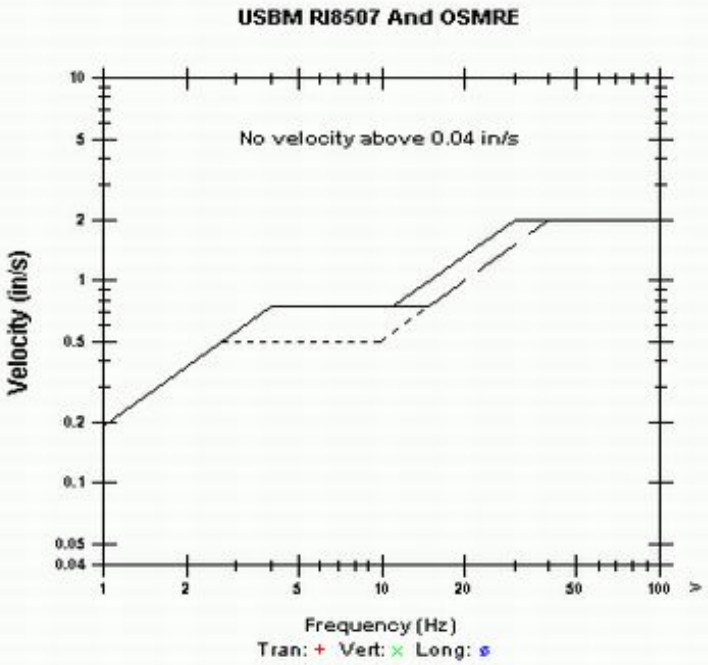
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IXUE.160H

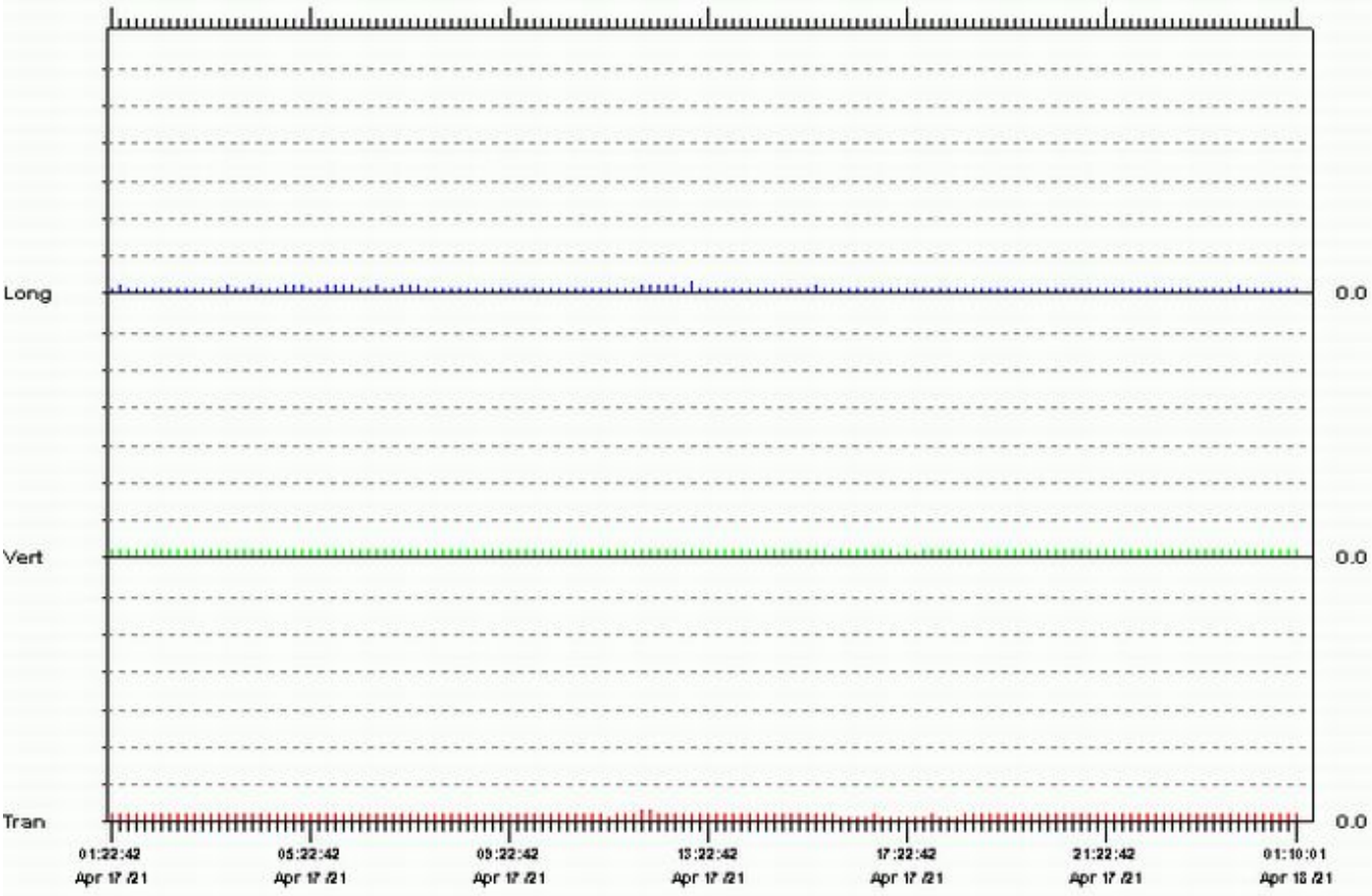
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.01000	0.0150	in/s
ZC Freq	15	>100	18	Hz
Date	Apr 17 /21	Apr 17 /21	Apr 17 /21	
Time	12:01:57	01:12:57	12:57:12	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0187 in/s on April 17, 2021 At 12:57:12





Created: April 18, 2021 (V - 10.49)

Start	01:12:43 April 18, 2021
Finish	01:10:01 April 19, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IX08.P70H

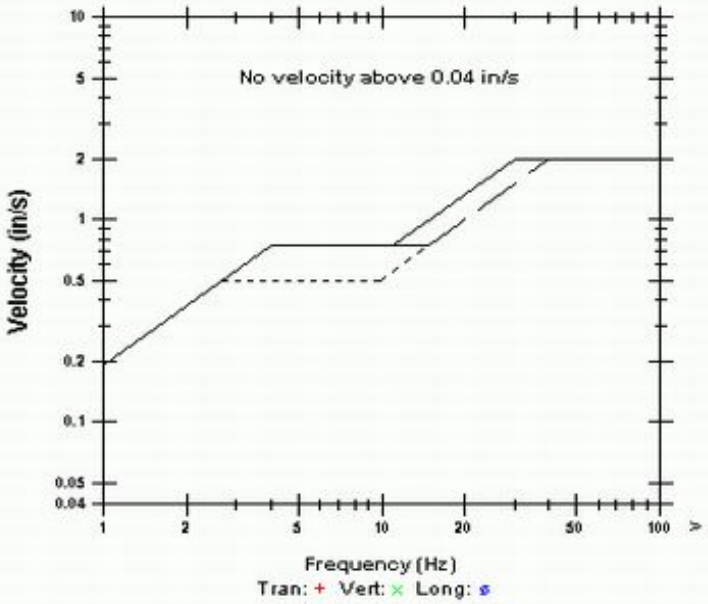
Post Event Notes

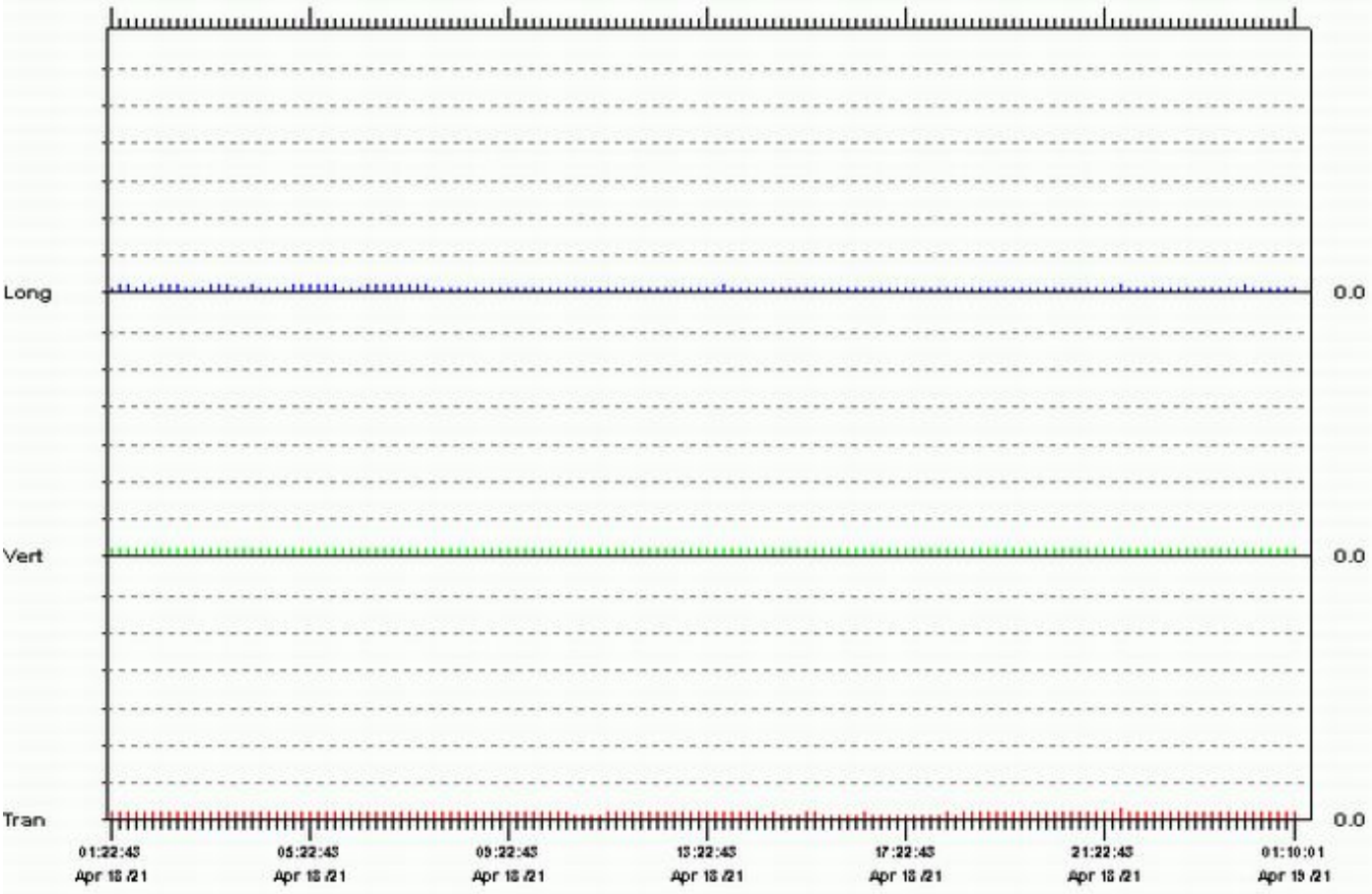
Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.01000	0.01000	in/s
ZC Freq	85	>100	>100	Hz
Date	Apr 18 /21	Apr 18 /21	Apr 18 /21	
Time	21:33:13	01:12:58	01:31:28	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0158 in/s on April 18, 2021 At 21:33:13

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 19, 2021 (V - 10.49)

Start	01:12:45 April 19, 2021
Finish	10:56:31 April 19, 2021
Intervals	2335.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.8 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IXY3.D90H

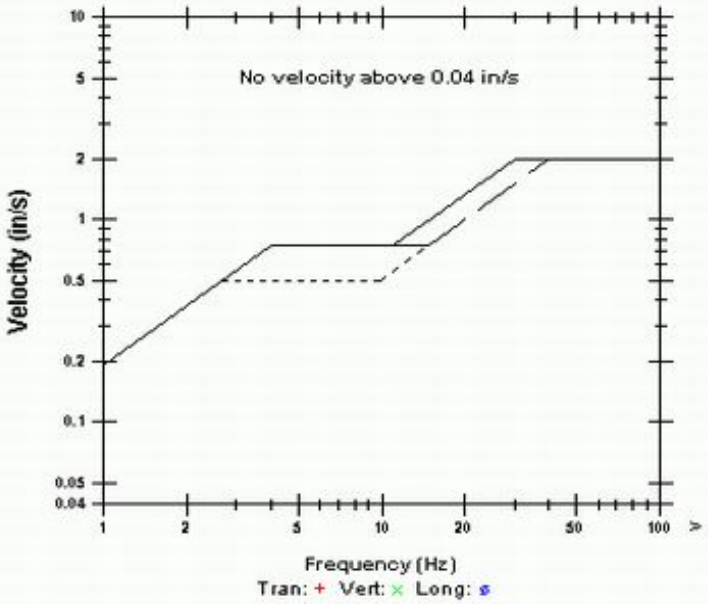
Post Event Notes

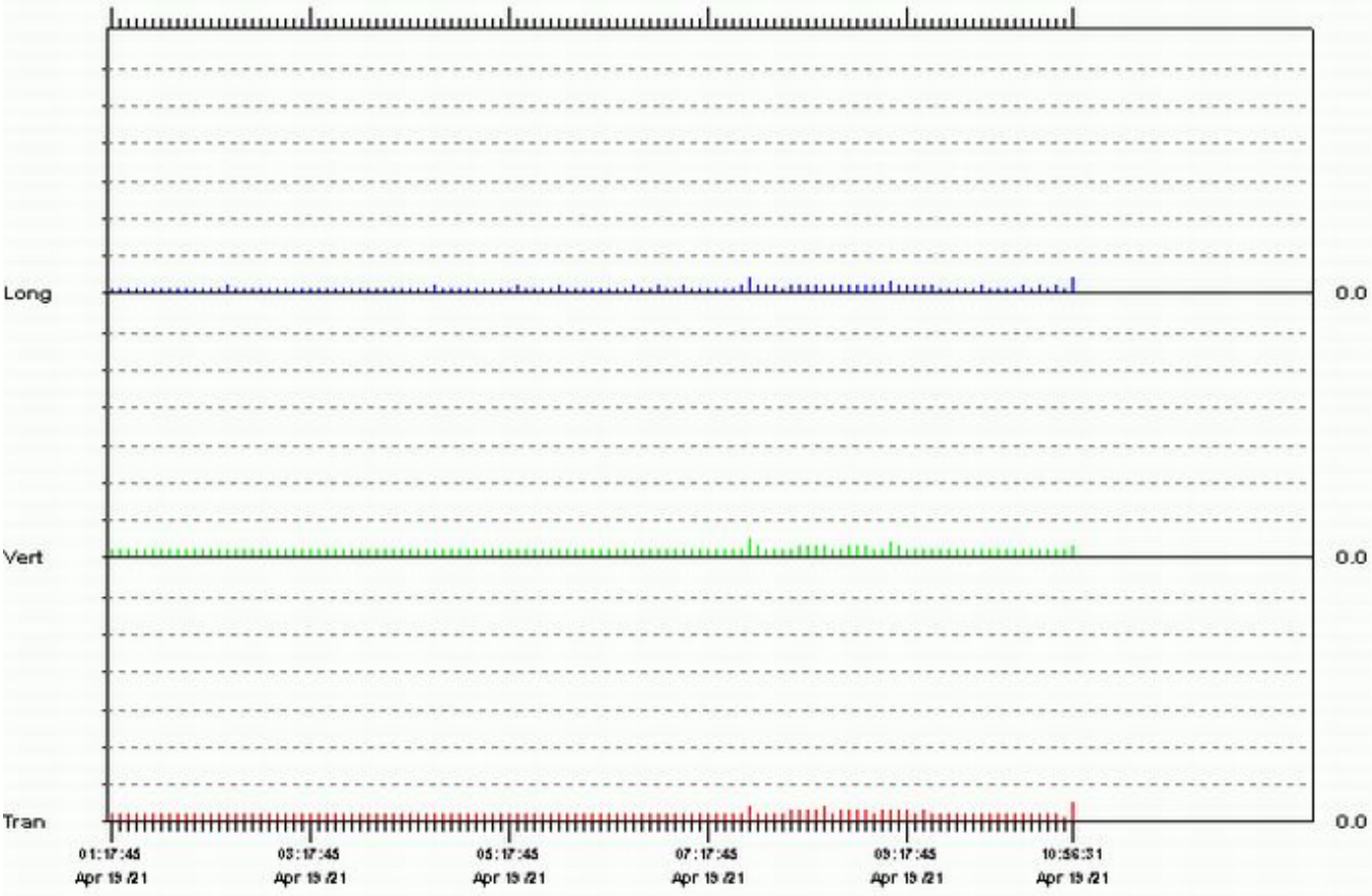
Extended Notes

	Tran	Vert	Long	
PPV	0.0250	0.0250	0.0200	in/s
ZC Freq	57	13	21	Hz
Date	Apr 19 /21	Apr 19 /21	Apr 19 /21	
Time	10:56:30	07:40:15	07:40:15	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0269 in/s on April 19, 2021 At 07:40:15

USBM RI8507 And OSMRE





Time(Seconds) 5 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 19, 2021 (V - 10.49)

Start	12:06:00 April 19, 2021
Finish	01:10:01 April 20, 2021
Intervals	3137.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M4401XYX.M00H

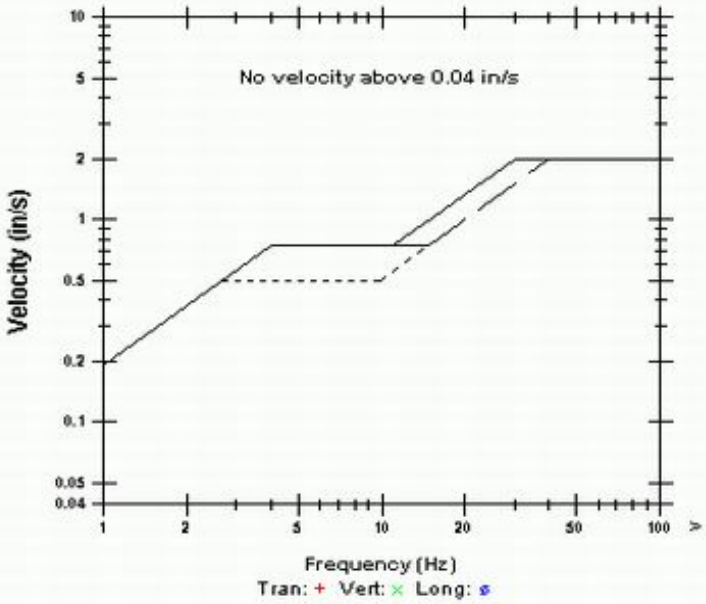
Post Event Notes

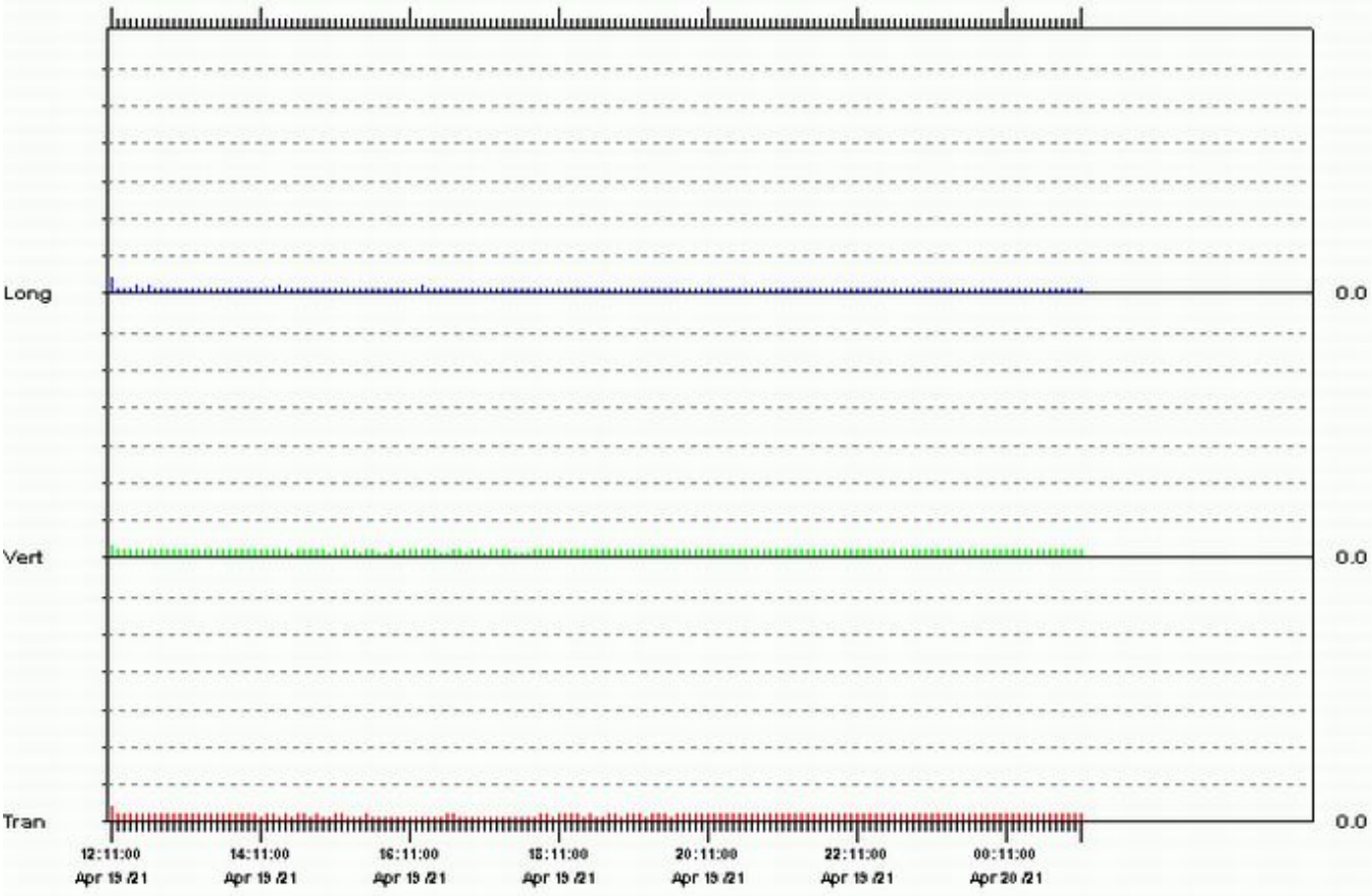
Extended Notes

	Tran	Vert	Long	
PPV	0.0200	0.0150	0.0200	in/s
ZC Freq	28	47	85	Hz
Date	Apr 19 /21	Apr 19 /21	Apr 19 /21	
Time	12:07:30	12:07:30	12:07:30	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0229 in/s on April 19, 2021 At 12:07:30

USBM RI8507 And OSMRE





Time(Seconds) 5 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 20, 2021 (V - 10.49)

Start	01:12:15 April 20, 2021
Finish	01:10:01 April 21, 2021
Intervals	5752.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IXZY.0F0H

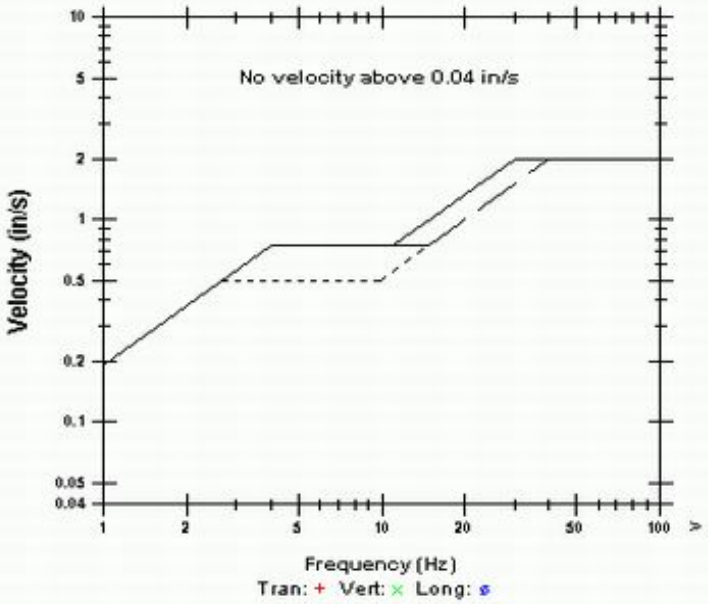
Post Event Notes

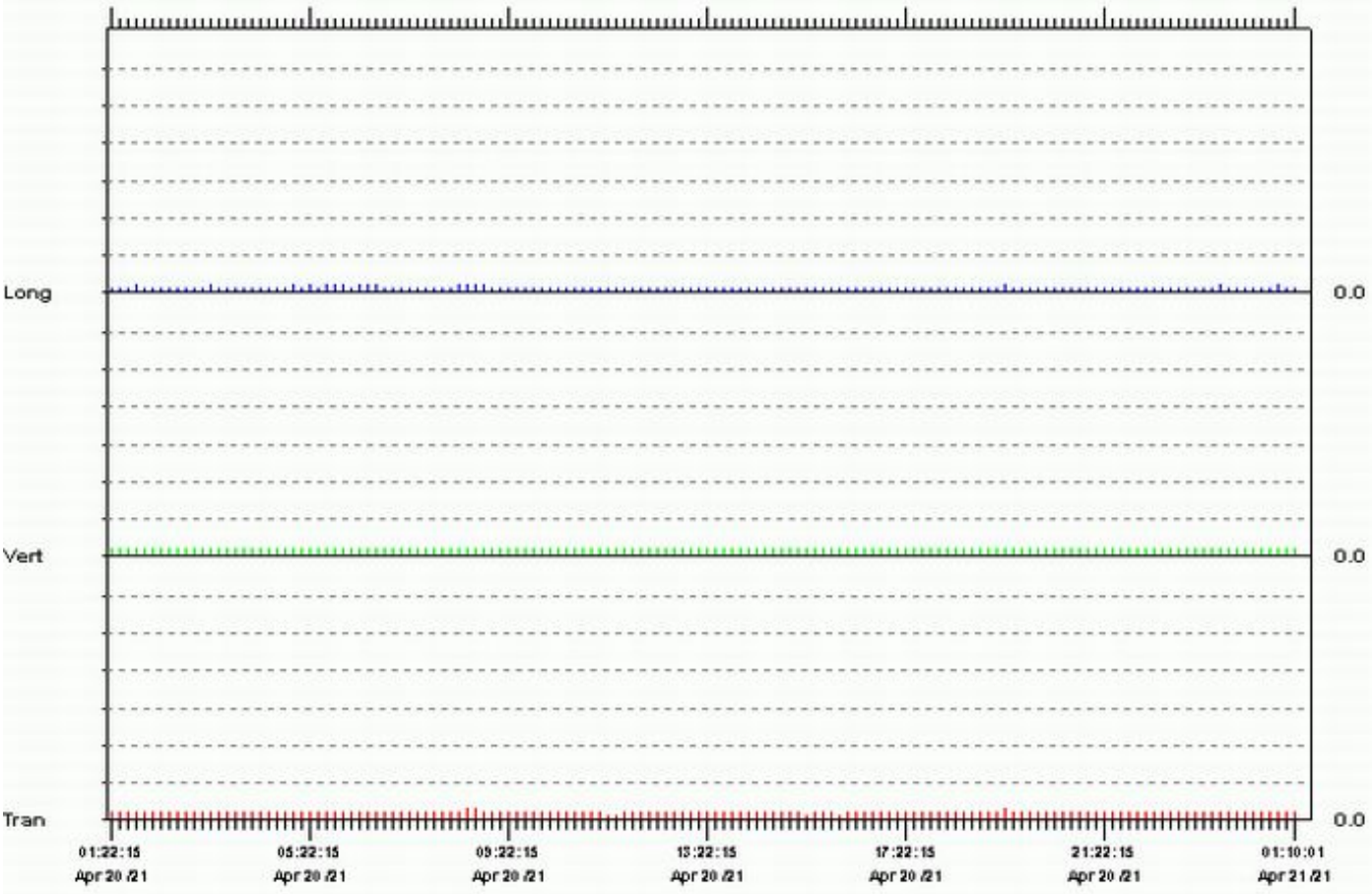
Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.01000	0.01000	in/s
ZC Freq	51	>100	>100	Hz
Date	Apr 20 /21	Apr 20 /21	Apr 20 /21	
Time	08:31:45	01:12:30	01:49:00	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0166 in/s on April 20, 2021 At 08:33:15

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 21, 2021 (V - 10.49)

Start	01:12:45 April 21, 2021
Finish	01:10:01 April 22, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

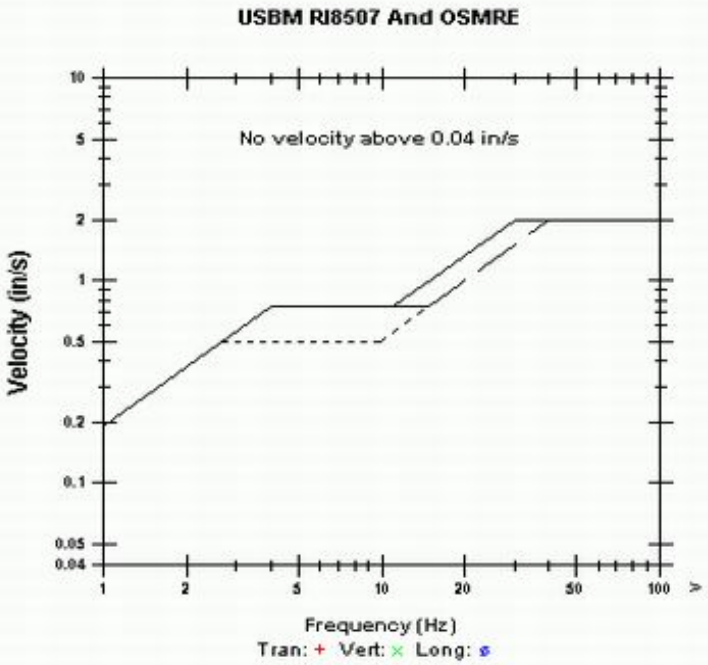
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IY1S.P90H

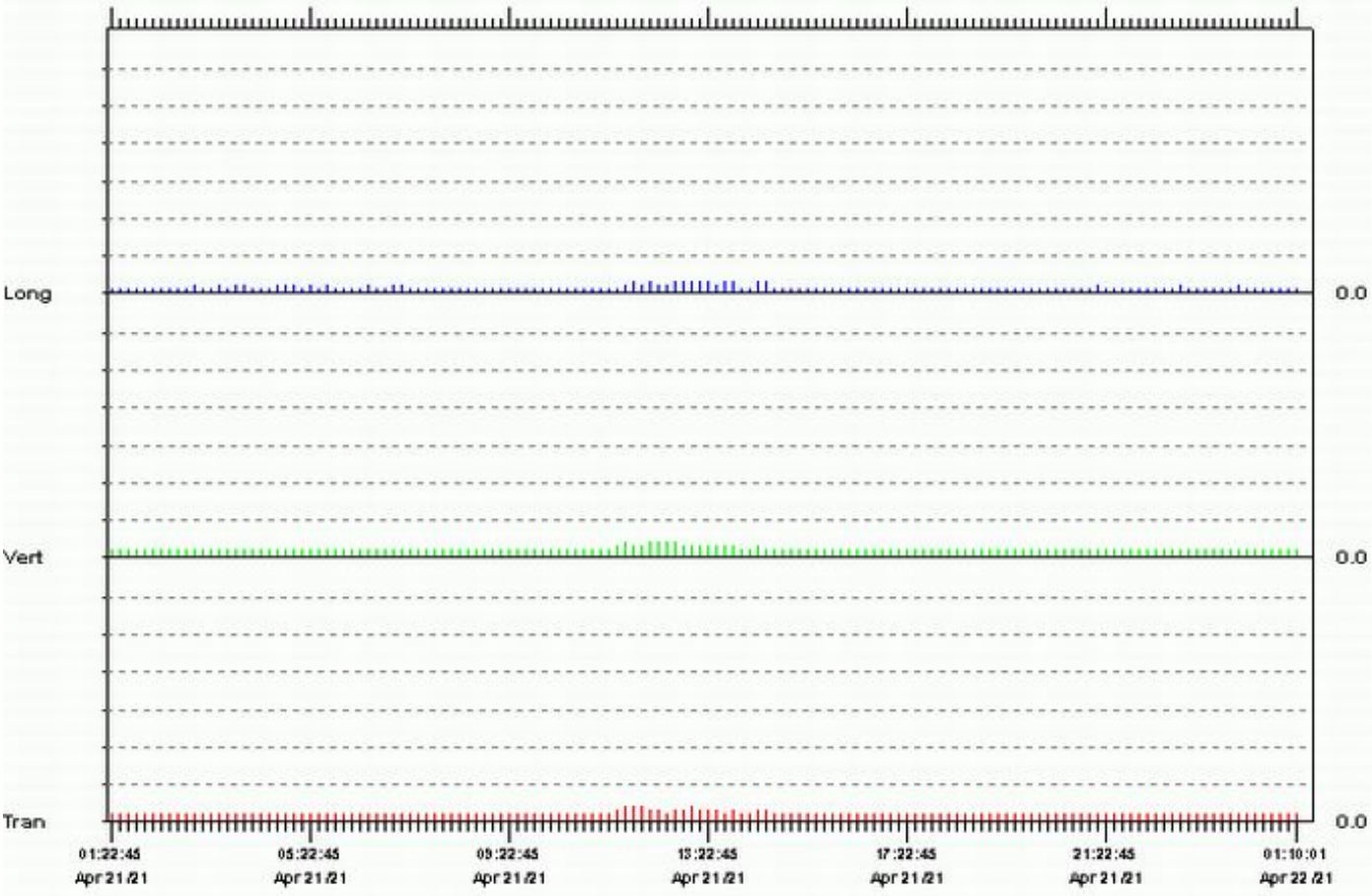
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0200	0.0200	0.0150	in/s
ZC Freq	6.7	6.5	21	Hz
Date	Apr 21 /21	Apr 21 /21	Apr 21 /21	
Time	11:34:45	11:34:45	11:47:00	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0255 in/s on April 21, 2021 At 12:11:30





Created: April 22, 2021 (V - 10.49)

Start	01:12:43 April 22, 2021
Finish	01:10:01 April 23, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

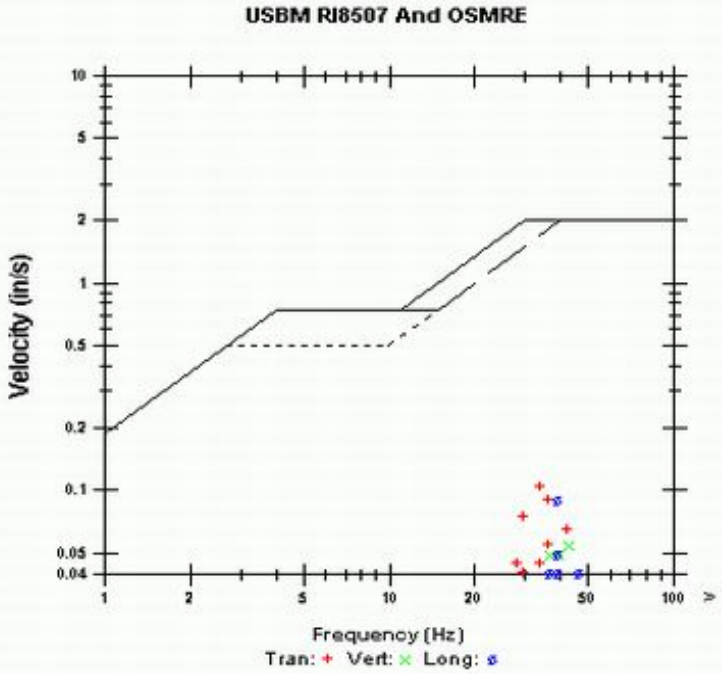
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IY3N.D70H

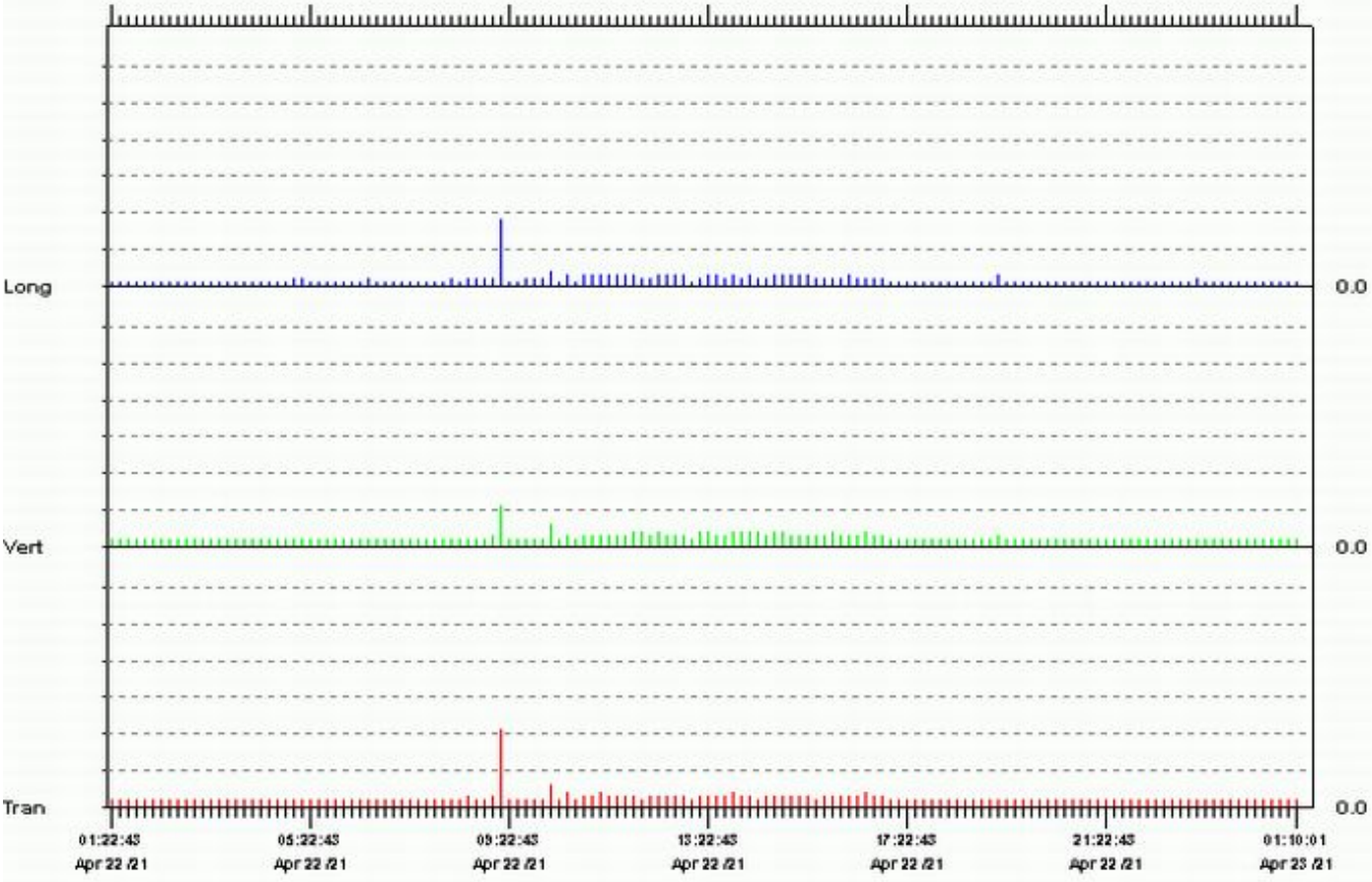
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.105	0.0550	0.0900	in/s
ZC Freq	34	43	39	Hz
Date	Apr 22 /21	Apr 22 /21	Apr 22 /21	
Time	09:04:58	09:04:58	09:04:58	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.123 in/s on April 22, 2021 At 09:04:58





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 23, 2021 (V - 10.49)

Start	01:12:49 April 23, 2021
Finish	01:10:01 April 24, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IY5I.1D0H

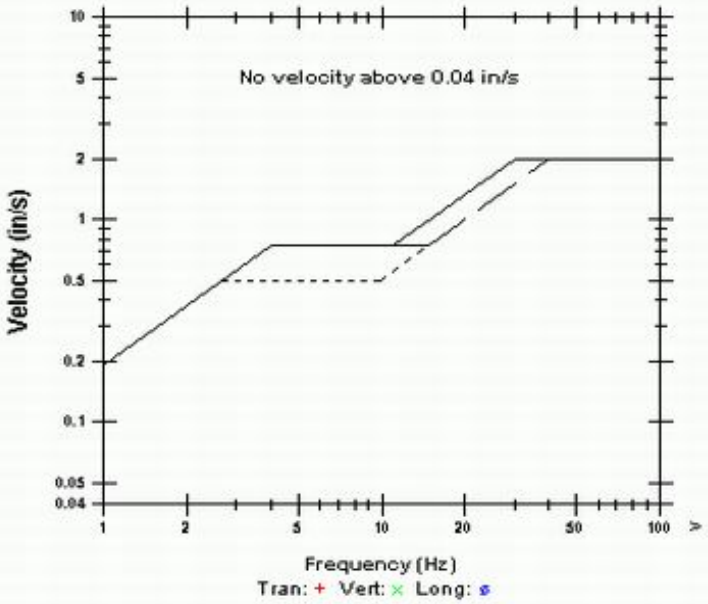
Post Event Notes

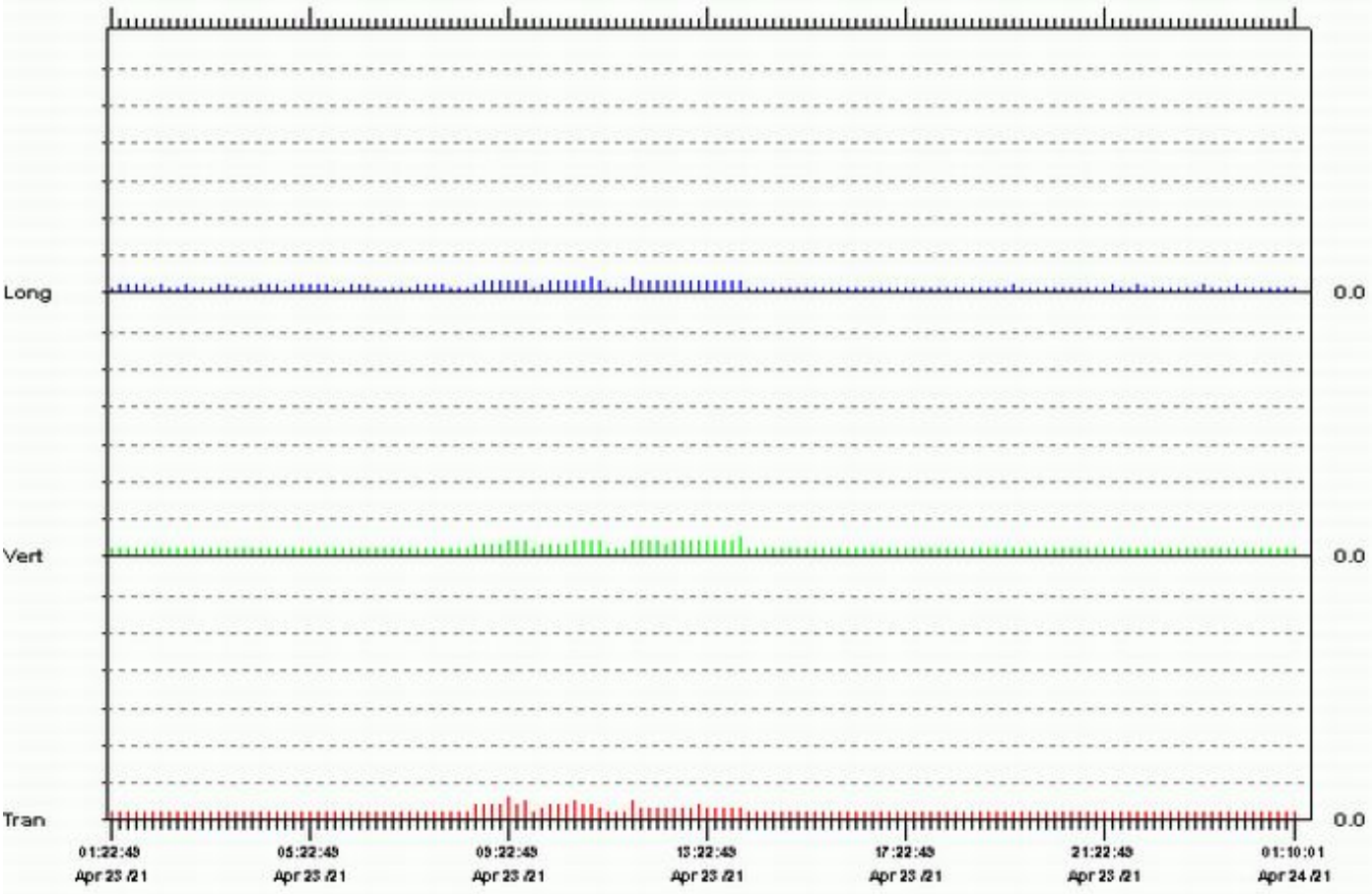
Extended Notes

	Tran	Vert	Long	
PPV	0.0300	0.0250	0.0200	in/s
ZC Freq	5.0	4.8	7.2	Hz
Date	Apr 23 /21	Apr 23 /21	Apr 23 /21	
Time	09:20:34	13:58:19	10:56:34	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0304 in/s on April 23, 2021 At 09:20:34

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 24, 2021 (V - 10.49)

Start	01:12:43 April 24, 2021
Finish	01:10:01 April 25, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

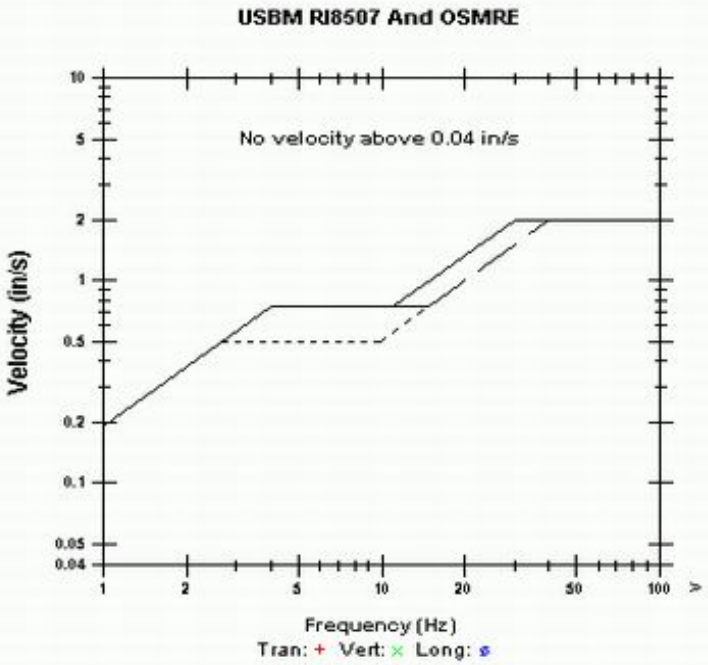
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IY7C.P70H

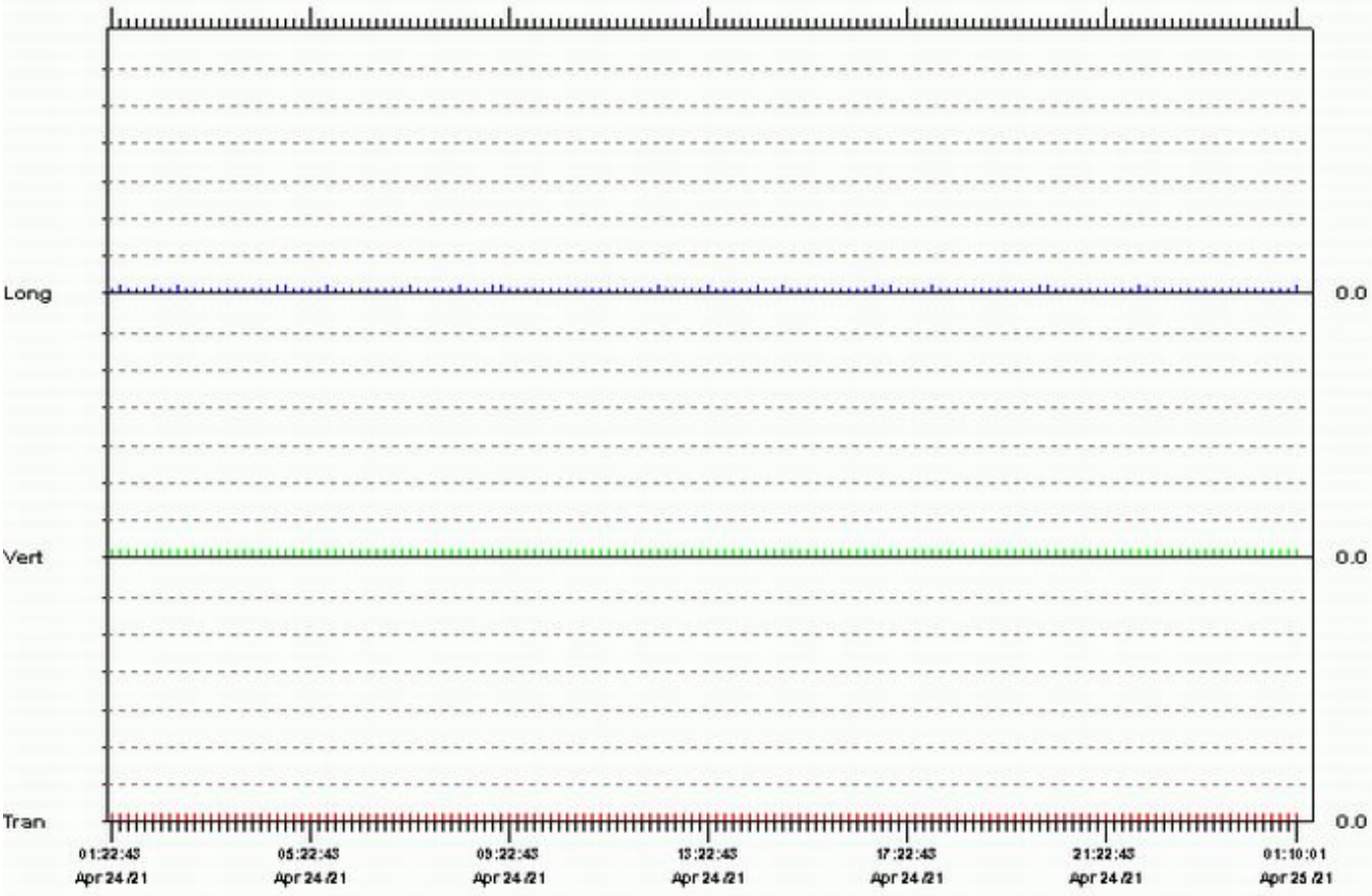
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.01000	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	Apr 24 /21	Apr 24 /21	Apr 24 /21	
Time	01:12:58	01:12:58	01:24:58	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0150 in/s on April 24, 2021 At 02:25:58





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 25, 2021 (V - 10.49)

Start	01:12:52 April 25, 2021
Finish	01:10:01 April 26, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M4401Y97.DG0H

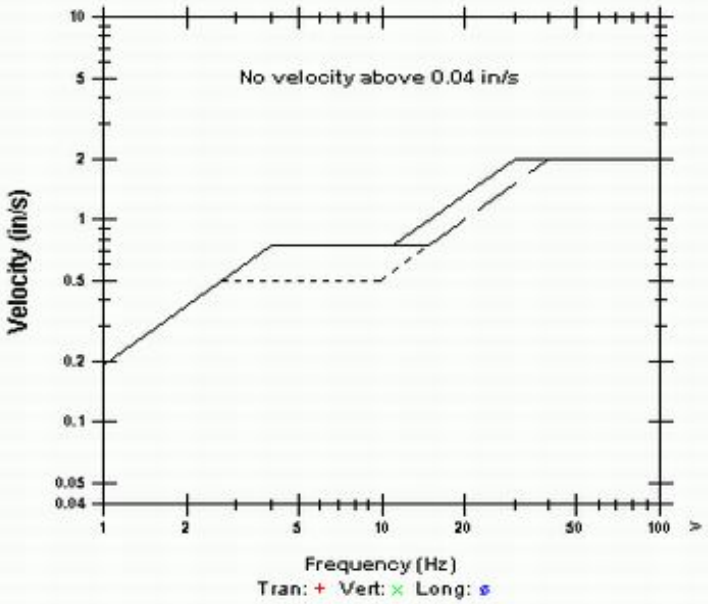
Post Event Notes

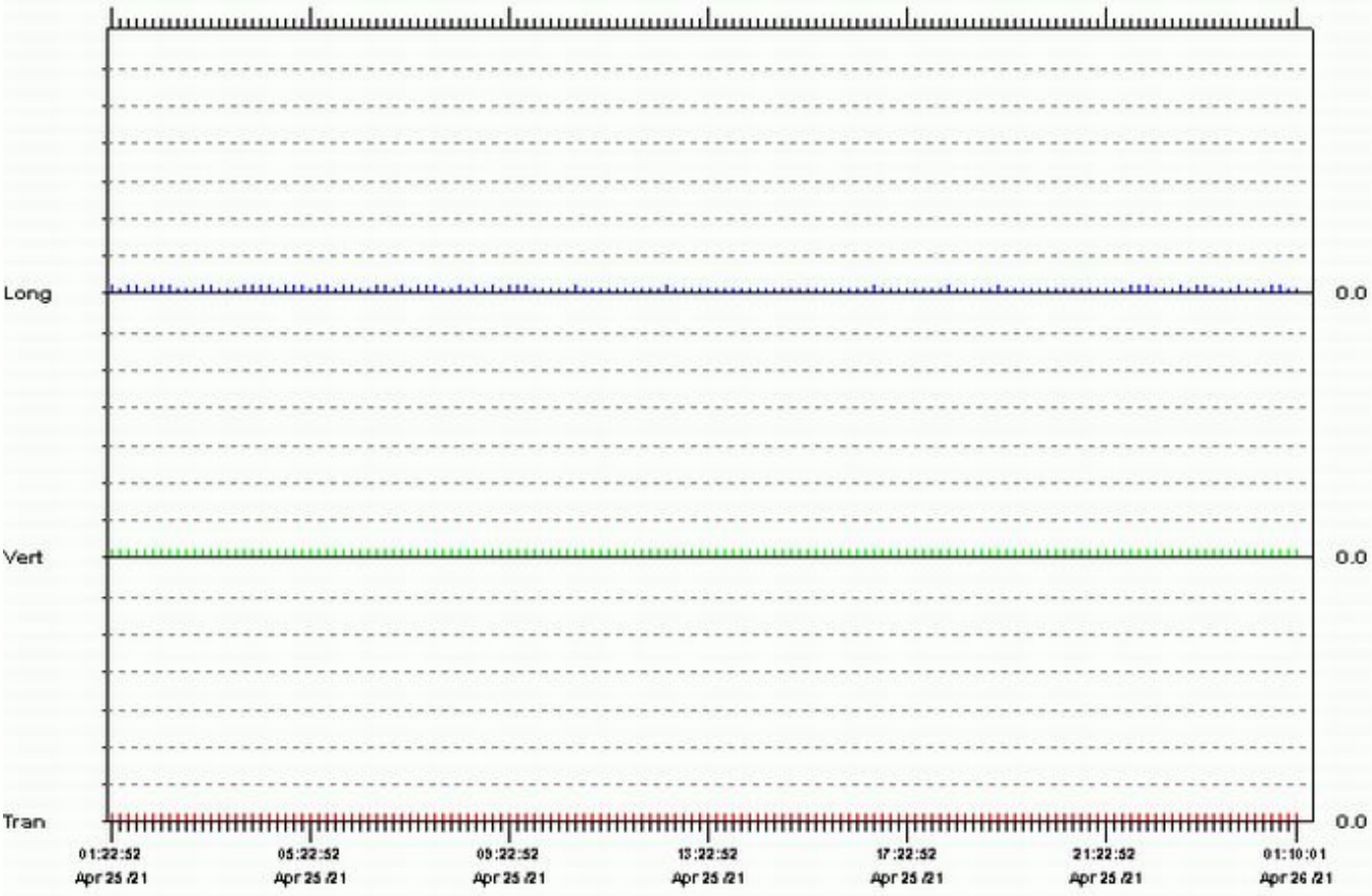
Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.01000	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	Apr 25 /21	Apr 25 /21	Apr 25 /21	
Time	01:13:07	01:13:07	01:16:37	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0150 in/s on April 25, 2021 At 01:18:22

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 26, 2021 (V - 10.49)

Start	01:12:45 April 26, 2021
Finish	01:10:01 April 27, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IYB2.190H

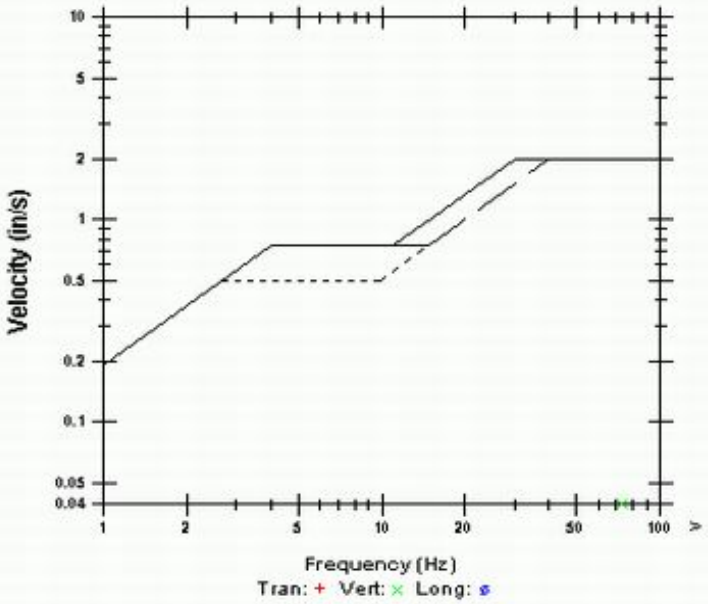
Post Event Notes

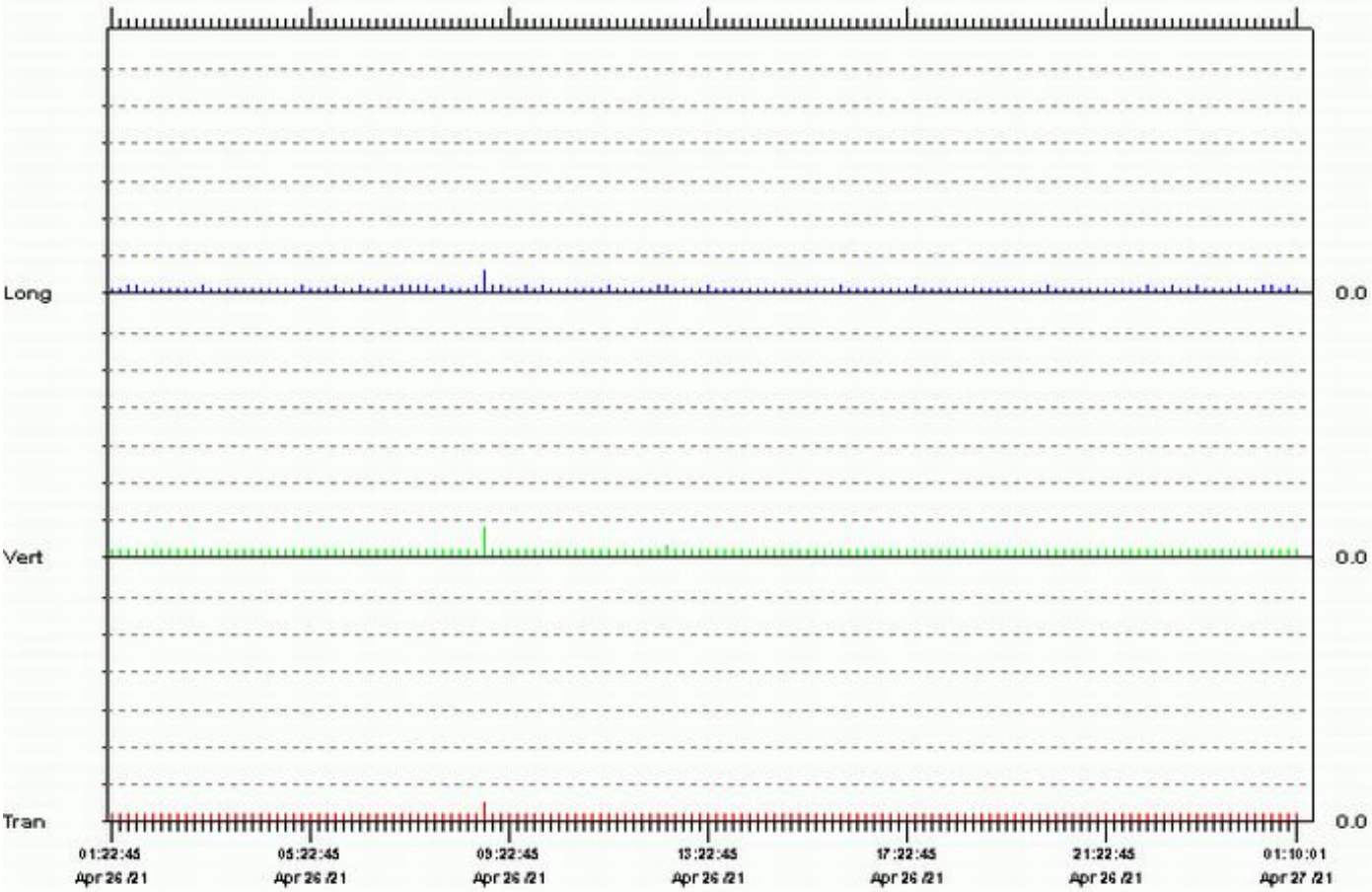
Extended Notes

	Tran	Vert	Long	
PPV	0.0250	0.0400	0.0300	in/s
ZC Freq	57	73	57	Hz
Date	Apr 26 /21	Apr 26 /21	Apr 26 /21	
Time	08:43:30	08:43:30	08:43:30	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0474 in/s on April 26, 2021 At 08:43:30

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 27, 2021 (V - 10.49)

Start	01:12:45 April 27, 2021
Finish	01:10:01 April 28, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

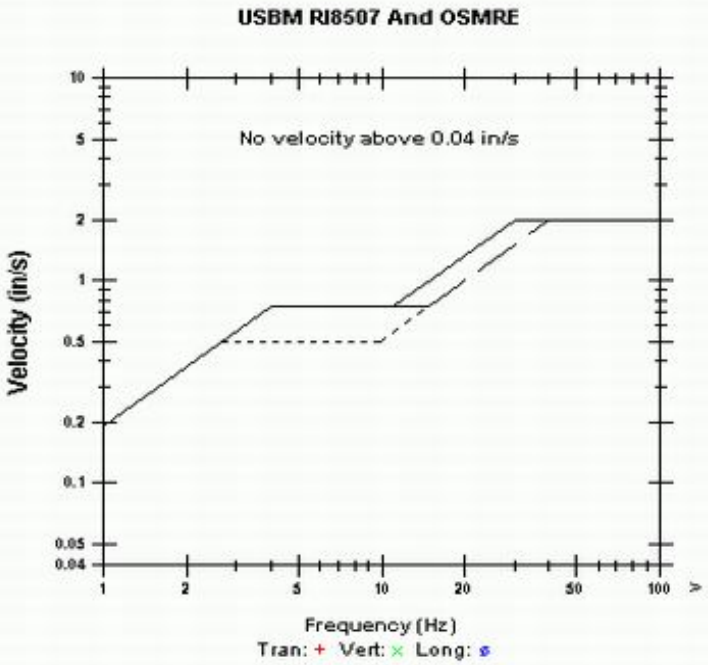
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IYCW.P90H

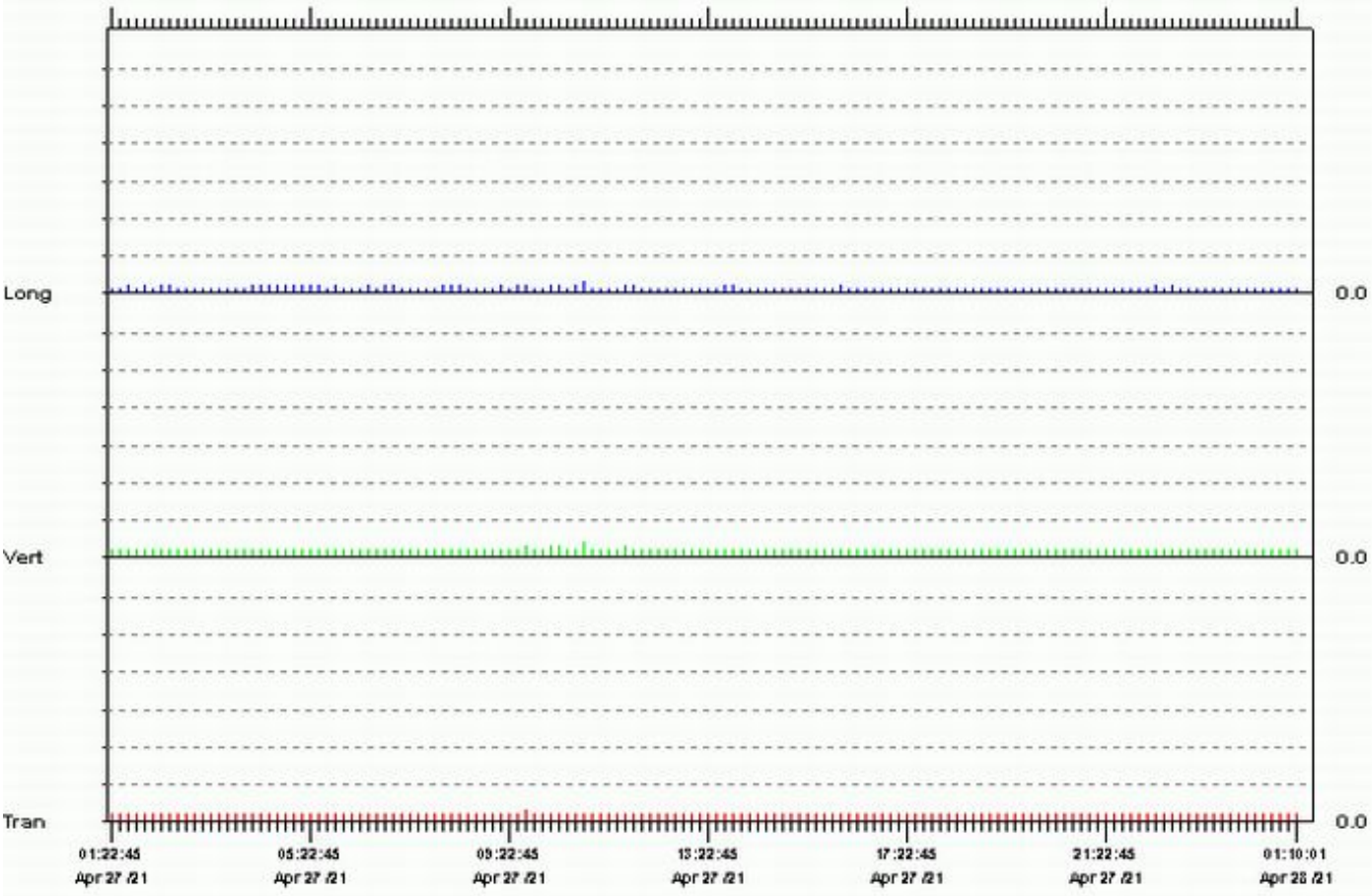
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.0200	0.0150	in/s
ZC Freq	11	20	28	Hz
Date	Apr 27 /21	Apr 27 /21	Apr 27 /21	
Time	09:34:45	10:45:00	10:45:00	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0235 in/s on April 27, 2021 At 10:45:00





Created: April 28, 2021 (V - 10.49)

Start	01:12:52 April 28, 2021
Finish	01:10:01 April 29, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IYER.DG0H

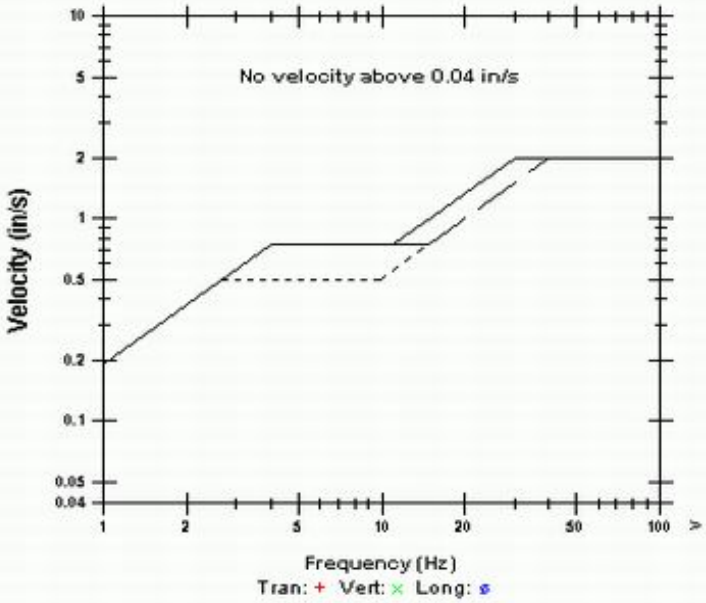
Post Event Notes

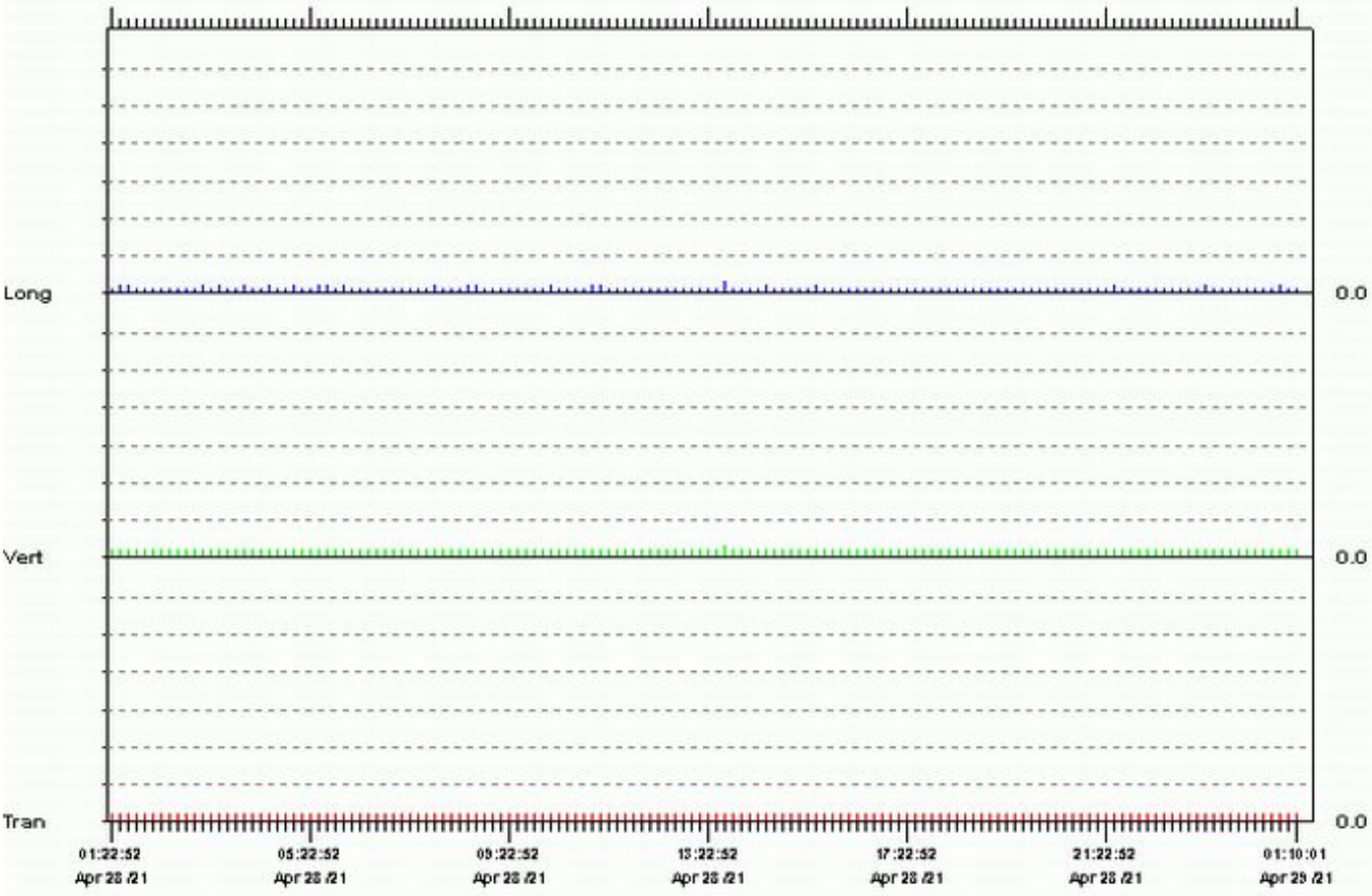
Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.0150	0.0150	in/s
ZC Freq	>100	19	24	Hz
Date	Apr 28 /21	Apr 28 /21	Apr 28 /21	
Time	01:13:07	13:35:07	13:36:07	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0206 in/s on April 28, 2021 At 13:36:07

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 29, 2021 (V - 10.49)

Start	01:13:29 April 29, 2021
Finish	01:10:01 April 30, 2021
Intervals	5747.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IYGM.2H0H

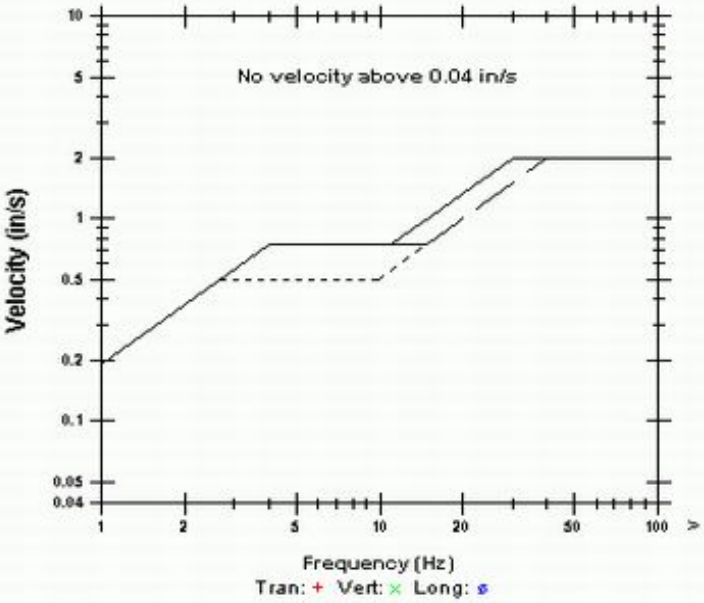
Post Event Notes

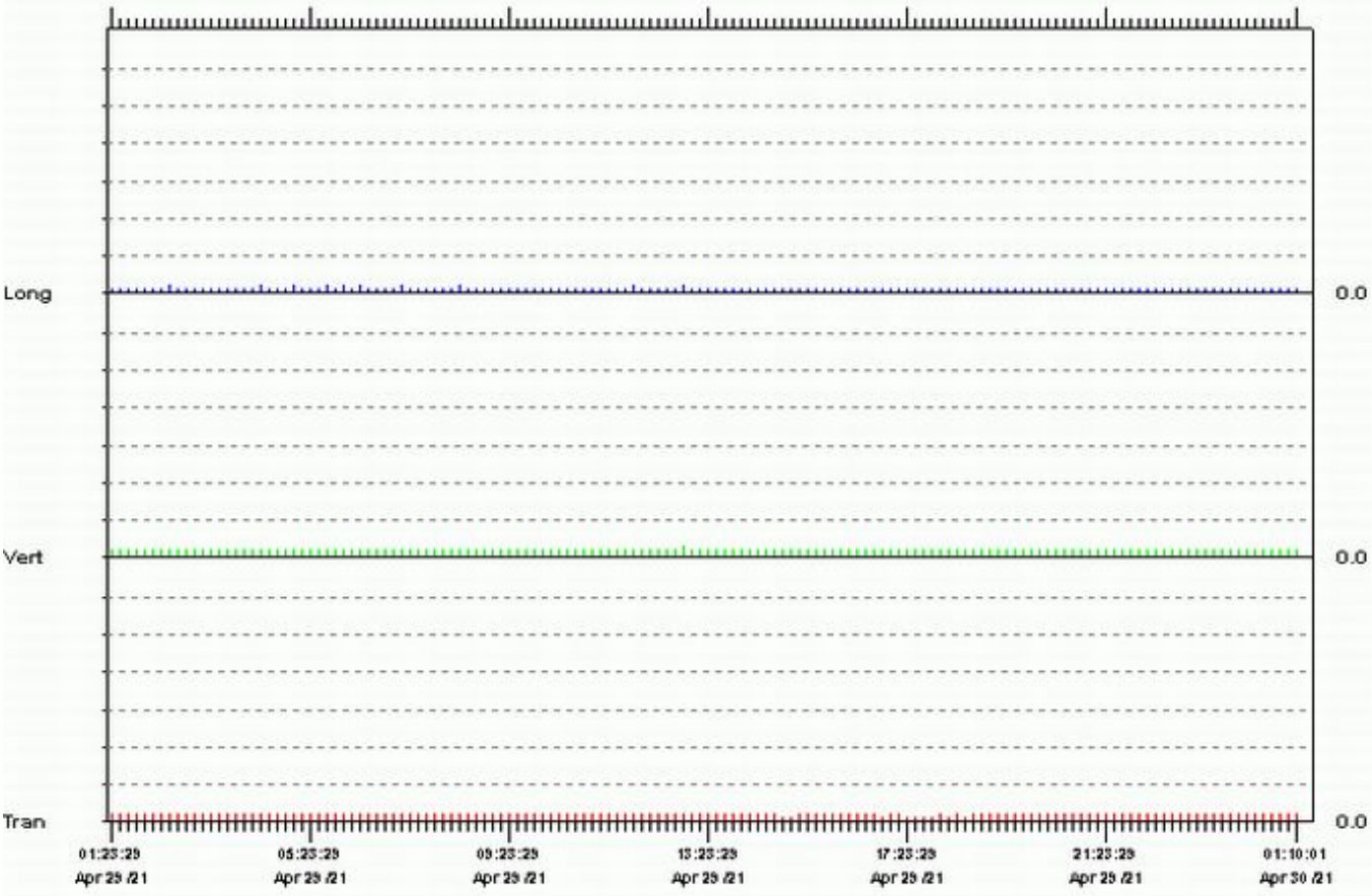
Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.0150	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	Apr 29 /21	Apr 29 /21	Apr 29 /21	
Time	01:13:44	12:51:44	02:30:59	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0166 in/s on April 29, 2021 At 12:51:44

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 30, 2021 (V - 10.49)

Start	01:12:45 April 30, 2021
Finish	01:10:01 May 1, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

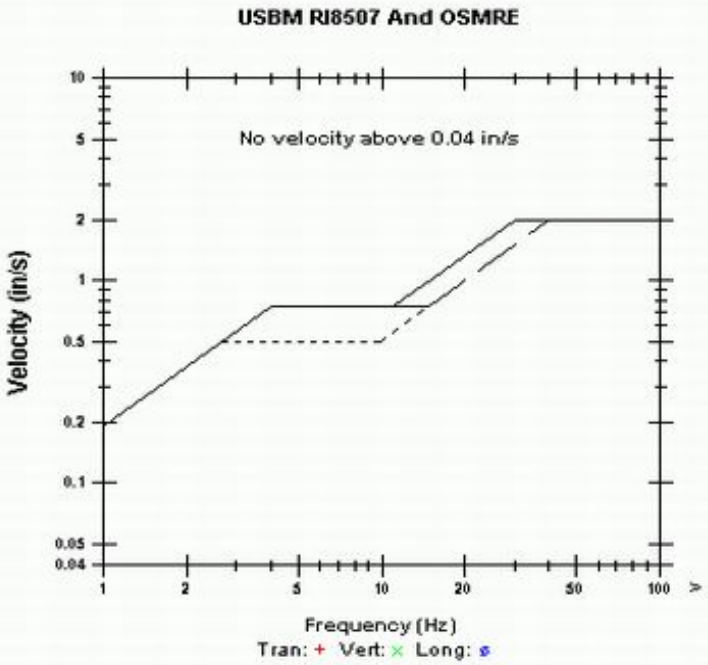
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IYIG.P90H

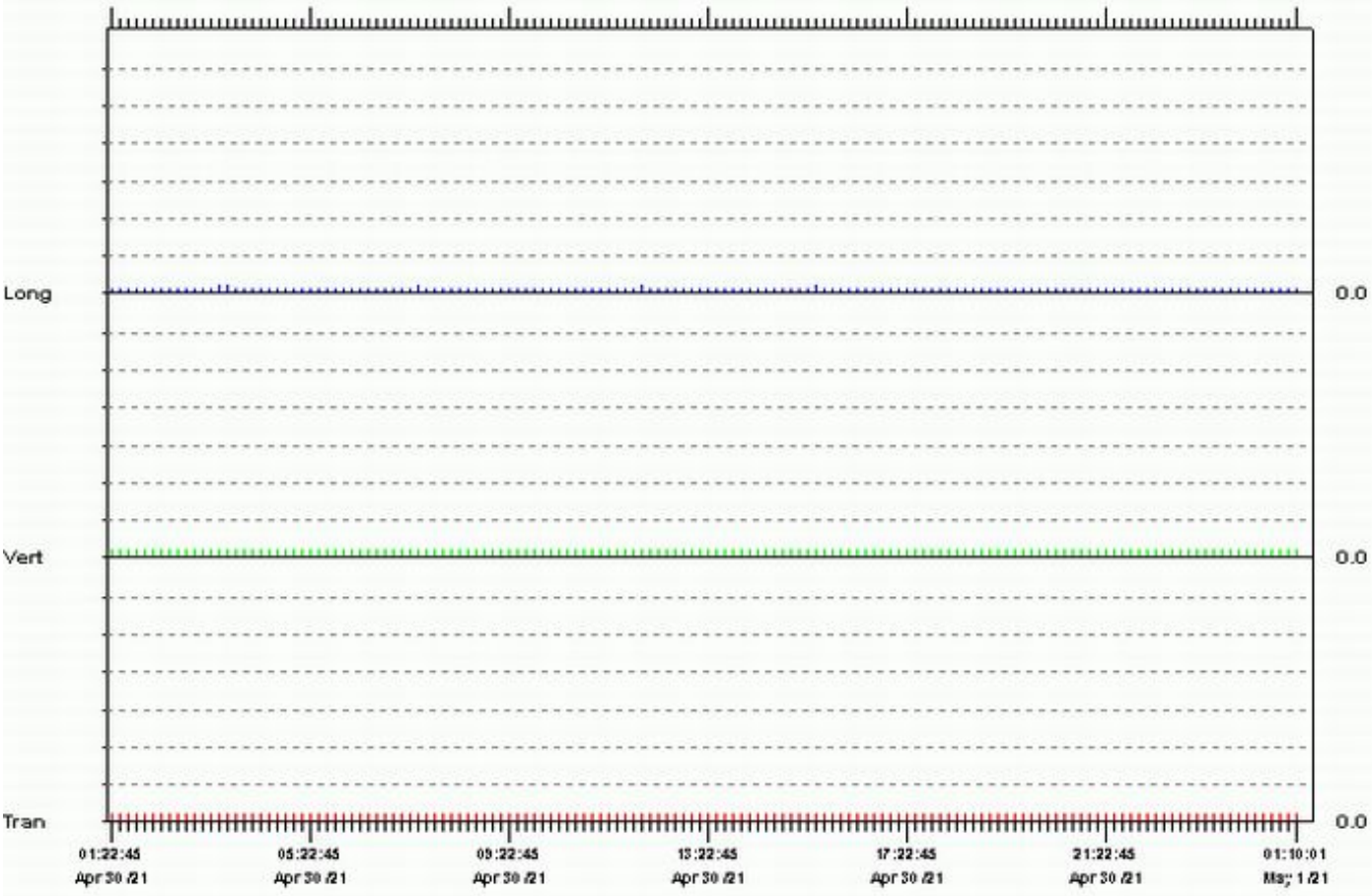
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.01000	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	Apr 30 /21	Apr 30 /21	Apr 30 /21	
Time	01:13:00	01:13:00	03:26:00	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0150 in/s on April 30, 2021 At 10:04:45





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 1, 2021 (V - 10.40)

Start	01:13:31 May 1, 2021
Finish	01:10:01 May 2, 2021
Intervals	5746.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- MI

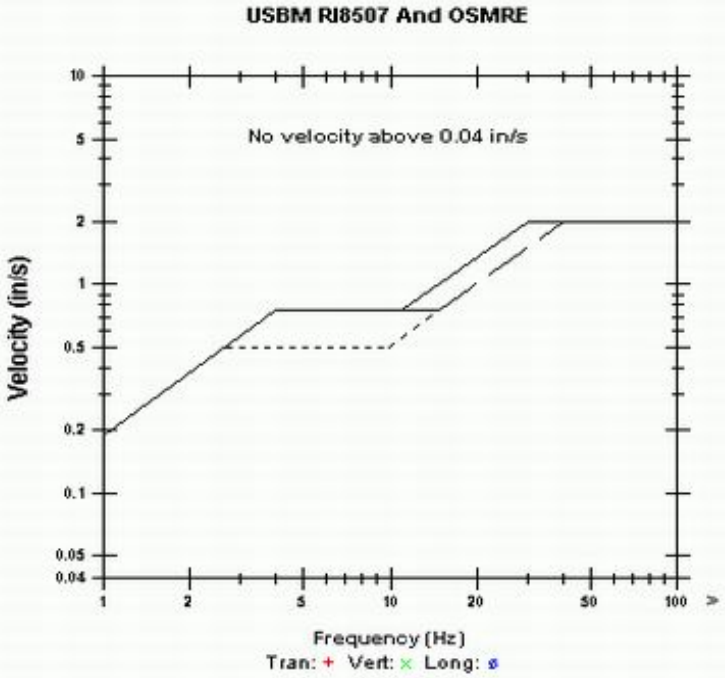
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IYKB.EJ0H

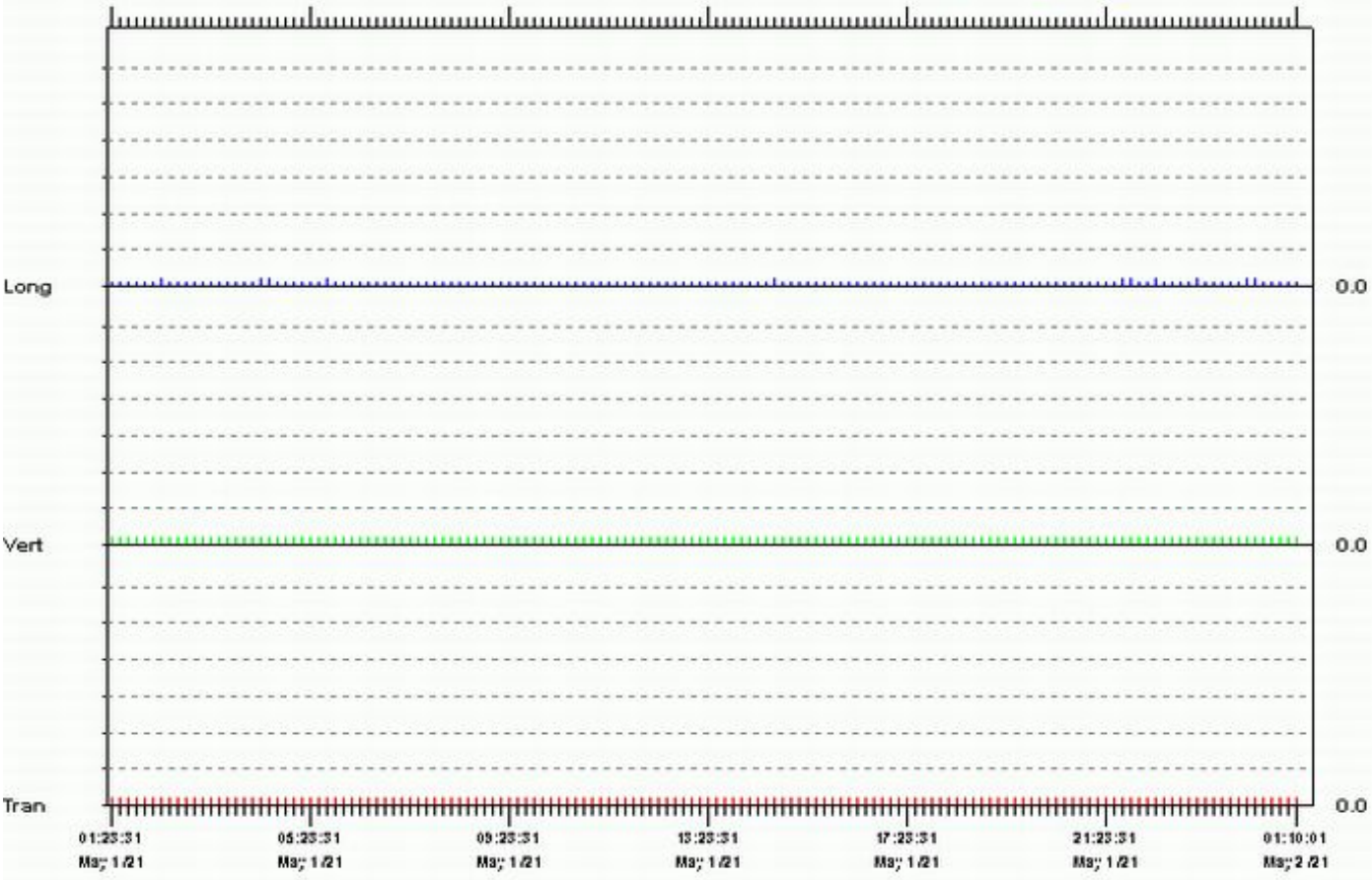
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.01000	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	May 1 /21	May 1 /21	May 1 /21	
Time	01:13:46	01:13:46	02:14:16	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0150 in/s on May 1, 2021 At 02:03:46





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 2, 2021 (V - 10.40)

Start	01:12:50 May 2, 2021
Finish	01:10:01 May 3, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- MI

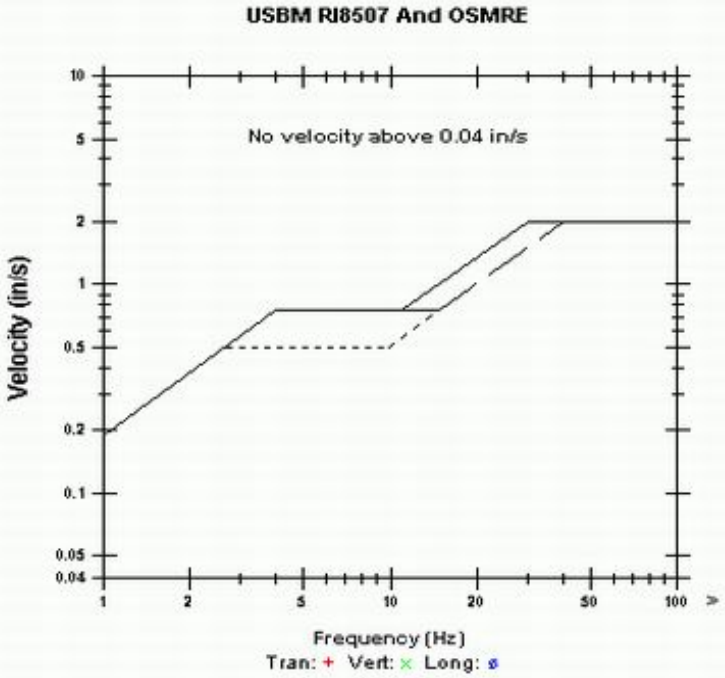
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IYM6.1E0H

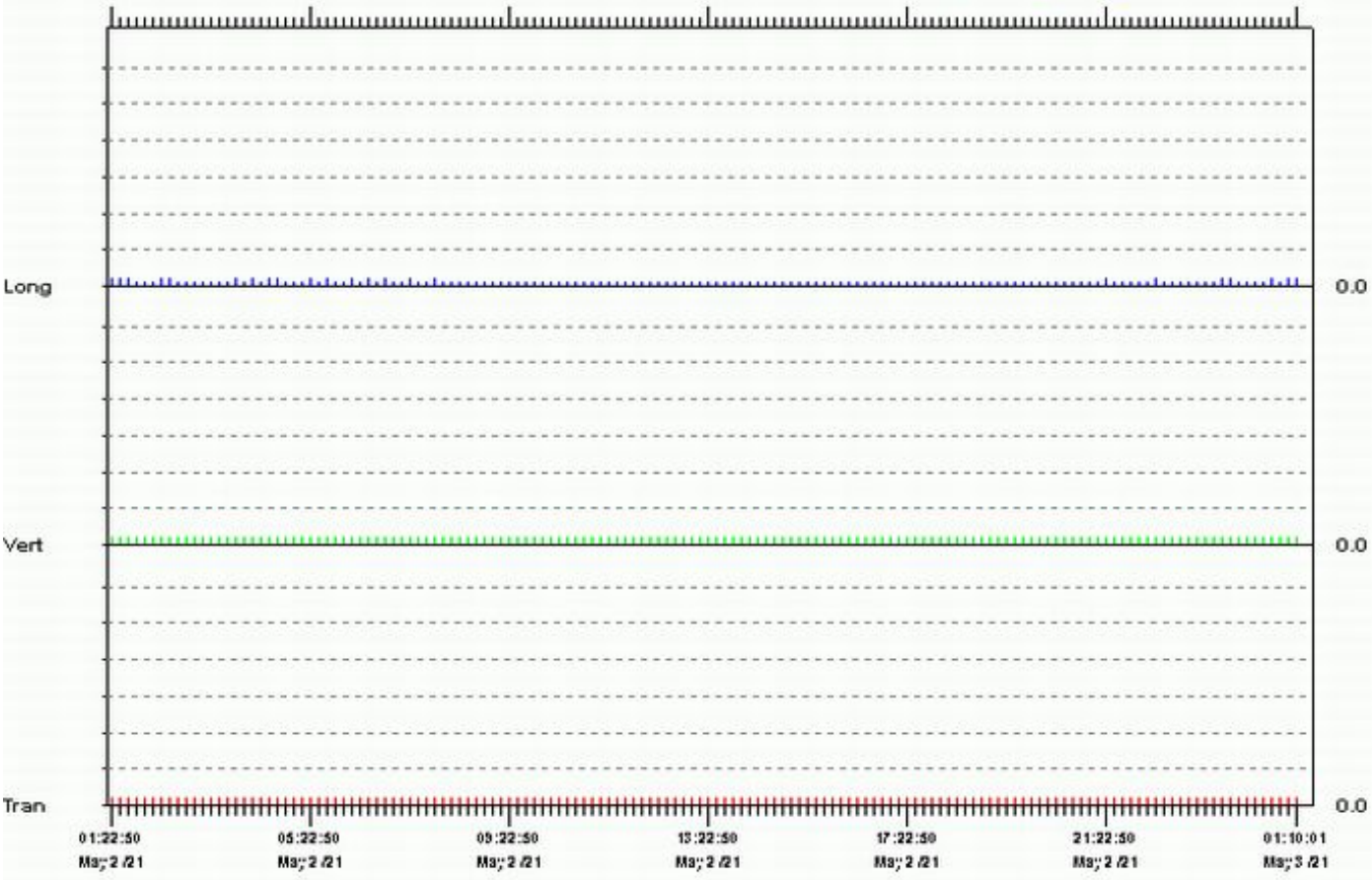
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.01000	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	May 2 /21	May 2 /21	May 2 /21	
Time	01:13:05	01:13:05	01:16:35	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0150 in/s on May 2, 2021 At 01:17:50





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 3, 2021 (V - 10.40)

Start	01:12:44 May 3, 2021
Finish	01:10:01 May 4, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IYO0.P80H

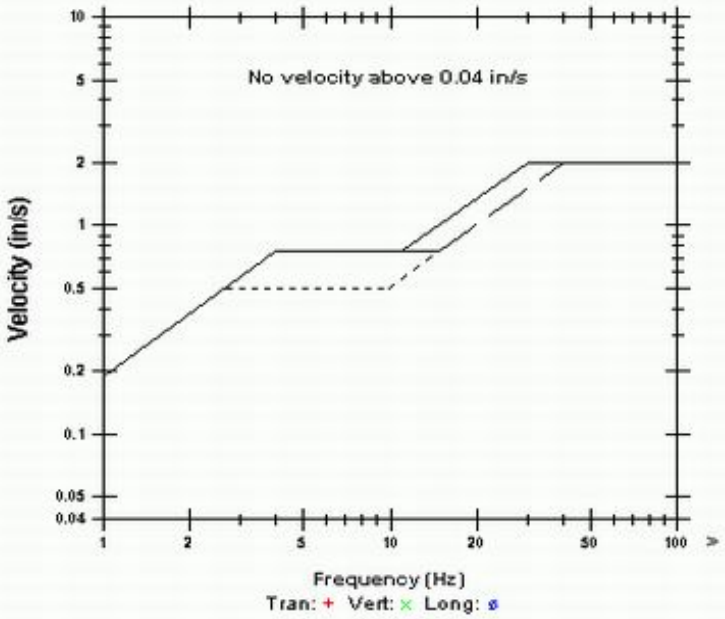
Post Event Notes

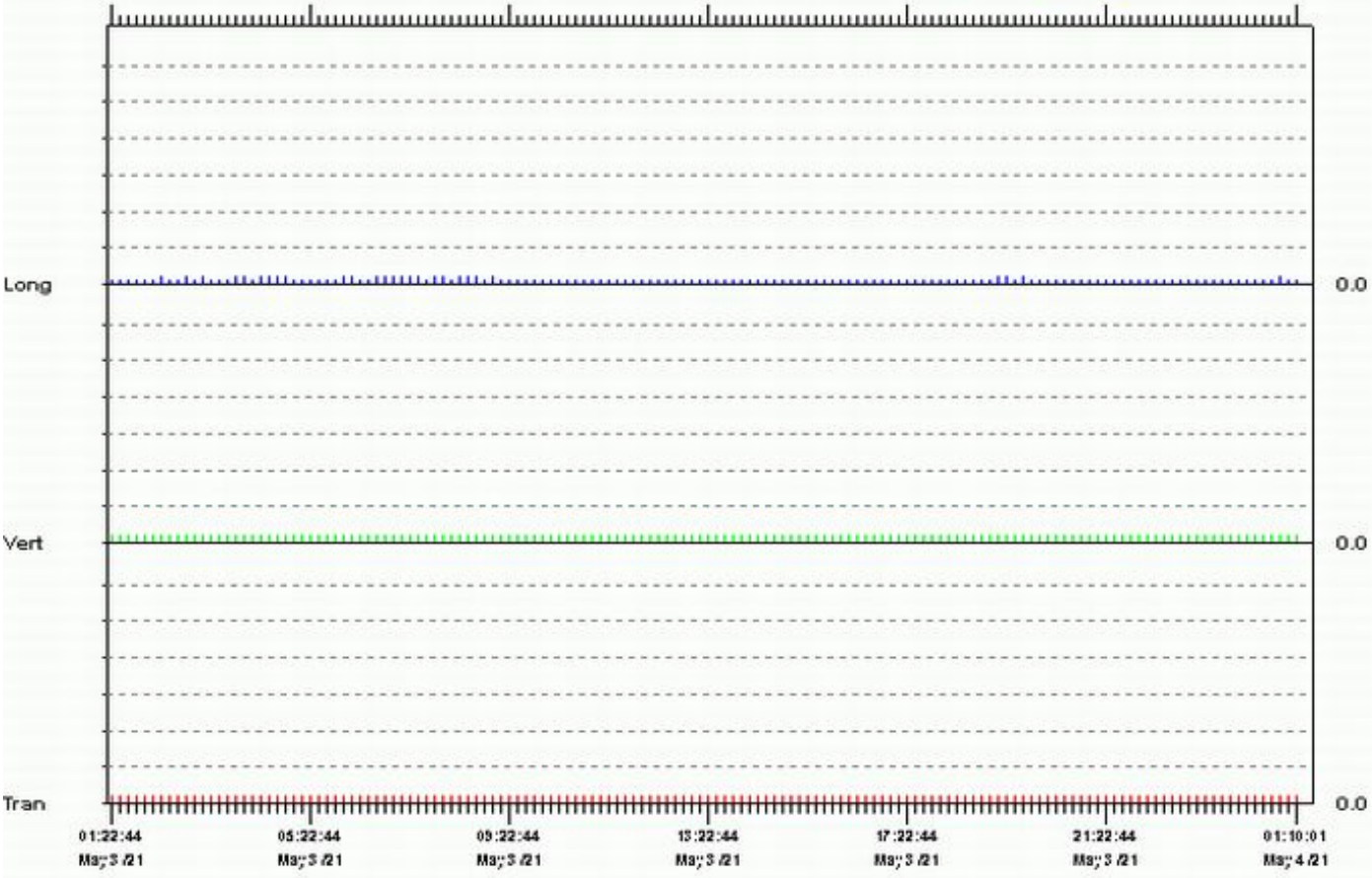
Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.01000	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	May 3 /21	May 3 /21	May 3 /21	
Time	01:12:59	01:12:59	02:14:14	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0150 in/s on May 3, 2021 At 01:27:14

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 4, 2021 (V - 10.40)

Start	01:12:48 May 4, 2021
Finish	01:10:01 May 5, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- MI

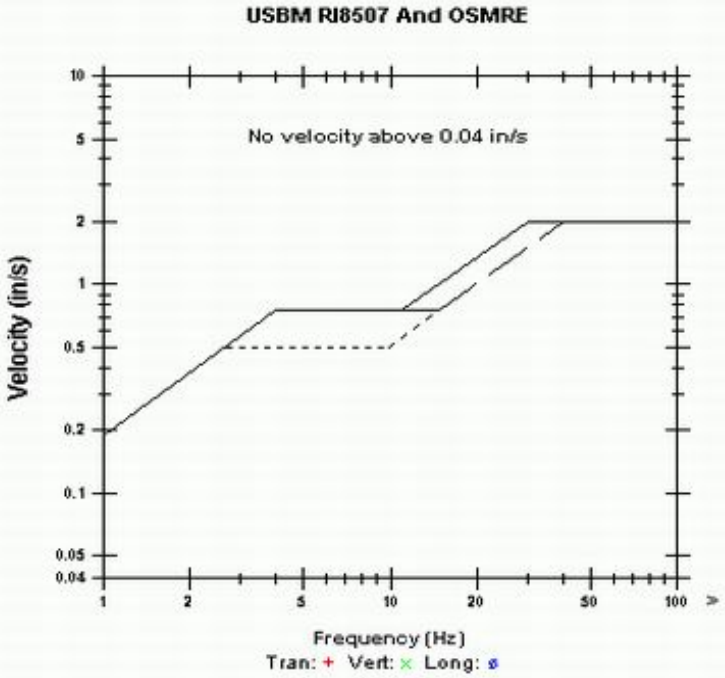
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IYPV.DC0H

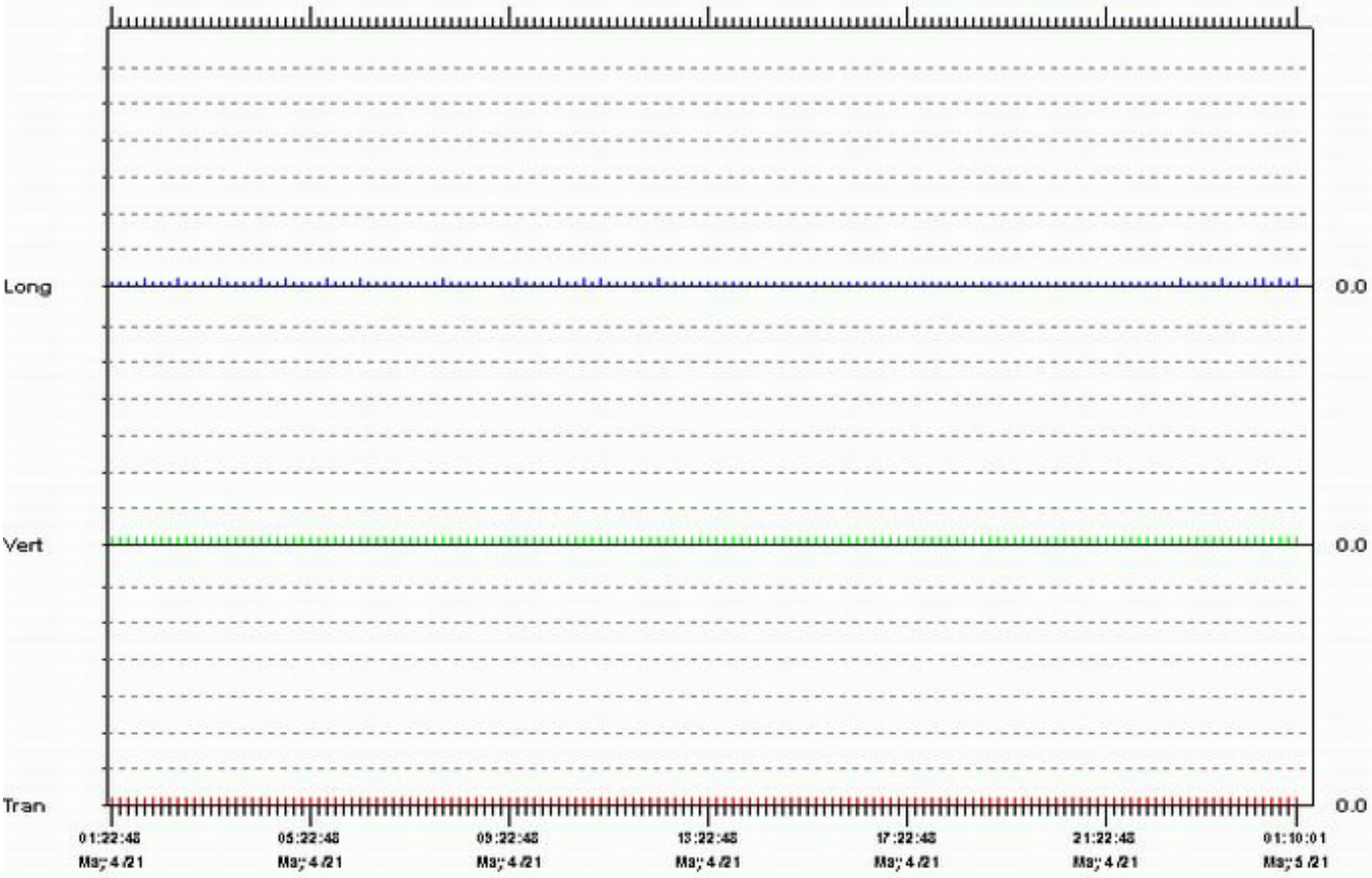
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.01000	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	May 4 /21	May 4 /21	May 4 /21	
Time	01:13:03	01:13:03	02:01:48	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0150 in/s on May 4, 2021 At 02:15:48





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 5, 2021 (V - 10.40)

Start	01:12:52 May 5, 2021
Finish	01:10:01 May 6, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

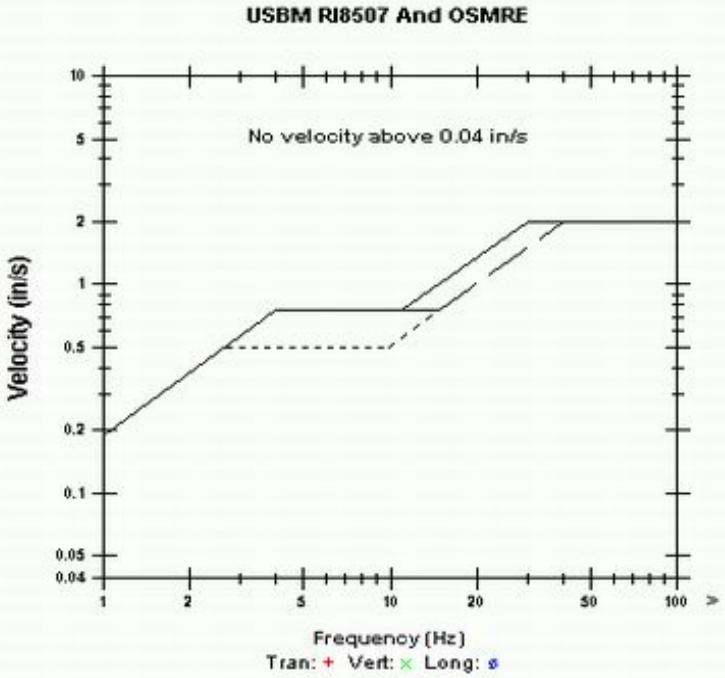
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IYRQ.1G0H

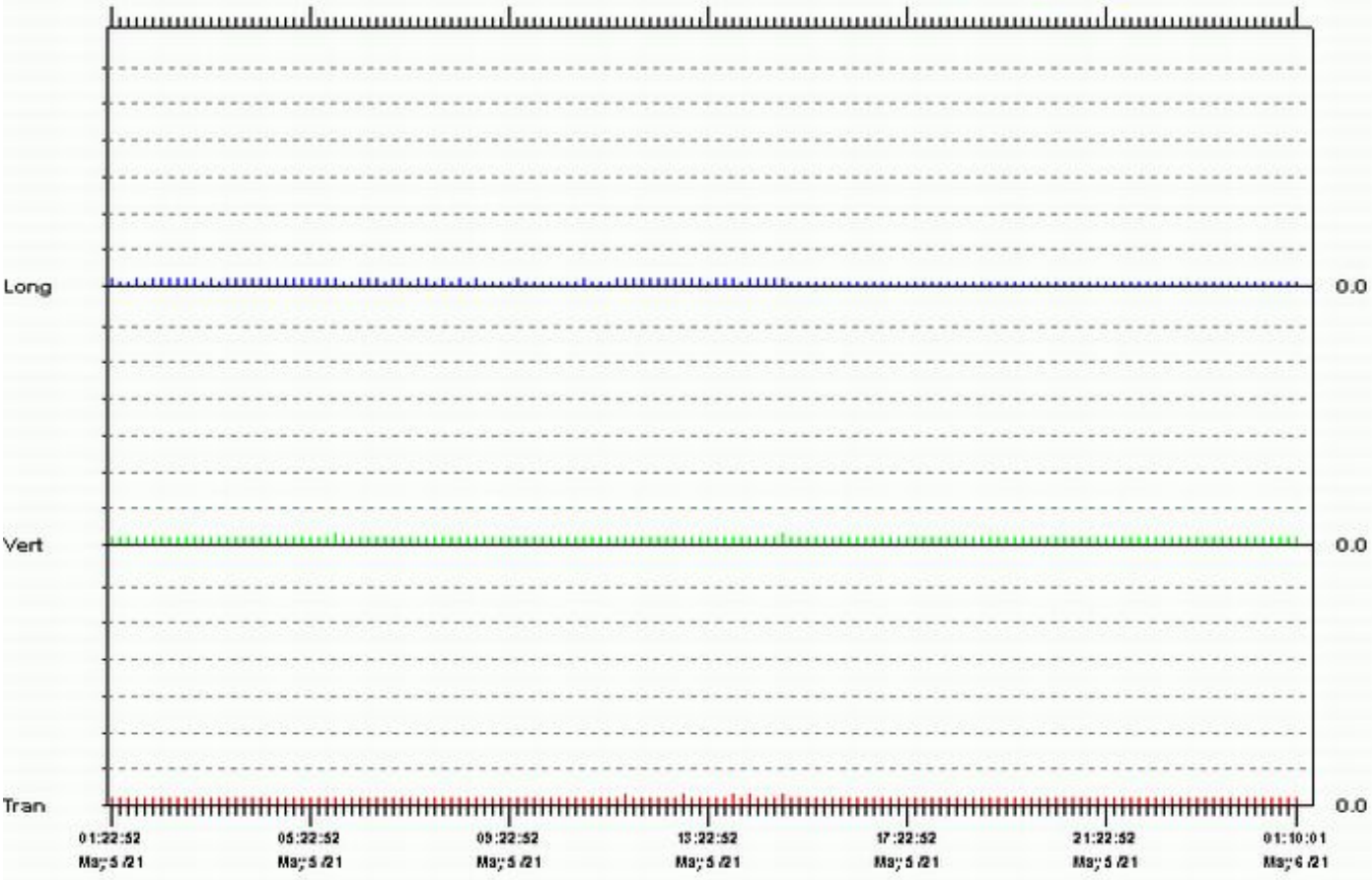
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.0150	0.01000	in/s
ZC Freq	18	>100	>100	Hz
Date	May 5 /21	May 5 /21	May 5 /21	
Time	11:38:22	05:46:07	01:17:07	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0187 in/s on May 5, 2021 At 14:46:52





Created: May 6, 2021 (V - 10.40)

Start	01:12:47 May 6, 2021
Finish	01:10:01 May 7, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- MI

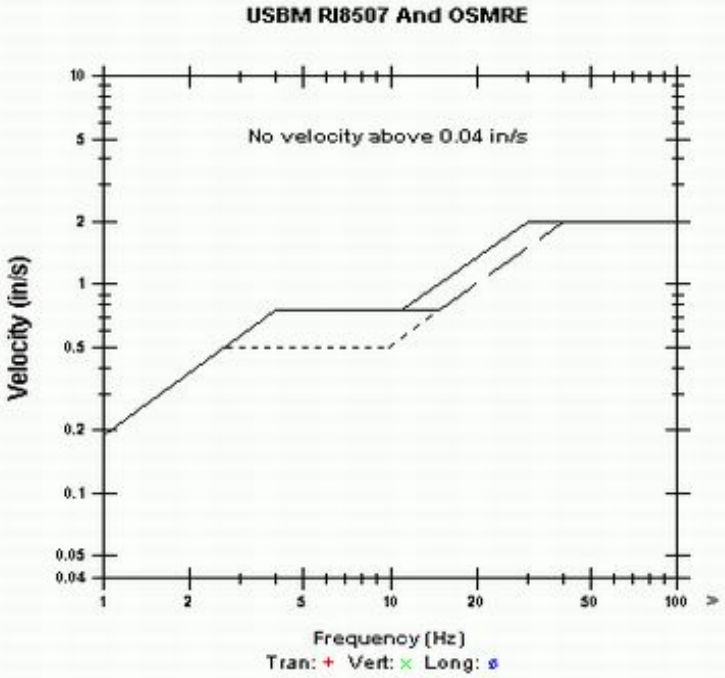
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IYTK.PBOH

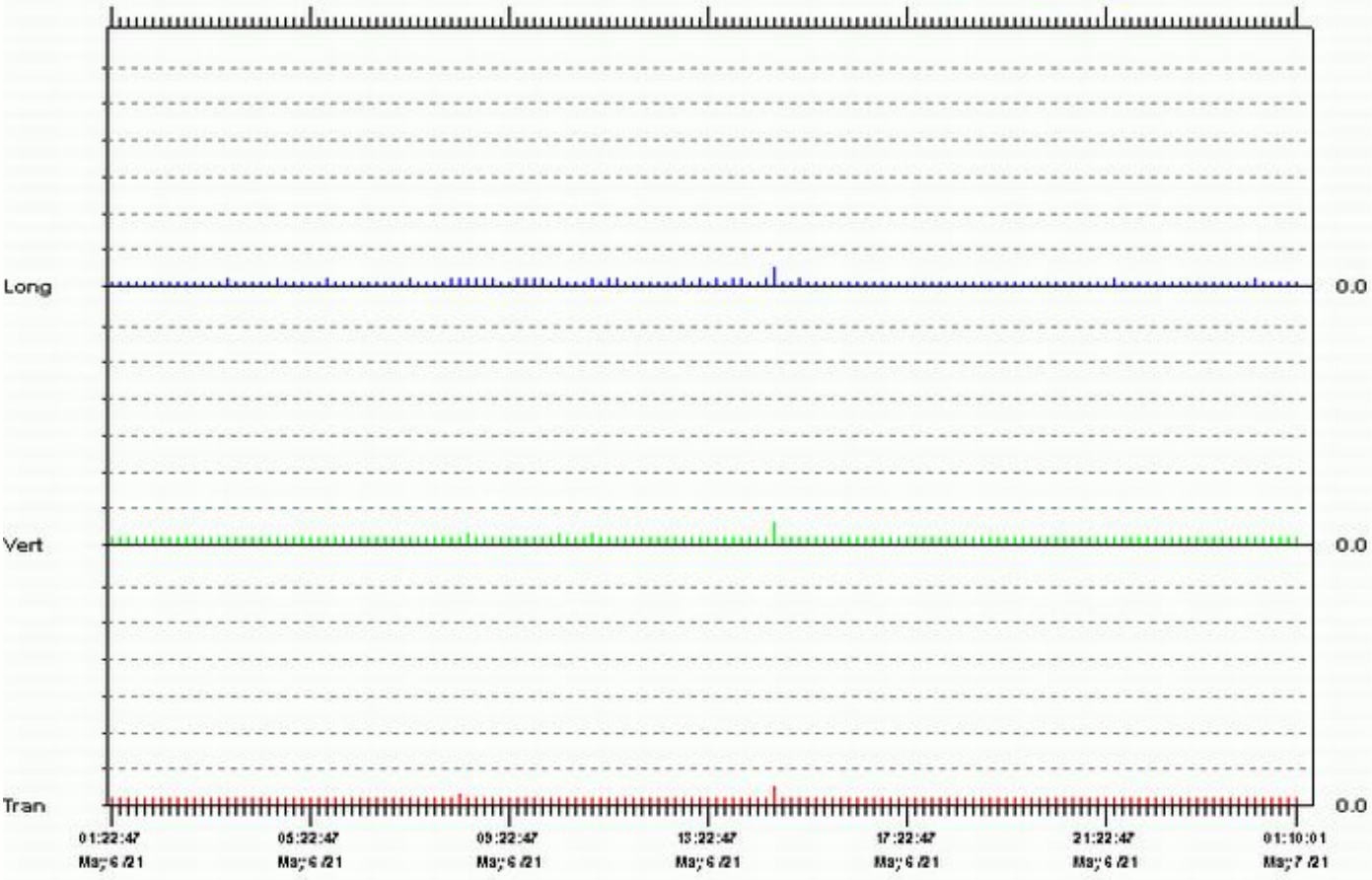
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0250	0.0300	0.0250	in/s
ZC Freq	18	15	18	Hz
Date	May 6 /21	May 6 /21	May 6 /21	
Time	14:34:02	14:34:02	14:34:02	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0357 in/s on May 6, 2021 At 14:34:02





Created: May 7, 2021 (V - 10.40)

Start	01:12:50 May 7, 2021
Finish	01:10:01 May 8, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

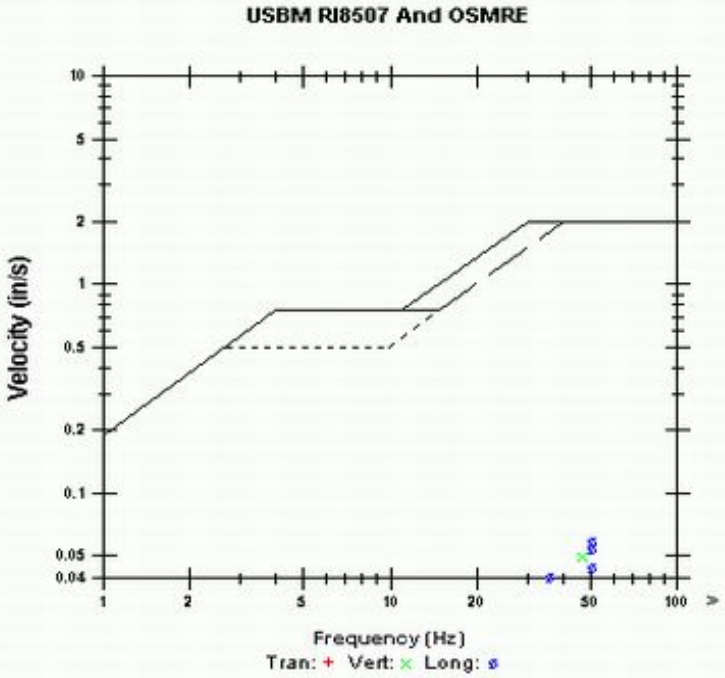
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IYVF.DEOH

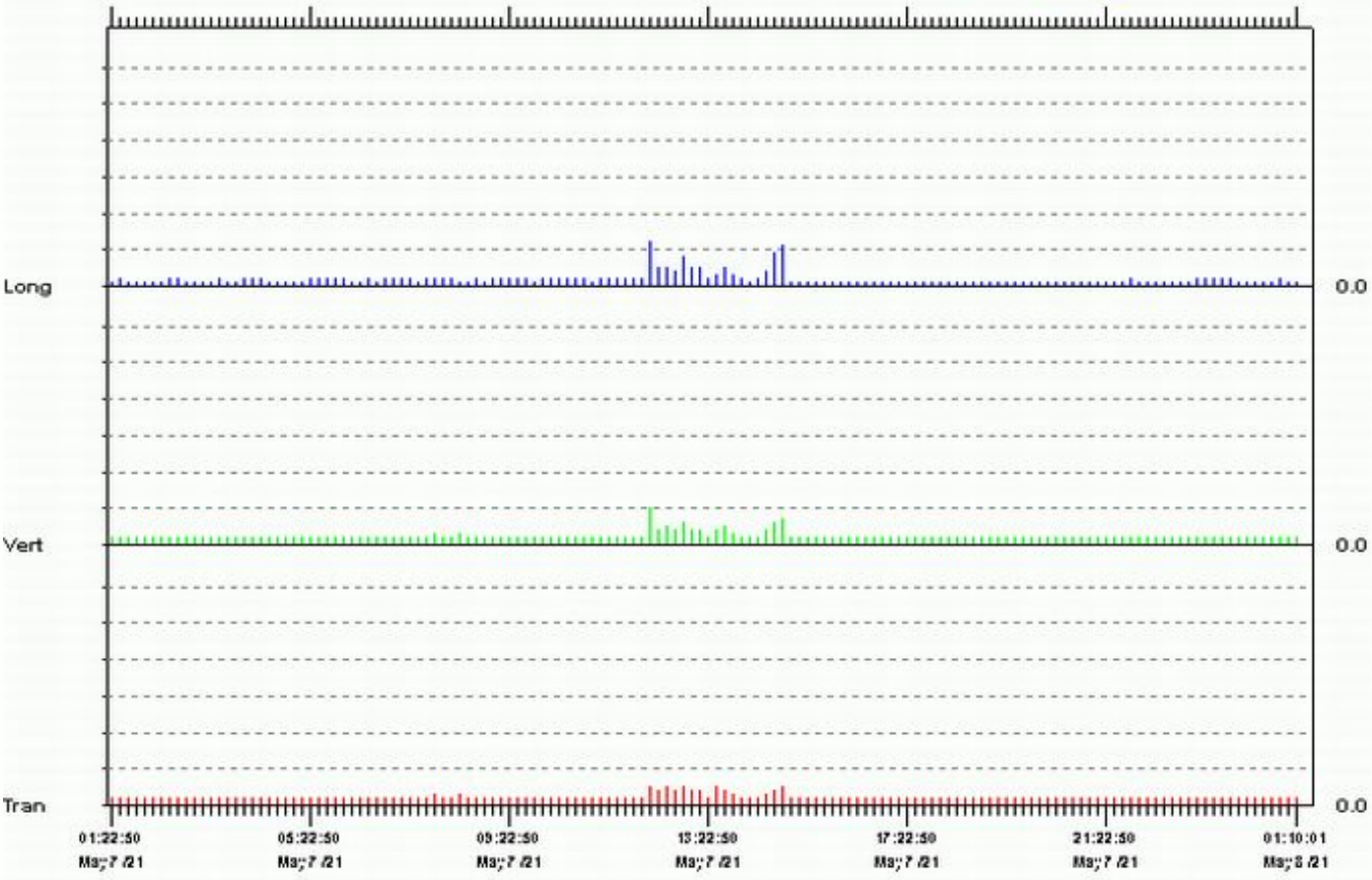
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0250	0.0500	0.0600	in/s
ZC Freq	39	47	51	Hz
Date	May 7 /21	May 7 /21	May 7 /21	
Time	12:04:20	12:04:35	12:04:35	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0640 in/s on May 7, 2021 At 12:04:35





Created: May 8, 2021 (V - 10.40)

Start	01:12:49 May 8, 2021
Finish	01:10:01 May 9, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IYXA.1D0H

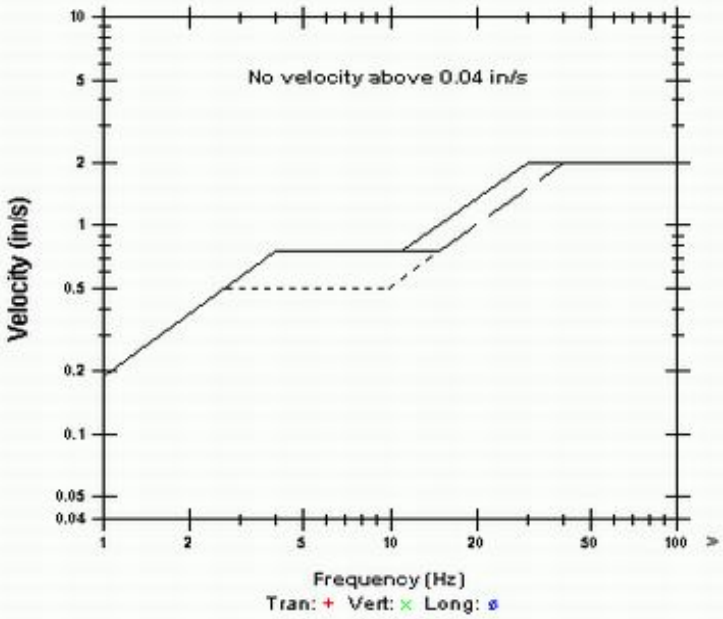
Post Event Notes

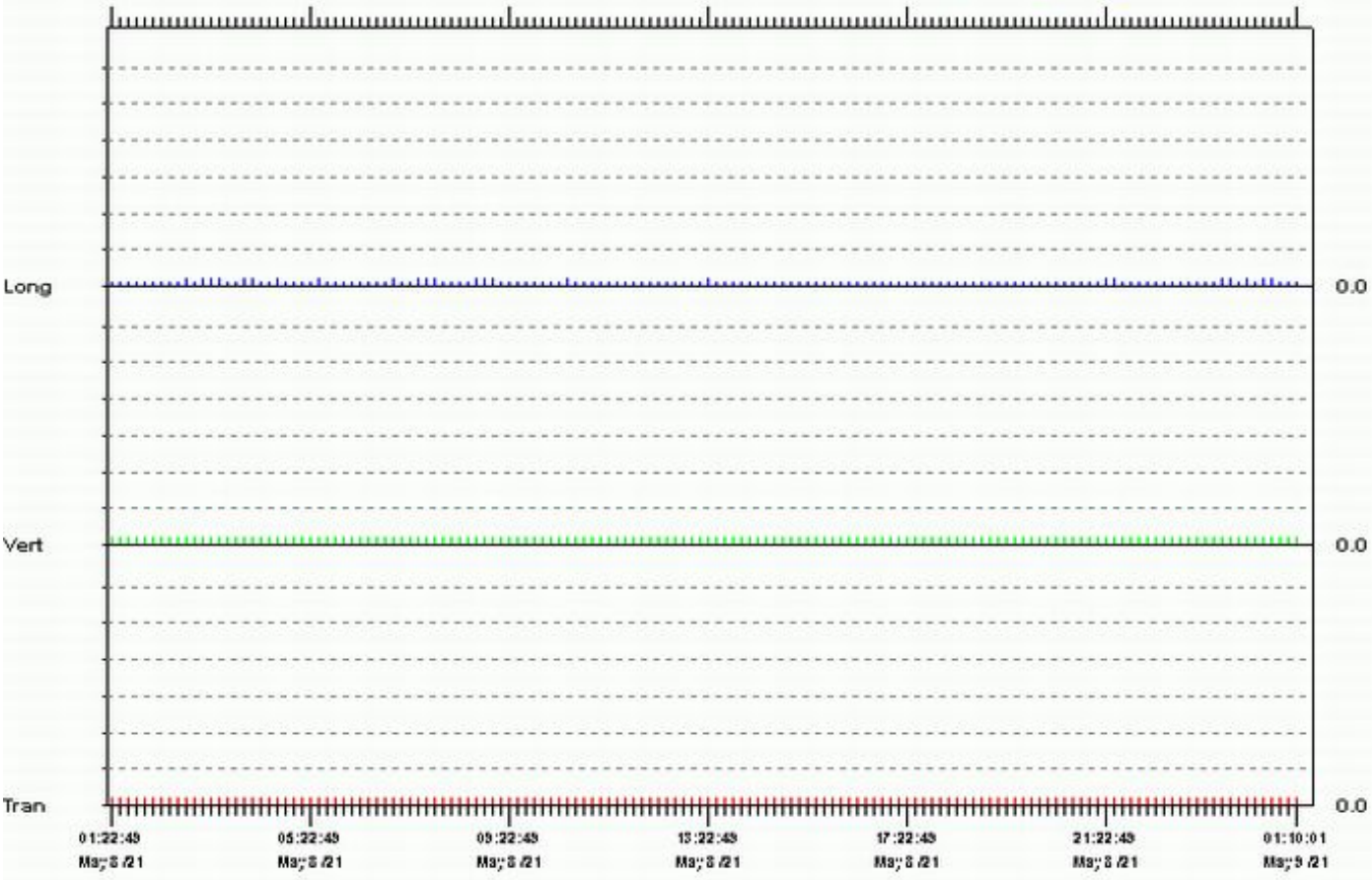
Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.01000	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	May 8 /21	May 8 /21	May 8 /21	
Time	01:13:04	01:13:04	02:44:34	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0150 in/s on May 8, 2021 At 01:37:04

USBM RI8507 And OSMRE





Created: May 9, 2021 (V - 10.40)

Start	01:12:47 May 9, 2021
Finish	01:10:01 May 10, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

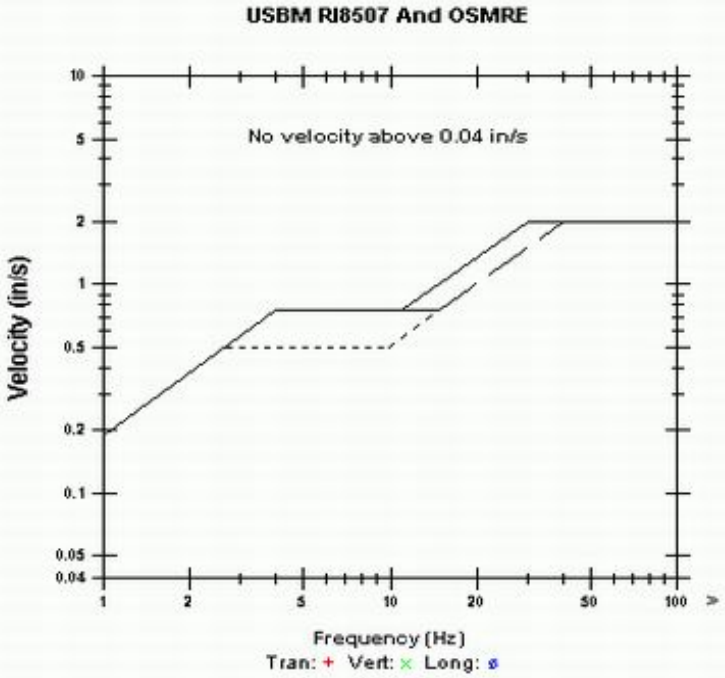
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IYZ4.PBOH

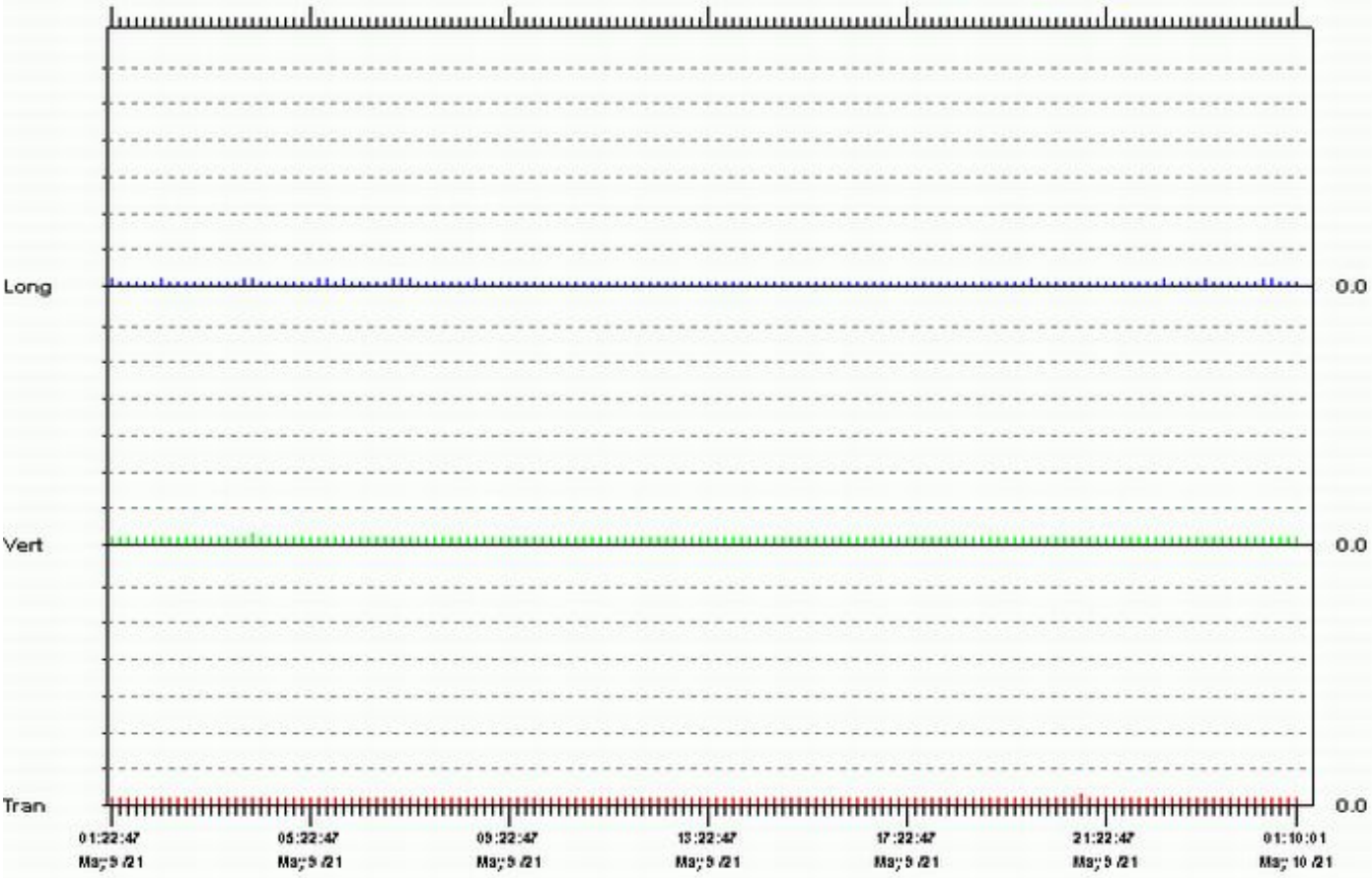
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.0150	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	May 9 /21	May 9 /21	May 9 /21	
Time	20:44:32	04:06:02	01:20:02	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0158 in/s on May 9, 2021 At 04:06:02





Created: May 10, 2021 (V - 10.40)

Start	01:12:47 May 10, 2021
Finish	09:57:23 May 10, 2021
Intervals	2099.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

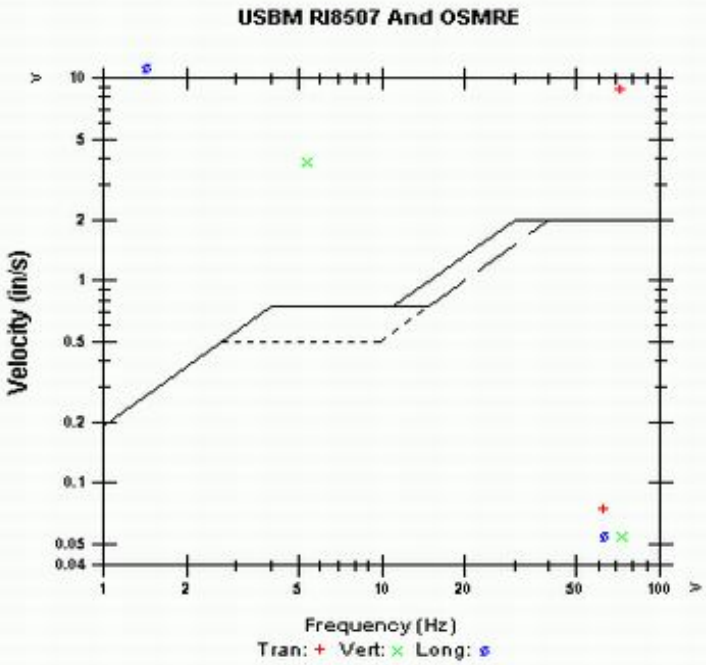
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M4401Z0Z.DB0H

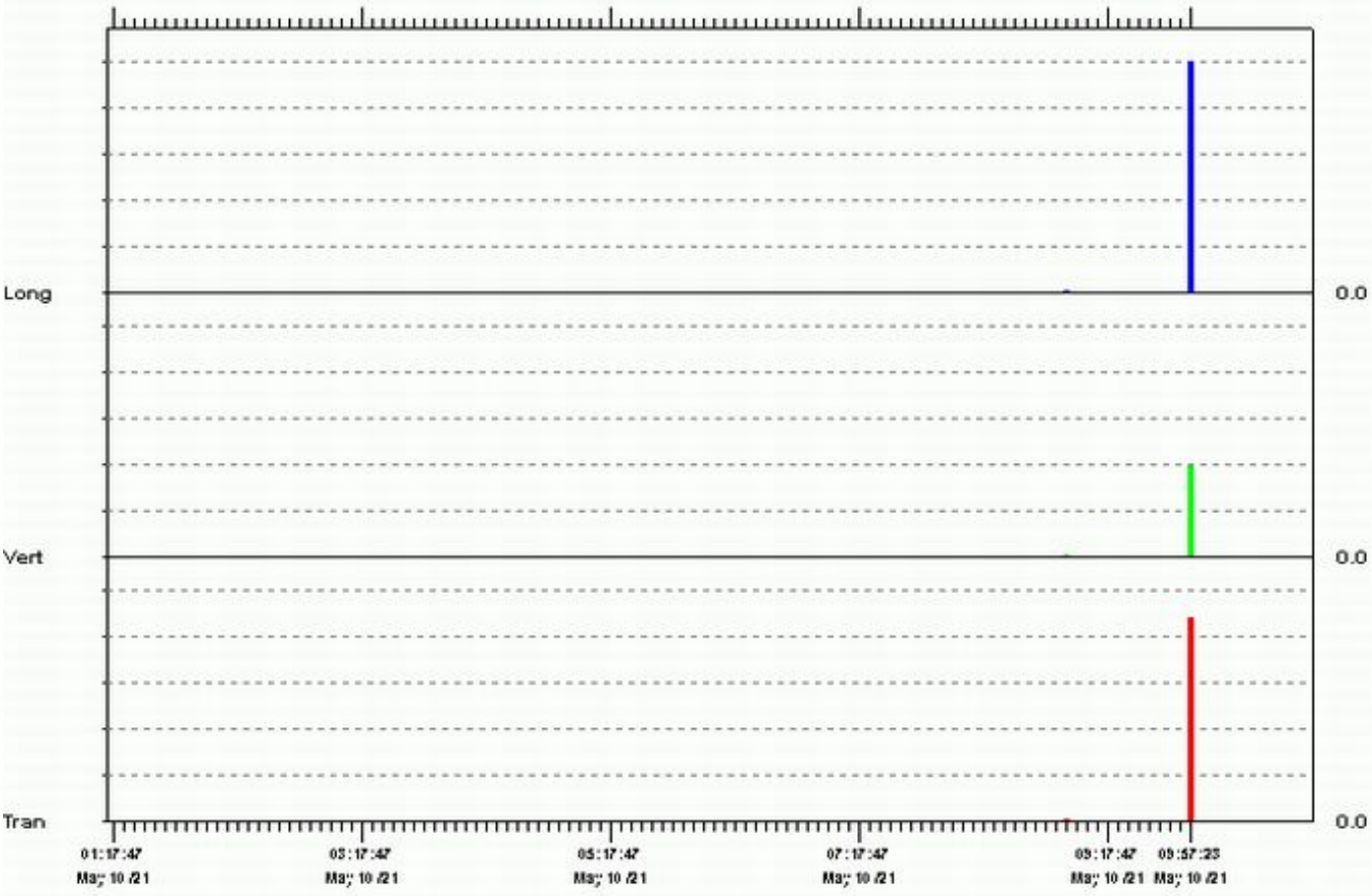
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	8.87	3.92	OORANGE	in/s
ZC Freq	73	5.4	1.4	Hz
Date	May 10 /21	May 10 /21	May 10 /21	
Time	09:57:23	09:57:23	09:57:23	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum OORANGE in/s on May 10, 2021 At 09:57:23
OORANGE : Out of Range





Created: May 10, 2021 (V - 10.40)

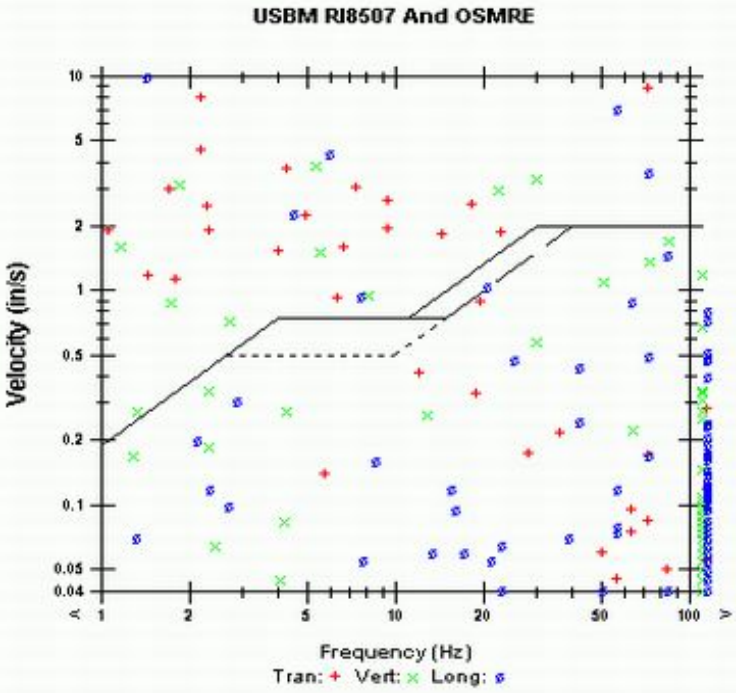
Date/Time	Long At 09:57:19 May 10, 2021
Trigger Source	Geo: 0.500 in/s
Range	Geo: 10.00 in/s
Sample Rate	4.0 sec. At 1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

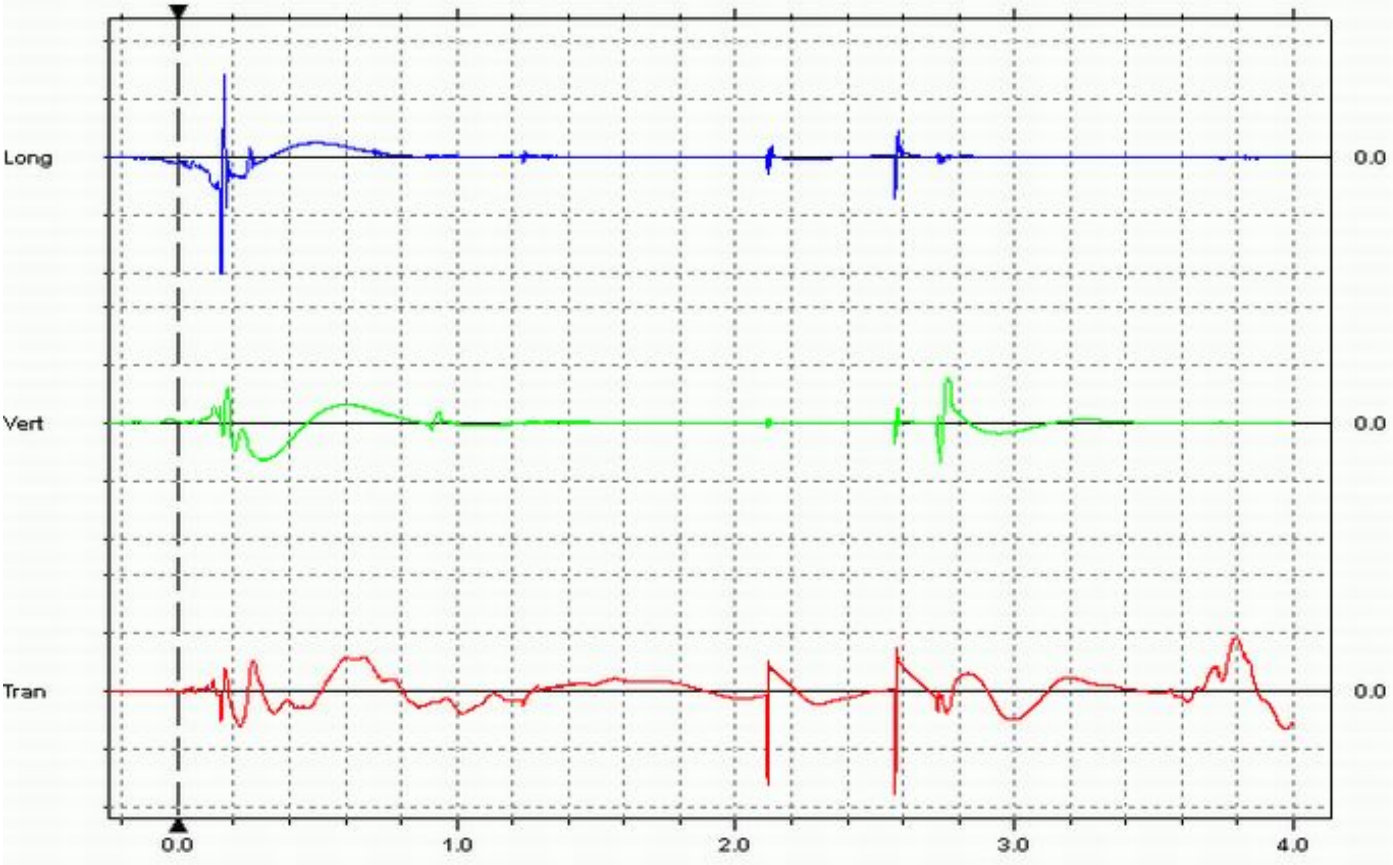
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IZ1N.NJ0W
Post Event Notes	

Extended Notes
Combo Mode May 10, 2021 01:12:46

	Tran	Vert	Long	
PPV	8.87	3.92	OORANGE	in/s
ZC Freq	73	5.4	1.4	Hz
Time (Rel. to Trig)	2.571	2.760	0.153	sec
Peak Acceleration	12.8	4.26	16.3	g
Peak Displacement	0.257	0.265	0.179	in
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum OORANGE in/s At 0.153 sec.
OORANGE : Out of Range





Created: May 10, 2021 (V - 10.40)

Start	10:00:28 May 10, 2021
Finish	01:10:01 May 11, 2021
Intervals	3639.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- MI

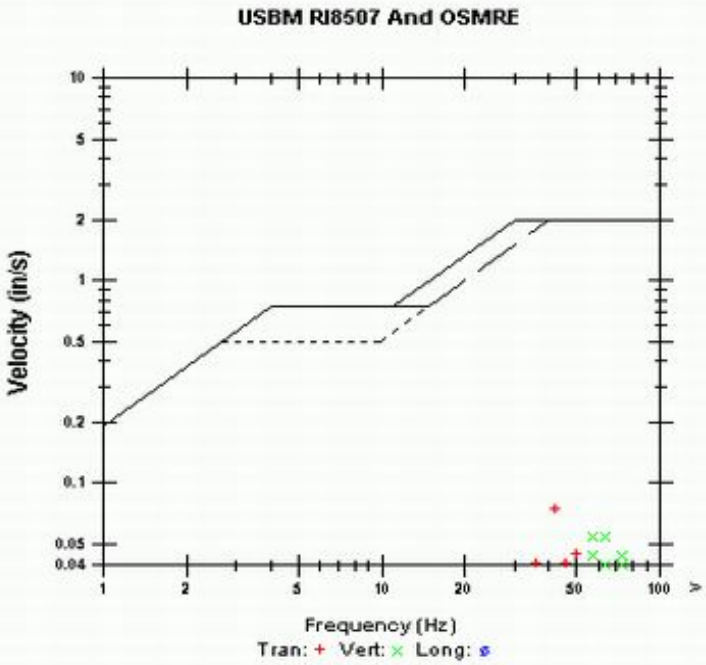
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IZ1N.SSOH

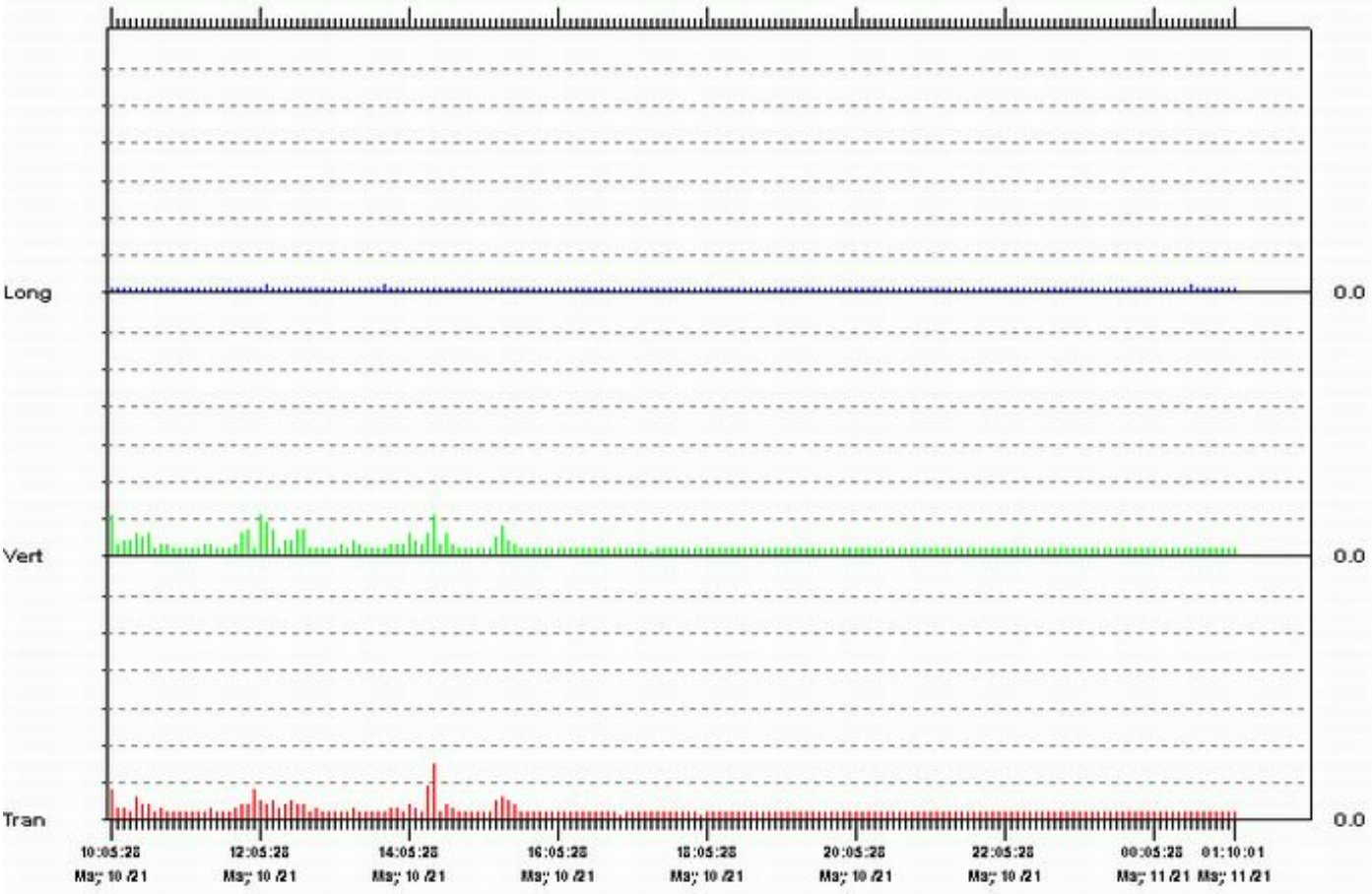
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0750	0.0550	0.01000	in/s
ZC Freq	43	57	>100	Hz
Date	May 10 /21	May 10 /21	May 10 /21	
Time	14:21:43	10:01:58	12:10:13	
Sensor Check	Passed	Check	Check	

Peak Vector Sum 0.0834 in/s on May 10, 2021 At 14:21:43





Created: May 11, 2021 (V - 10.40)

Start	01:12:25 May 11, 2021
Finish	01:10:01 May 12, 2021
Intervals	5751.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

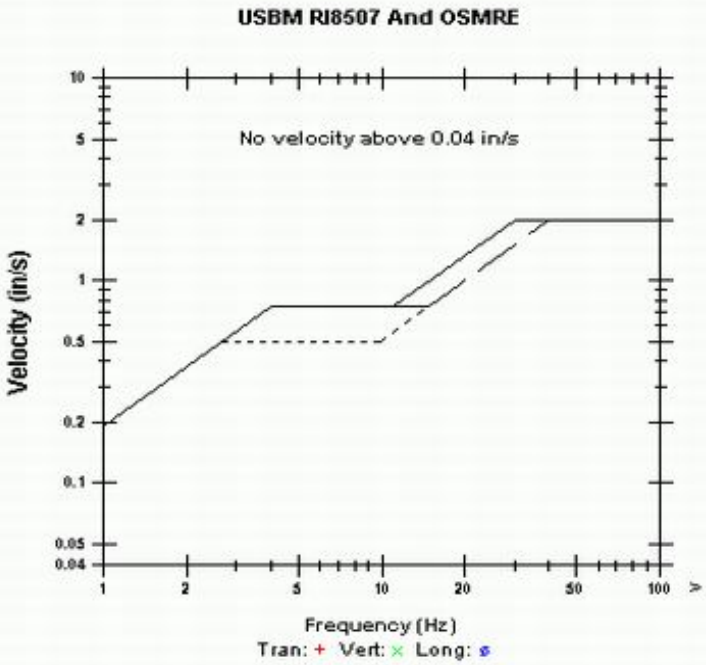
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IZ2U.0P0H

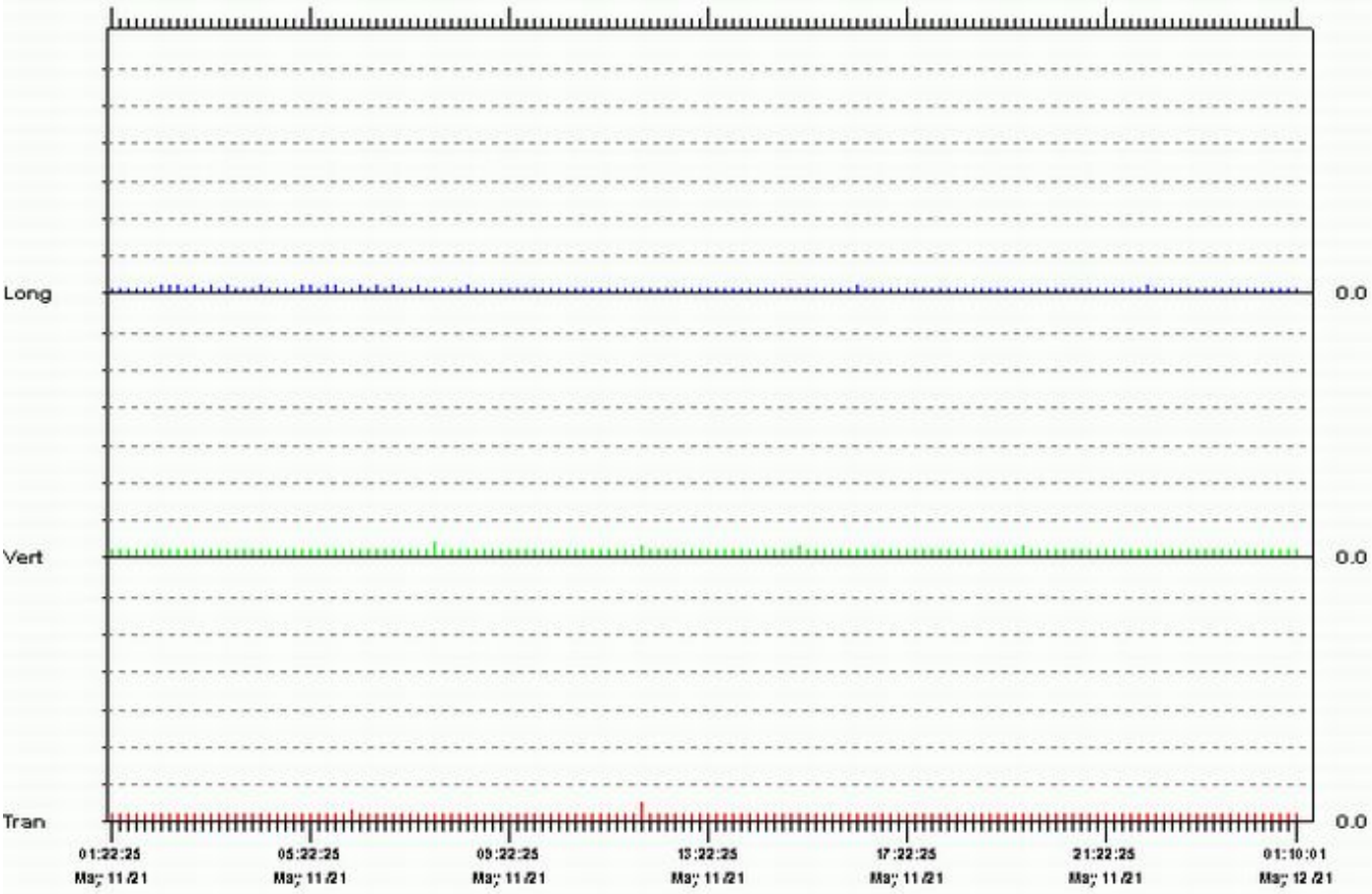
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0250	0.0200	0.01000	in/s
ZC Freq	8.5	12	>100	Hz
Date	May 11 /21	May 11 /21	May 11 /21	
Time	12:00:55	07:42:40	02:14:25	
Sensor Check	Passed	Check	Check	

Peak Vector Sum 0.0269 in/s on May 11, 2021 At 12:00:55





Created: May 12, 2021 (V - 10.40)

Start	01:15:01 May 12, 2021
Finish	01:10:01 May 13, 2021
Intervals	5740.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

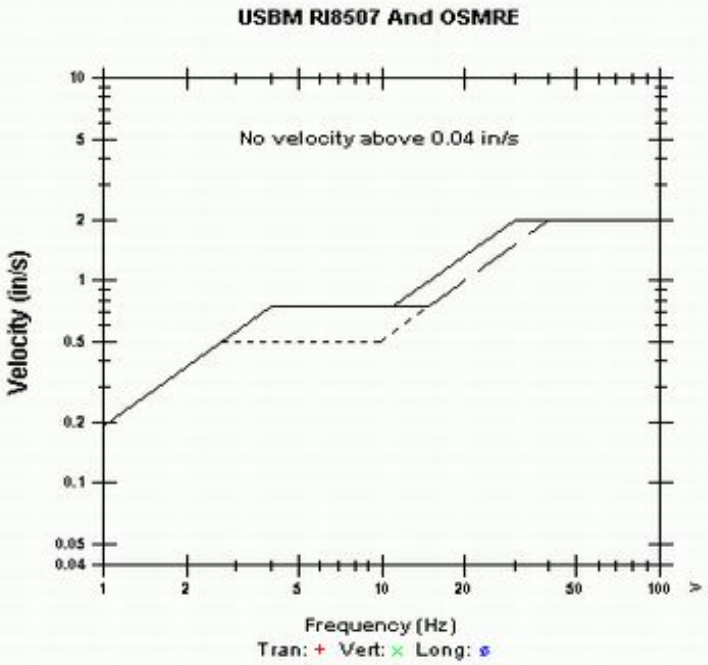
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IZ4O.T10H

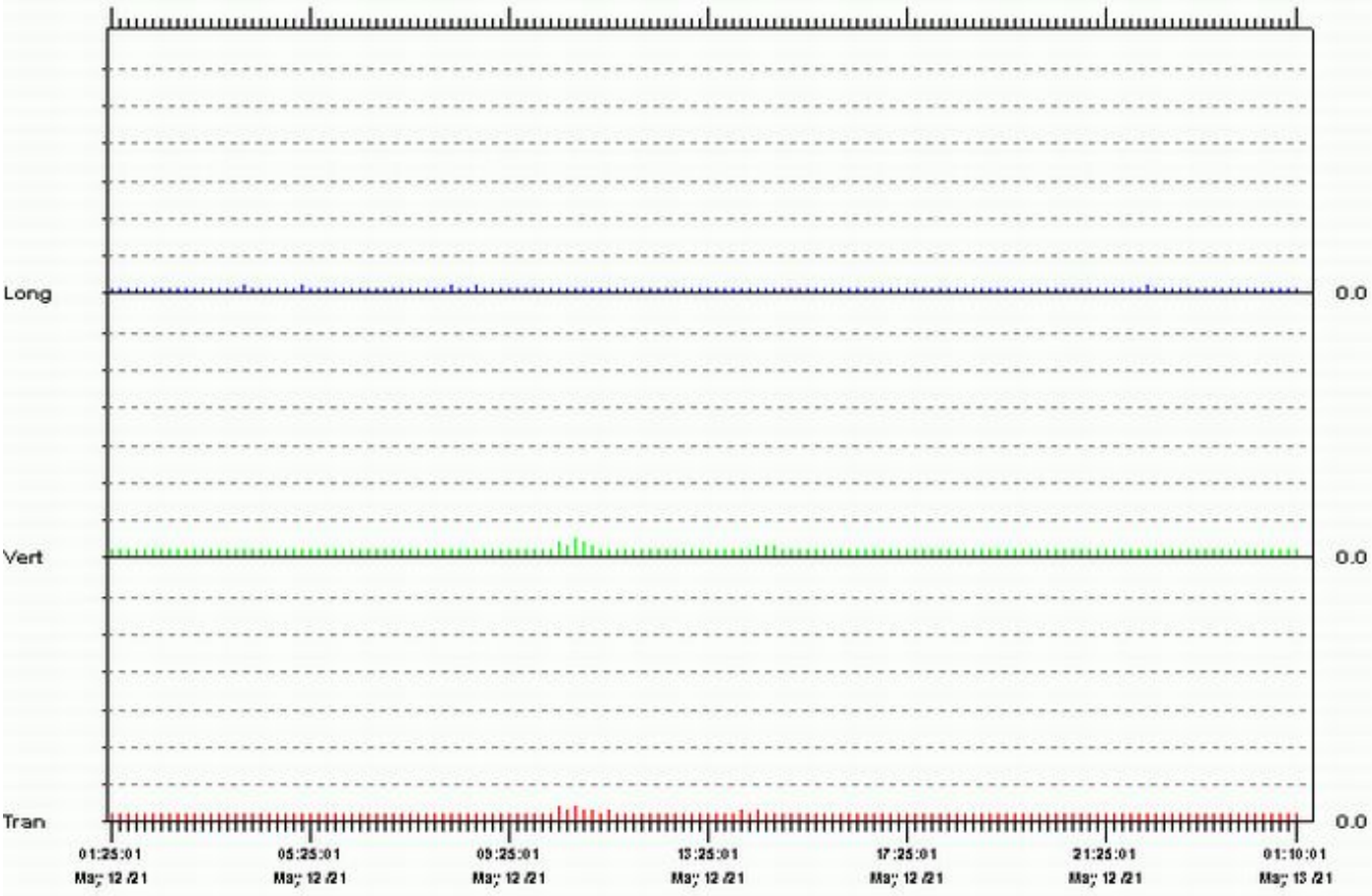
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0200	0.0250	0.01000	in/s
ZC Freq	23	20	>100	Hz
Date	May 12 /21	May 12 /21	May 12 /21	
Time	10:18:46	10:38:01	03:56:46	
Sensor Check	Passed	Check	Check	

Peak Vector Sum 0.0255 in/s on May 12, 2021 At 10:38:01





Created: May 13, 2021 (V - 10.40)

Start	01:12:50 May 13, 2021
Finish	01:10:01 May 14, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

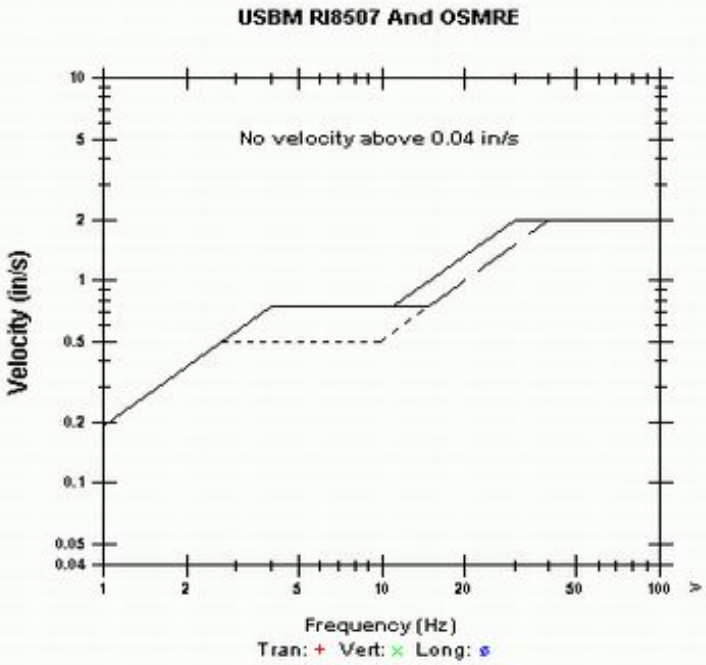
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IZ6J.DE0H

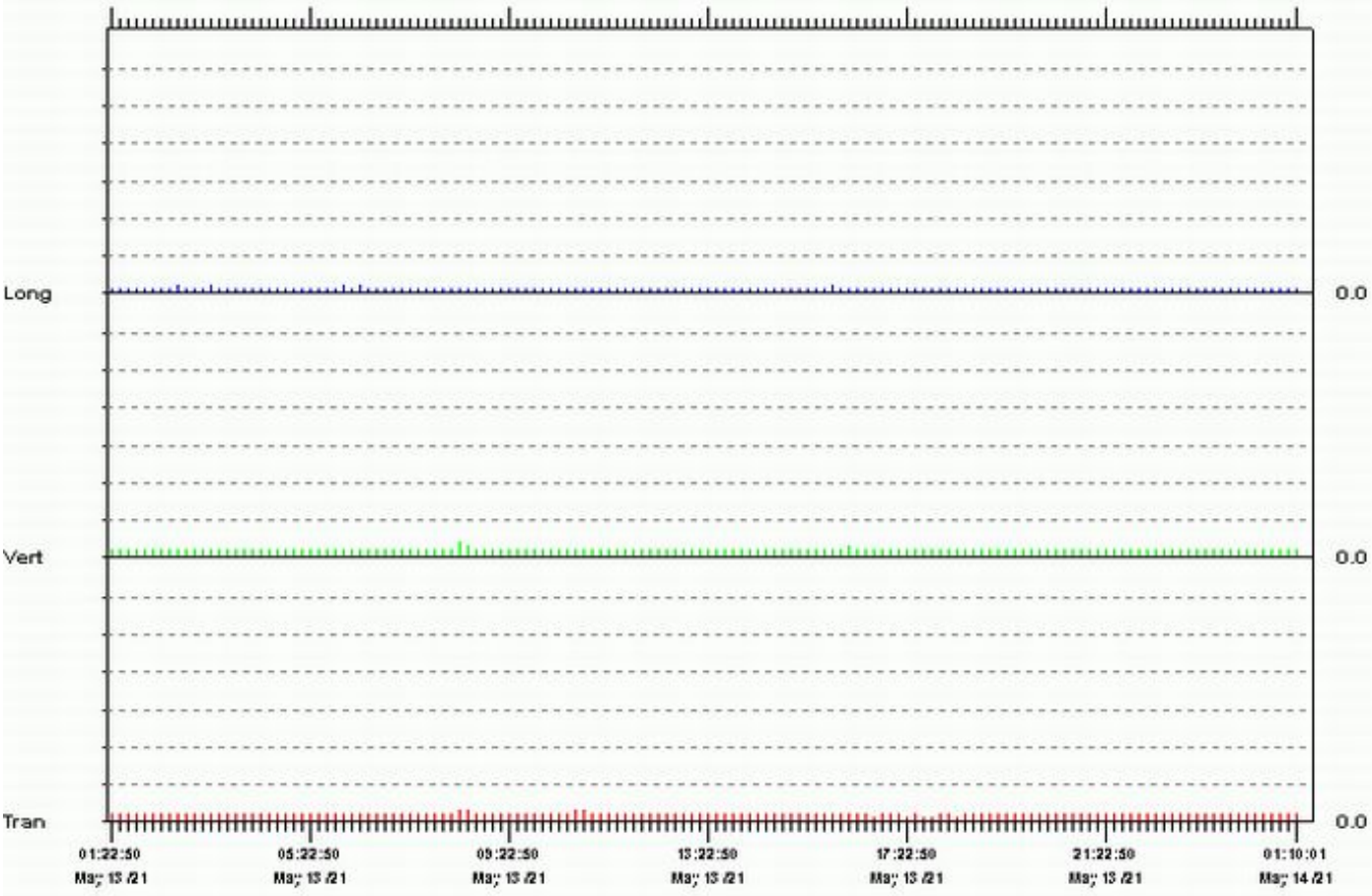
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.0200	0.01000	in/s
ZC Freq	51	16	>100	Hz
Date	May 13 /21	May 13 /21	May 13 /21	
Time	08:22:20	08:22:50	02:33:50	
Sensor Check	Passed	Check	Check	

Peak Vector Sum 0.0212 in/s on May 13, 2021 At 08:22:50





Created: May 14, 2021 (V - 10.40)

Start	01:12:44 May 14, 2021
Finish	01:10:01 May 15, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IZ8E.180H

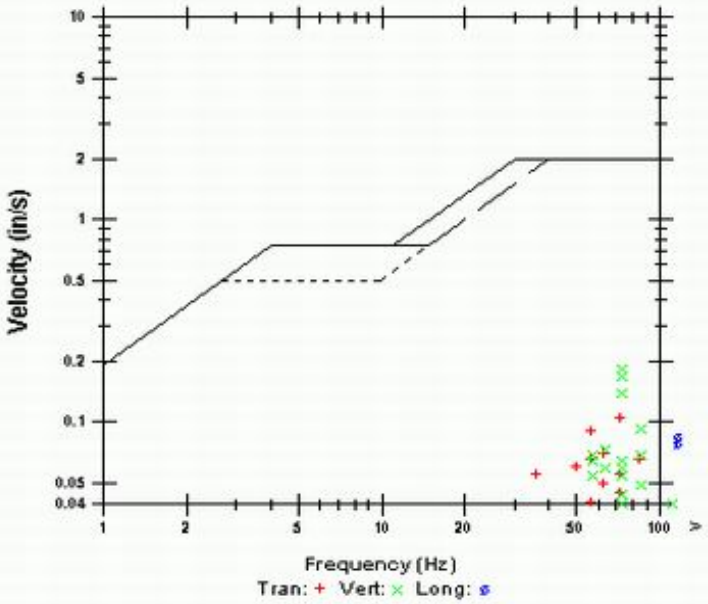
Post Event Notes

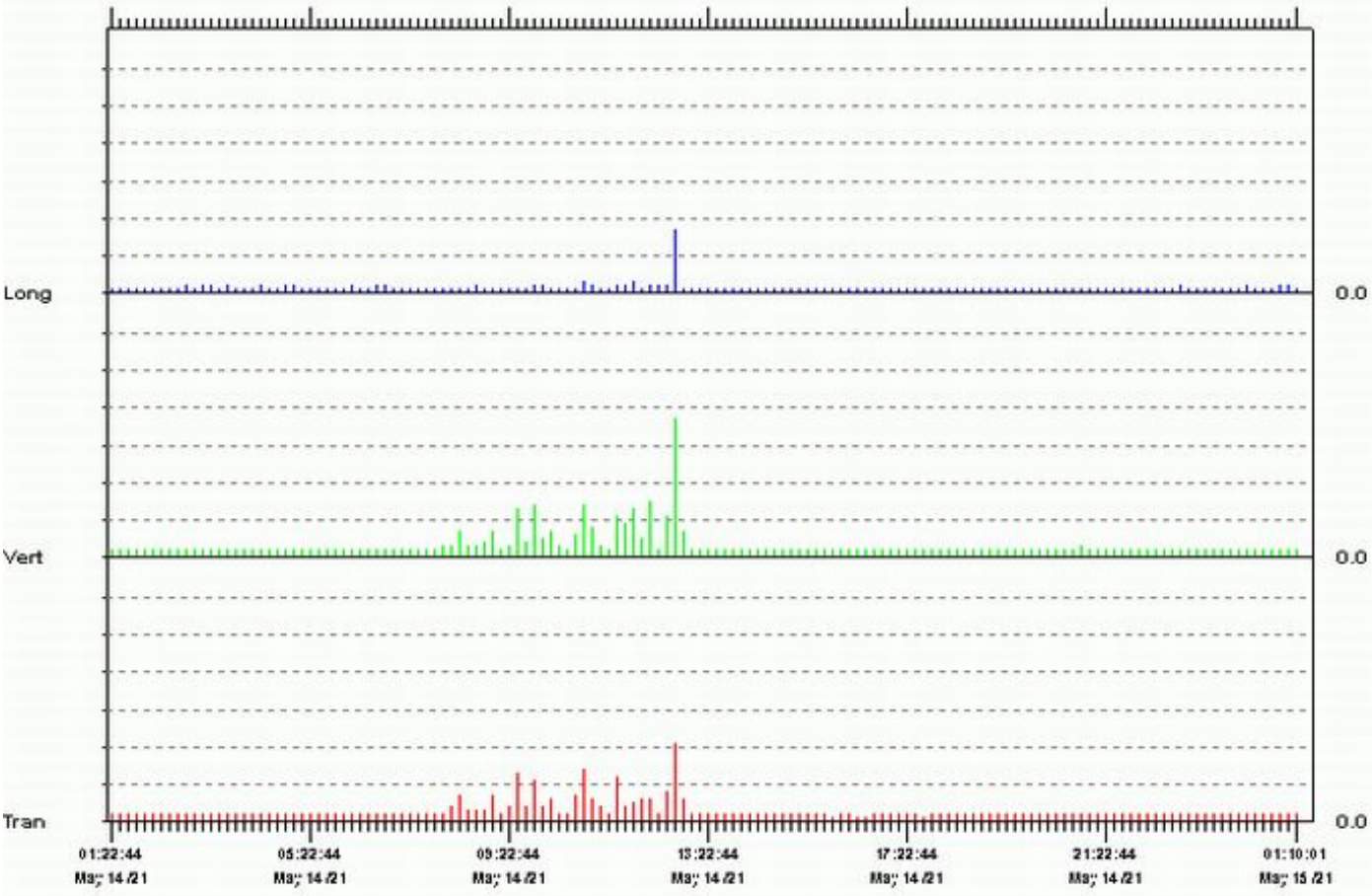
Extended Notes

	Tran	Vert	Long	
PPV	0.105	0.185	0.0850	in/s
ZC Freq	73	73	>100	Hz
Date	May 14 /21	May 14 /21	May 14 /21	
Time	12:37:44	12:37:44	12:37:44	
Sensor Check	Passed	Check	Check	

Peak Vector Sum 0.188 in/s on May 14, 2021 At 12:42:14

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 15, 2021 (V - 10.40)

Start	01:12:48 May 15, 2021
Finish	01:10:01 May 16, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IZA8.PCOH

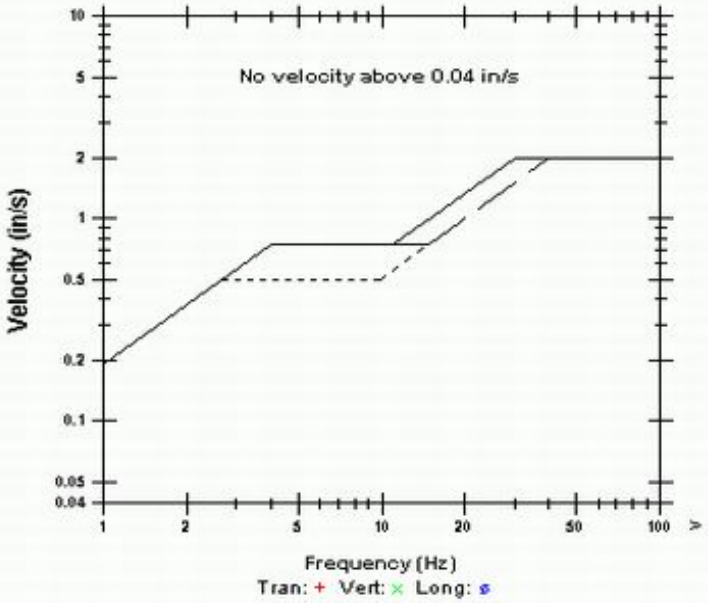
Post Event Notes

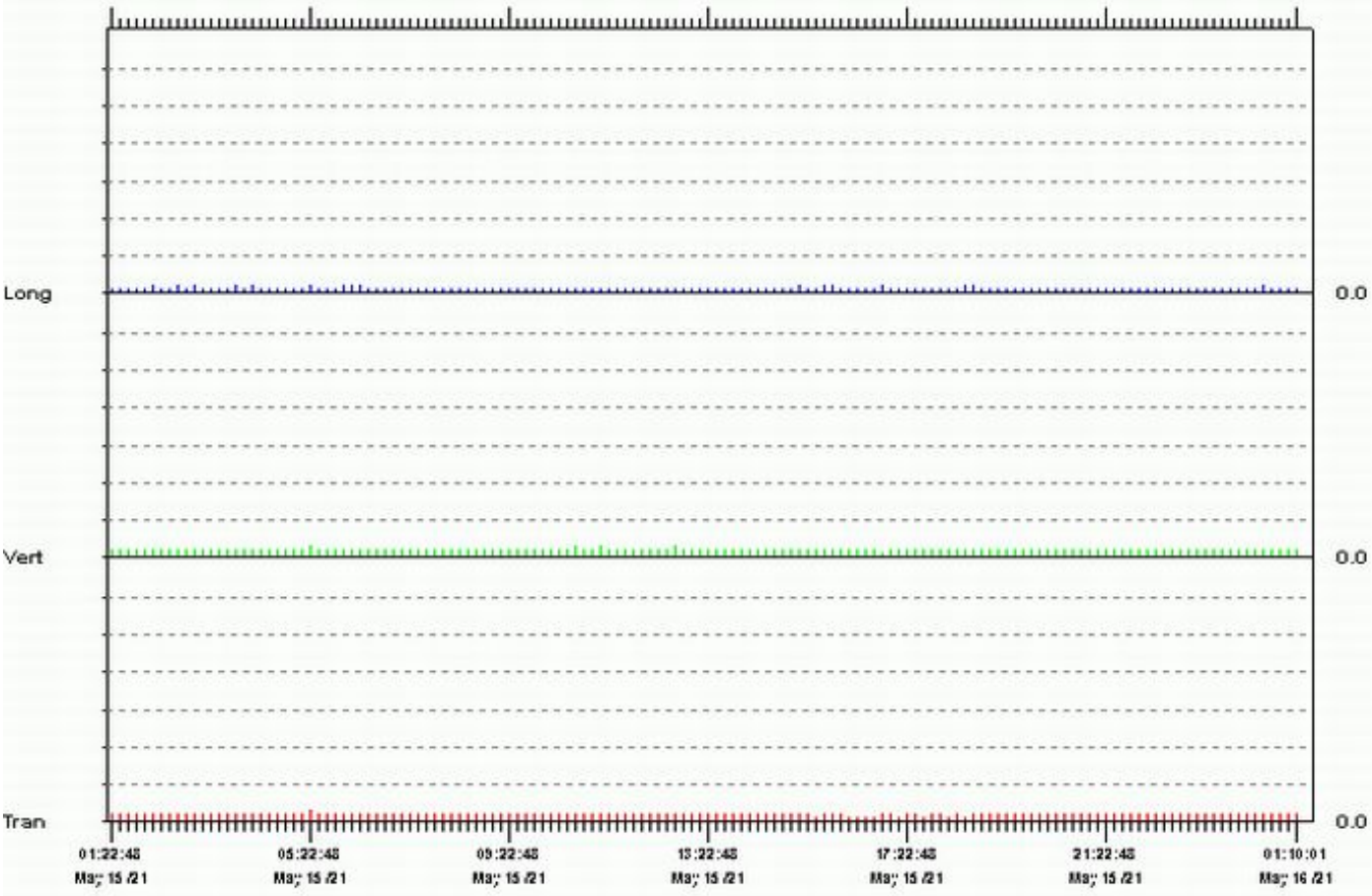
Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.0150	0.01000	in/s
ZC Freq	73	>100	>100	Hz
Date	May 15 /21	May 15 /21	May 15 /21	
Time	05:21:33	05:21:33	02:04:33	
Sensor Check	Passed	Check	Check	

Peak Vector Sum 0.0187 in/s on May 15, 2021 At 05:21:33

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 16, 2021 (V - 10.40)

Start	01:14:26 May 16, 2021
Finish	01:10:01 May 17, 2021
Intervals	5743.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit LocationI:	Everett- MI

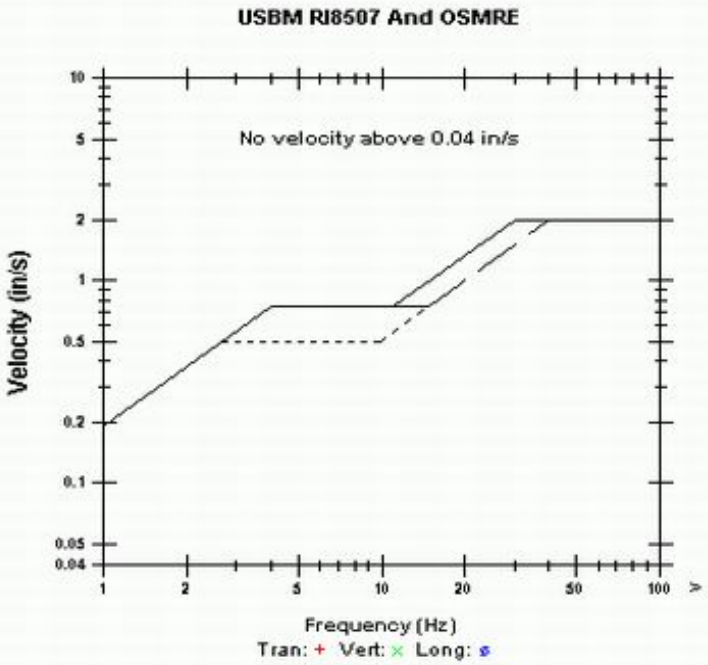
Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IZC3.G20H

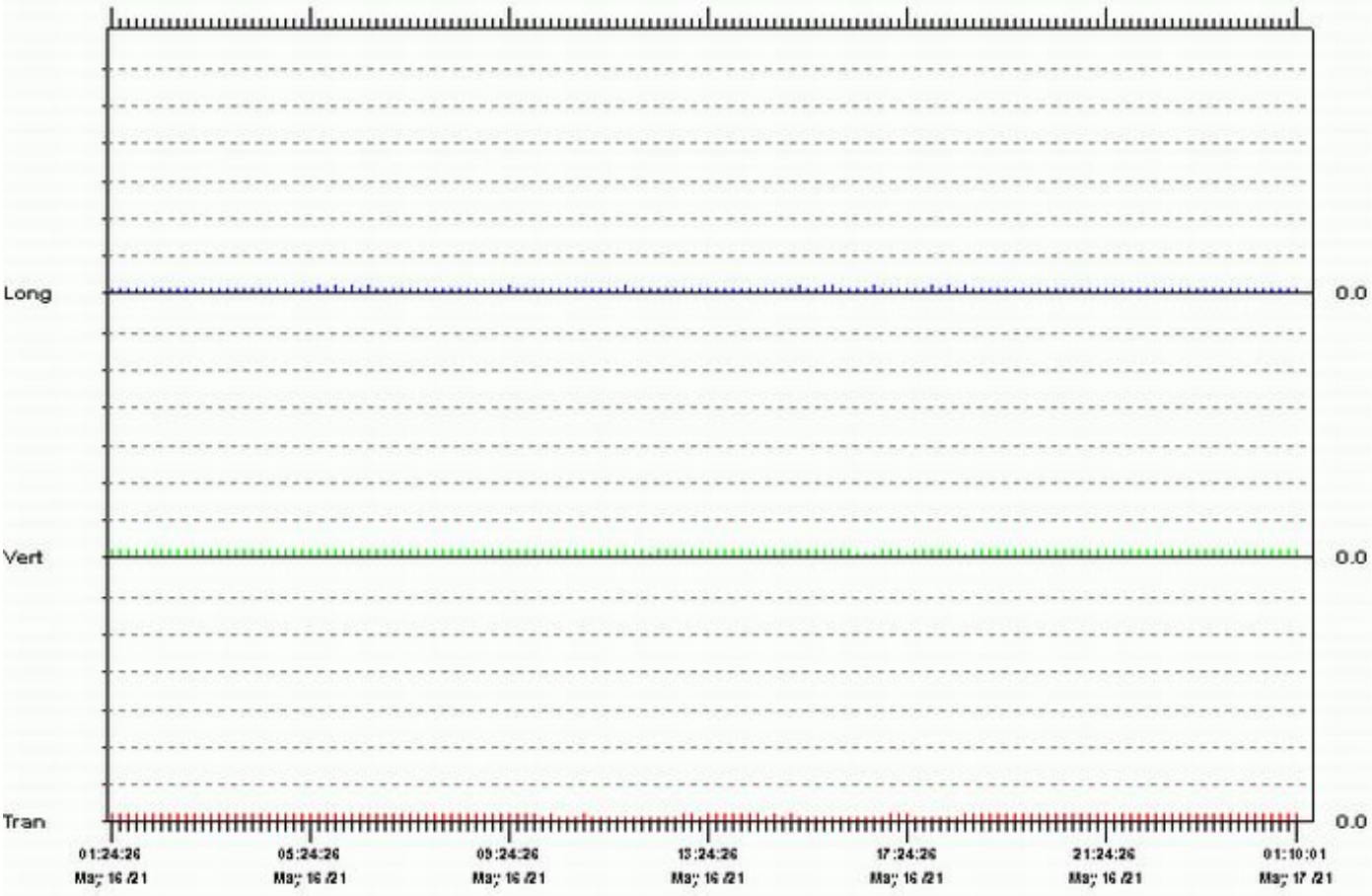
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.01000	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	May 16 /21	May 16 /21	May 16 /21	
Time	01:14:41	01:14:41	05:27:41	
Sensor Check	Passed	Check	Check	

Peak Vector Sum 0.0150 in/s on May 16, 2021 At 01:32:26





Created: May 17, 2021 (V - 10.40)

Start	01:12:43 May 17, 2021
Finish	13:31:15 May 17, 2021
Intervals	2954.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M1

Serial Number	BE11440 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	October 6, 2020 by Instantel
File Name	M440IZDY.170H

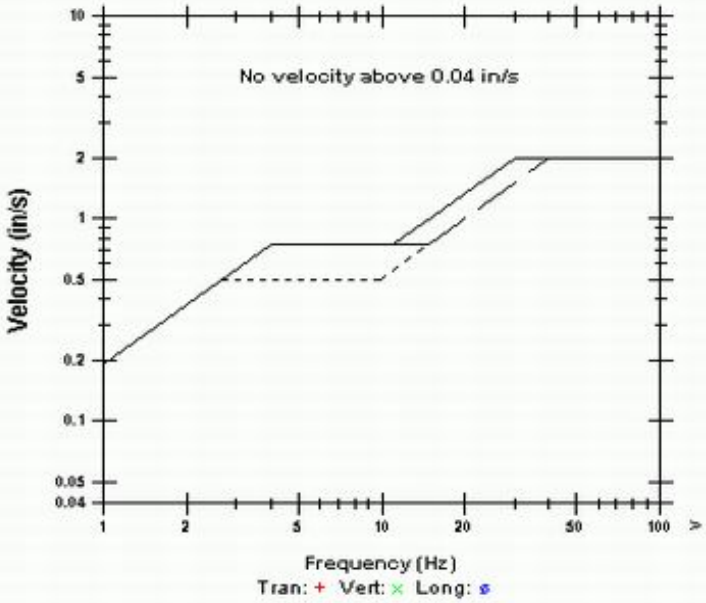
Post Event Notes

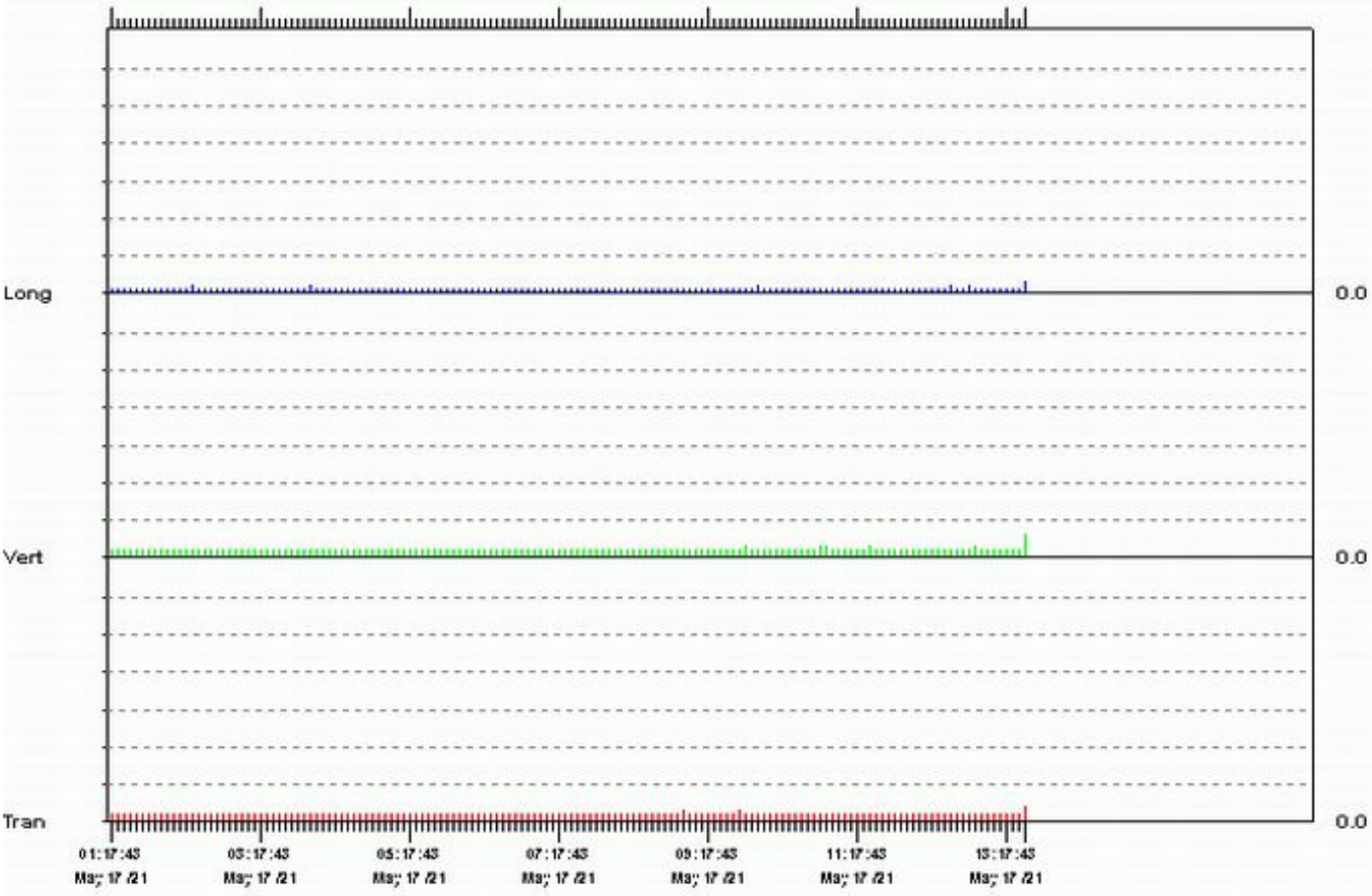
Extended Notes

	Tran	Vert	Long	
PPV	0.0200	0.0300	0.0150	in/s
ZC Freq	85	85	>100	Hz
Date	May 17 /21	May 17 /21	May 17 /21	
Time	13:30:28	13:30:28	13:30:28	
Sensor Check	Passed	Check	Check	

Peak Vector Sum 0.0304 in/s on May 17, 2021 At 13:30:28

USBM RI8507 And OSMRE





Created: May 17, 2021 (V - 10.40)

Start	14:09:55 March 29, 2021
Finish	01:20:01 March 30, 2021
Intervals	2681.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M4411WW7.CJOH

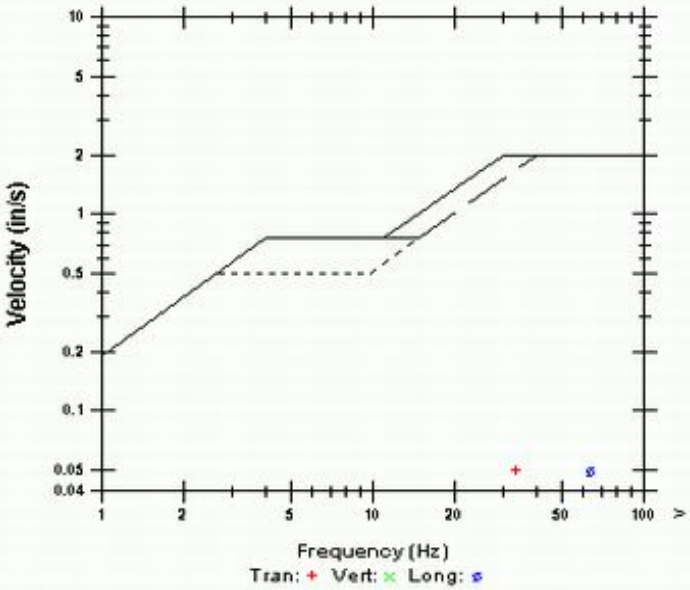
Post Event Notes

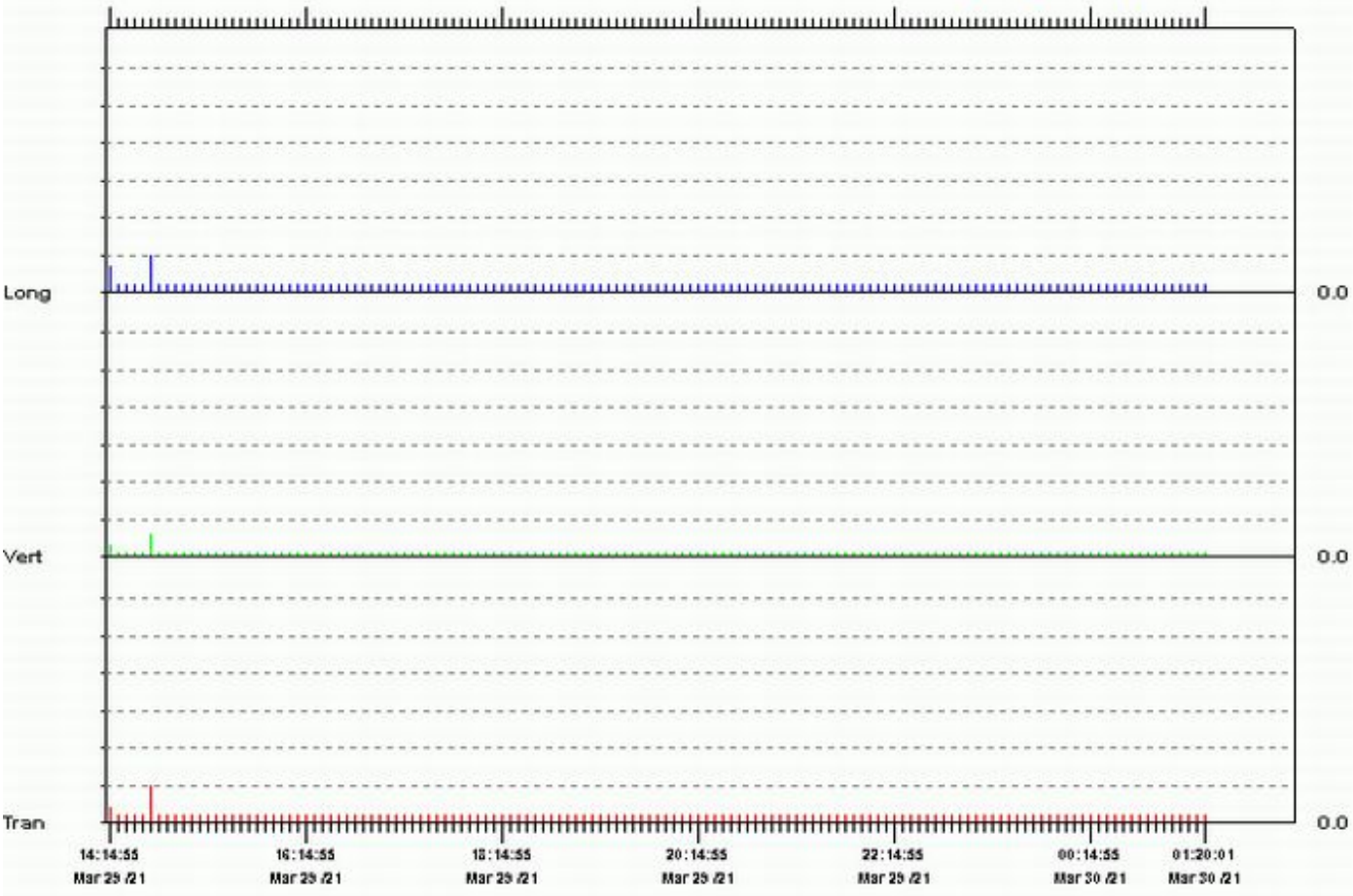
Extended Notes

	Tran	Vert	Long	
PPV	0.0500	0.0300	0.0500	in/s
ZC Freq	34	73	64	Hz
Date	Mar 29 /21	Mar 29 /21	Mar 29 /21	
Time	14:37:55	14:37:55	14:37:55	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0522 in/s on March 29, 2021 At 14:37:55

USBM RI8507 And OSMRE





Time(Seconds) 5 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: March 30, 2021 (V - 10.40)

Start	01:22:45 March 31, 2021
Finish	01:20:01 April 1, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IWYX.5X0H

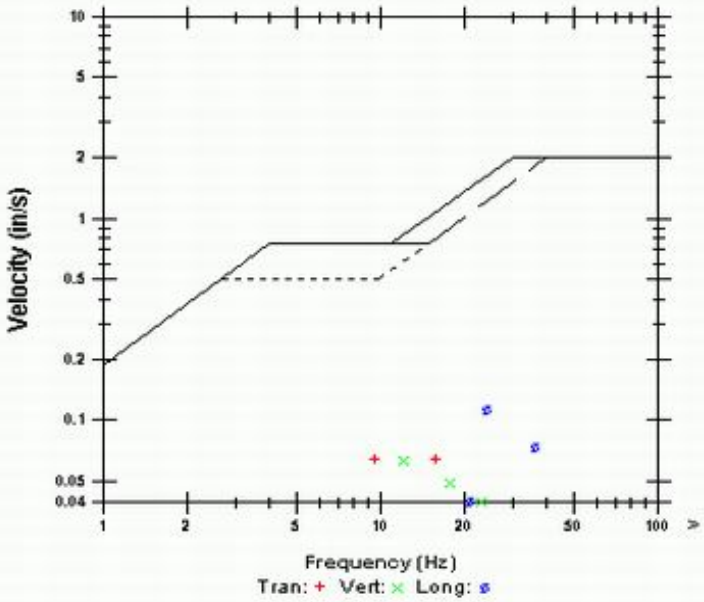
Post Event Notes

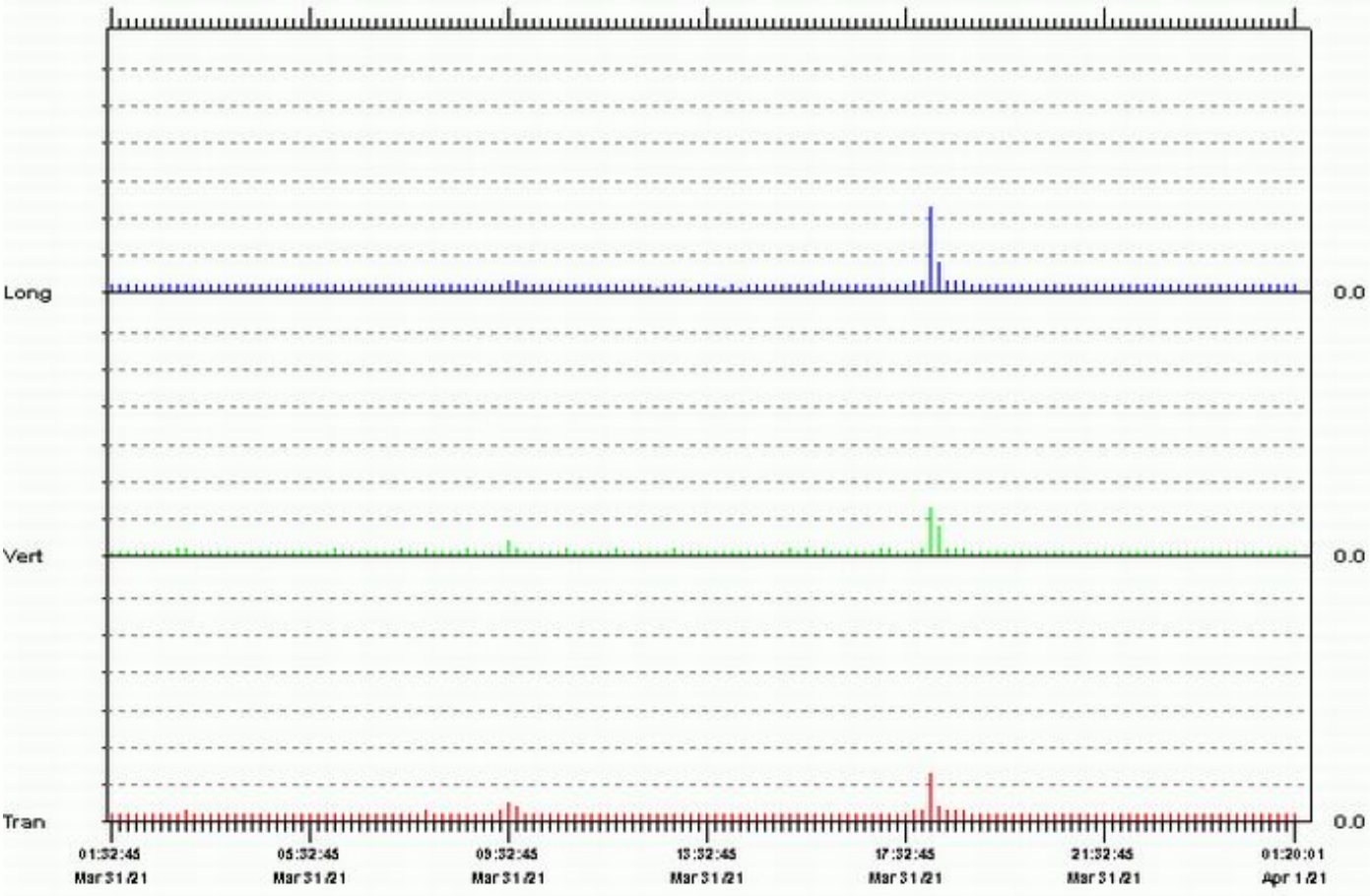
Extended Notes

	Tran	Vert	Long	
PPV	0.0650	0.0650	0.115	in/s
ZC Freq	9.7	12	24	Hz
Date	Mar 31 /21	Mar 31 /21	Mar 31 /21	
Time	17:56:00	17:56:00	17:57:15	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.126 in/s on March 31, 2021 At 17:57:15

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 1, 2021 (V - 10.40)

Start	01:22:44 April 1, 2021
Finish	01:20:01 April 2, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

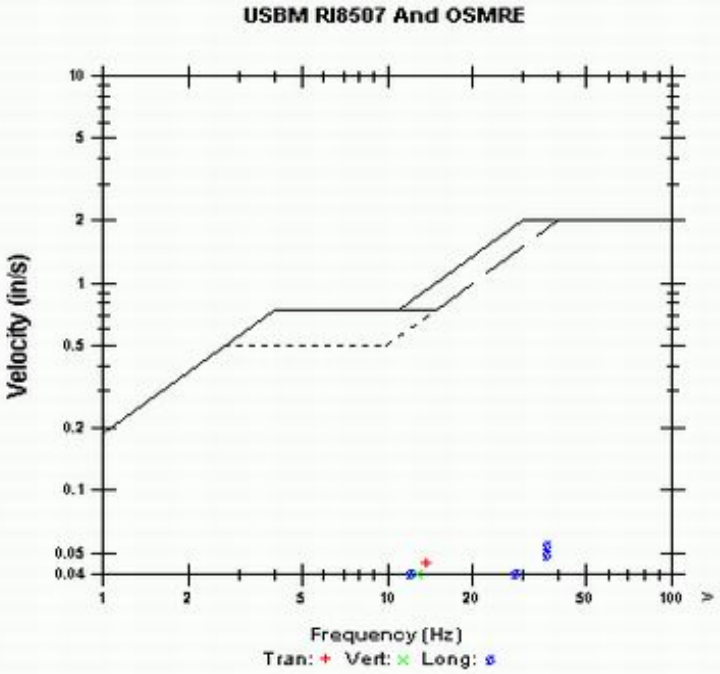
Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IXOR.TWDH

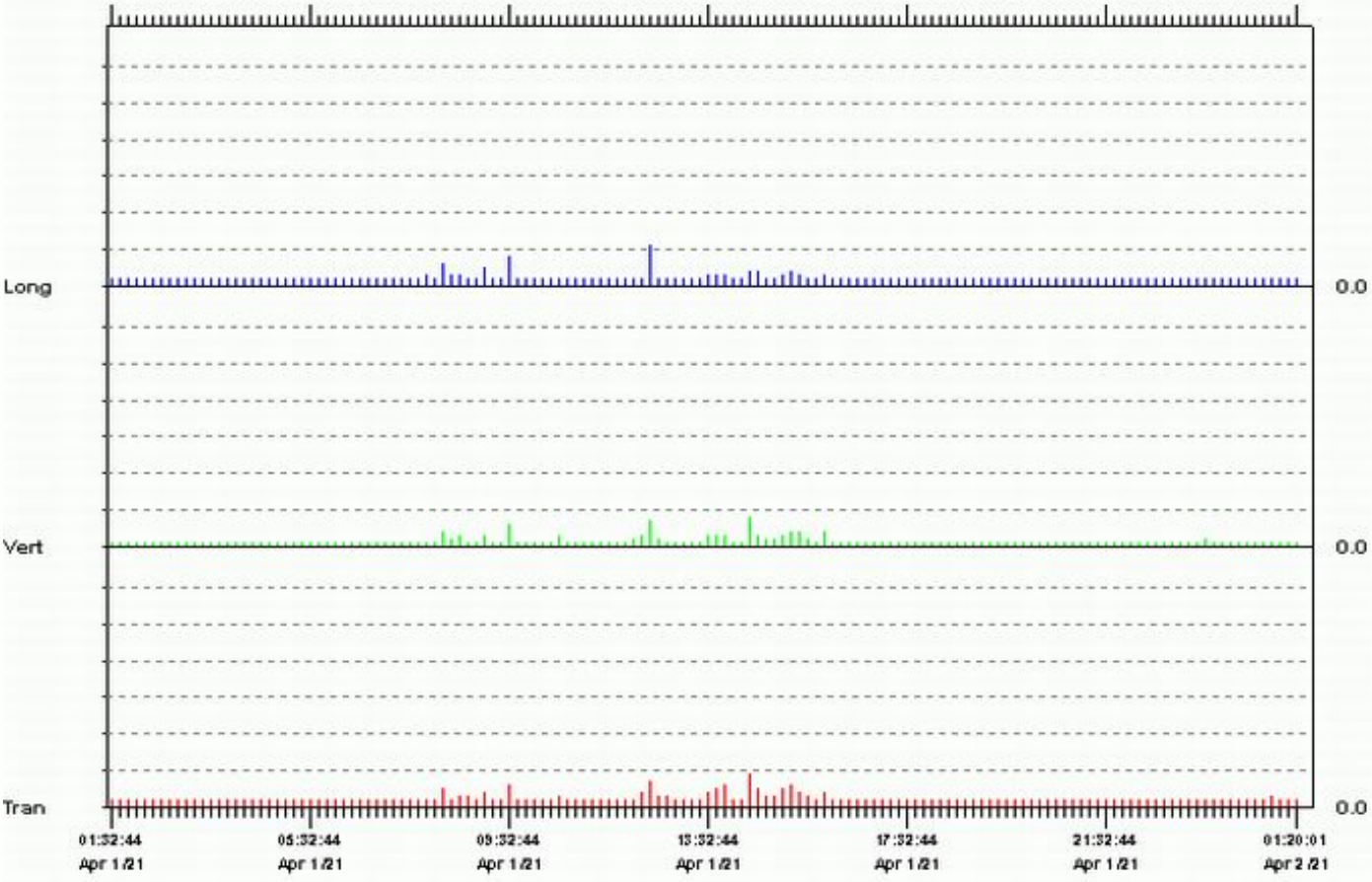
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0450	0.0400	0.0550	in/s
ZC Freq	14	13	37	Hz
Date	Apr 1 /21	Apr 1 /21	Apr 1 /21	
Time	14:19:29	14:19:29	12:13:29	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0587 in/s on April 1, 2021 At 12:13:29





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 2, 2021 (V - 10.40)

Start	01:22:43 April 2, 2021
Finish	01:20:01 April 3, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IX2M.HVOH

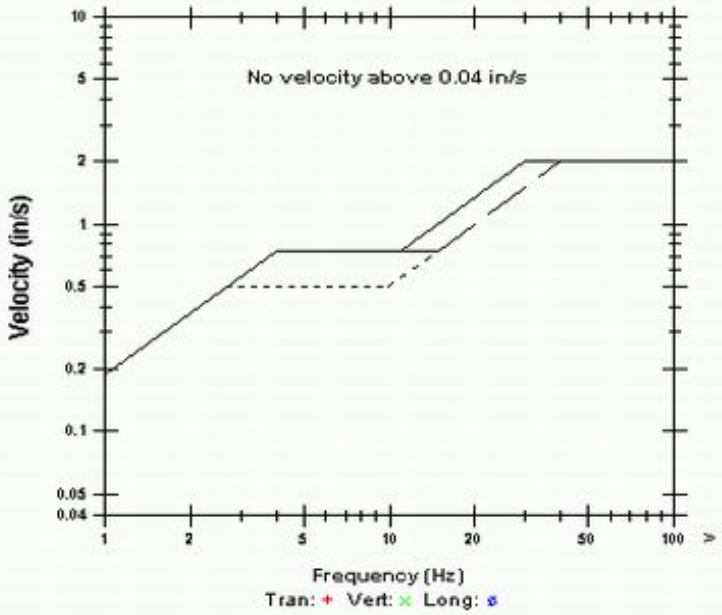
Post Event Notes

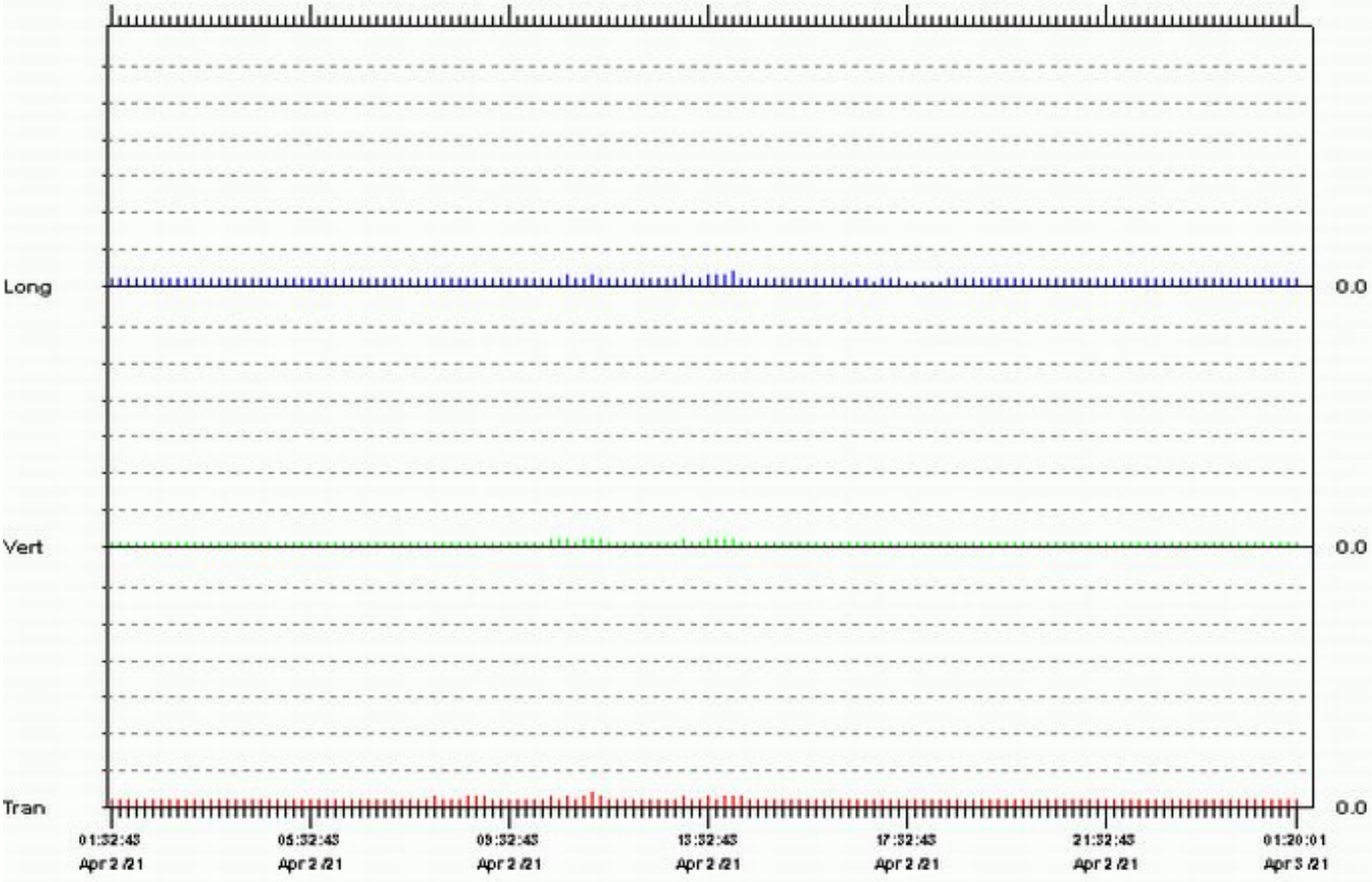
Extended Notes

	Tran	Vert	Long	
PPV	0.0200	0.01000	0.0200	in/s
ZC Freq	8.1	>100	17	Hz
Date	Apr 2 /21	Apr 2 /21	Apr 2 /21	
Time	11:07:13	10:21:43	13:56:58	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0255 in/s on April 2, 2021 At 11:07:13

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 3, 2021 (V - 10.40)

Start	01:23:56 April 3, 2021
Finish	01:20:01 April 4, 2021
Intervals	5745.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IX4H.7WDH

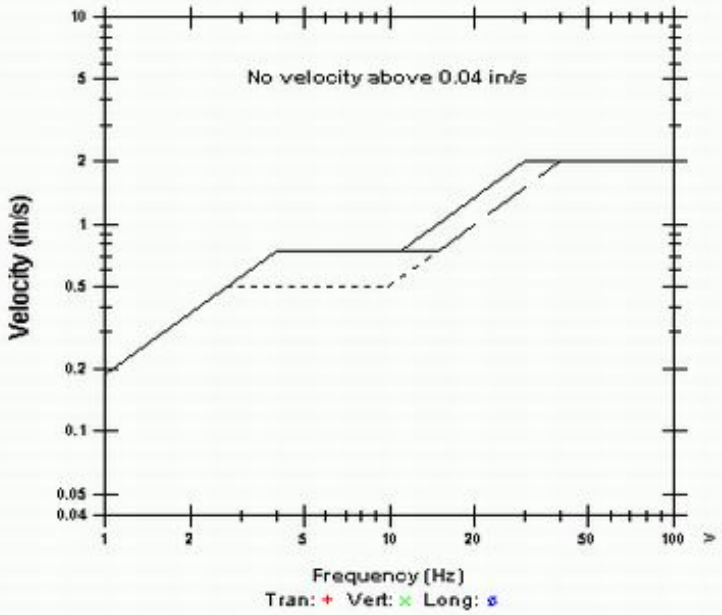
Post Event Notes

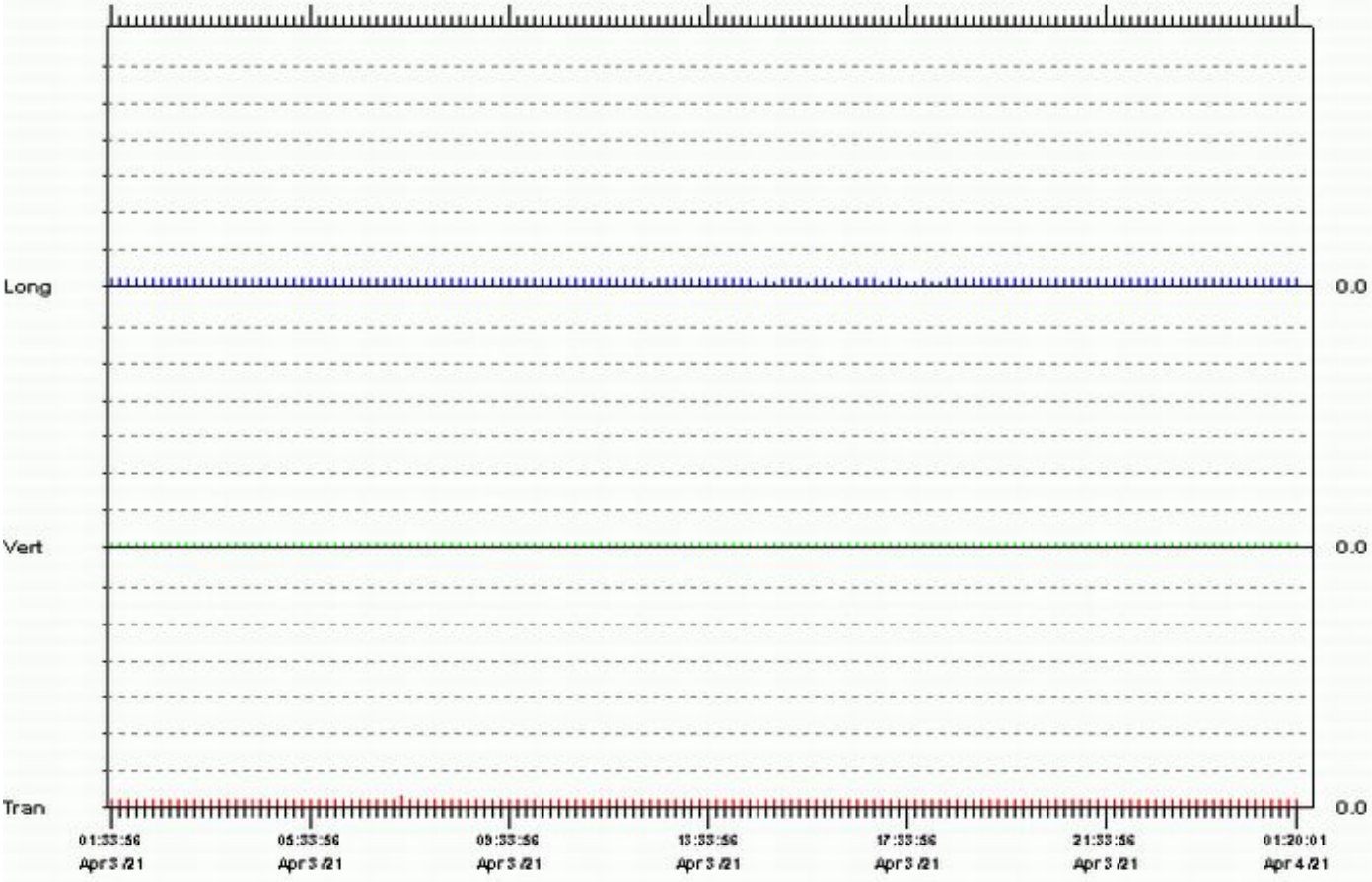
Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.00500	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	Apr 3 /21	Apr 3 /21	Apr 3 /21	
Time	07:17:11	01:24:11	01:24:56	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0150 in/s on April 3, 2021 At 07:17:11

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 4, 2021 (V - 10.40)

Start	01:23:22 April 4, 2021
Finish	01:20:01 April 5, 2021
Intervals	5747.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

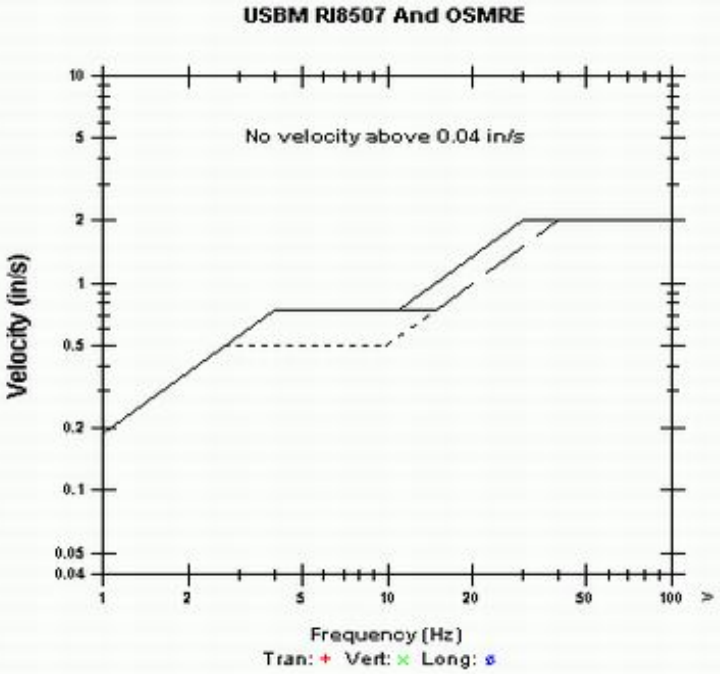
Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IX6B.UYOH

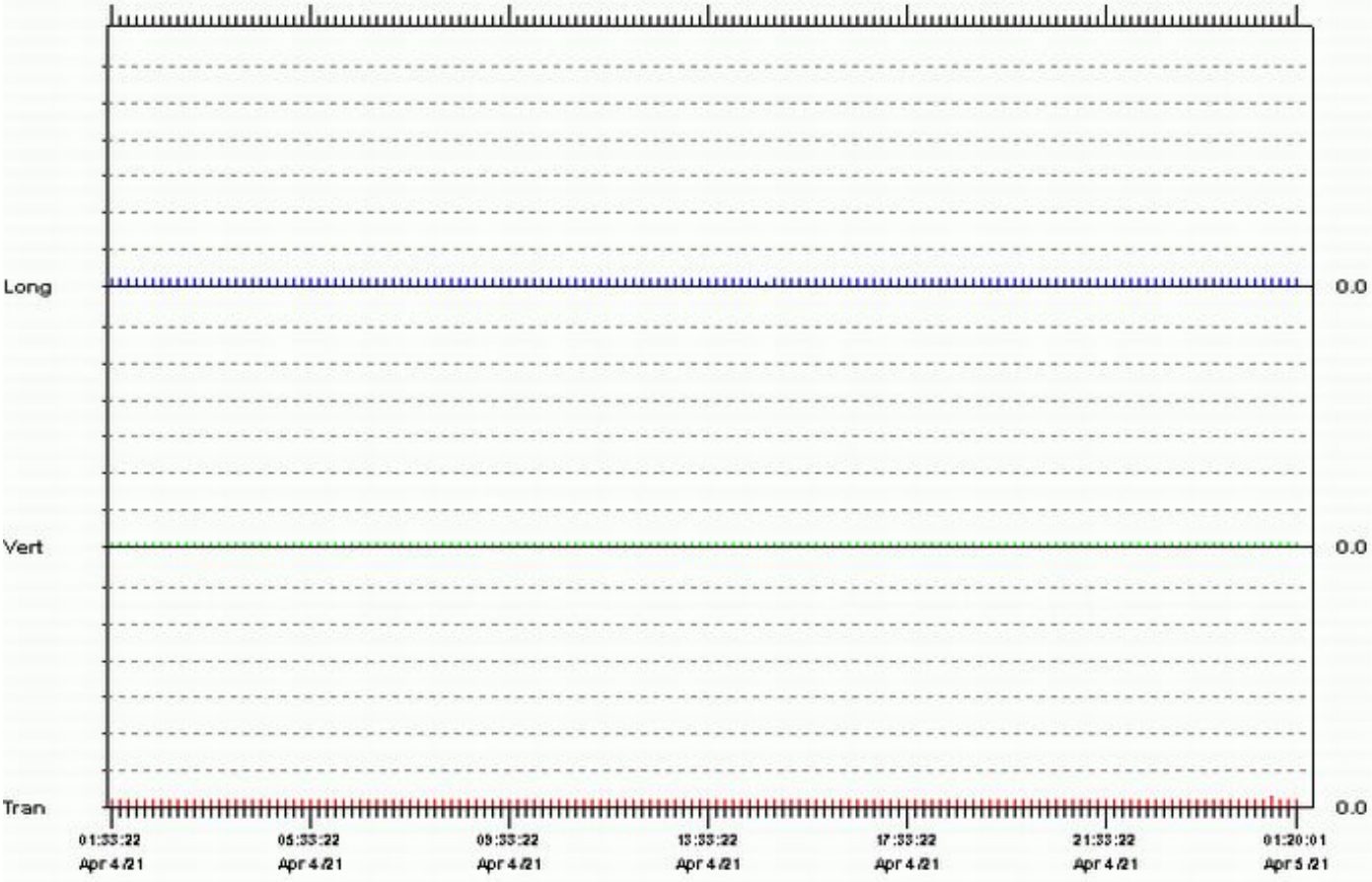
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.00500	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	Apr 5 /21	Apr 4 /21	Apr 4 /21	
Time	00:47:37	01:23:37	01:24:07	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0150 in/s on April 4, 2021 At 04:58:52





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 5, 2021 (V - 10.40)

Start	01:22:46 April 5, 2021
Finish	01:20:01 April 6, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

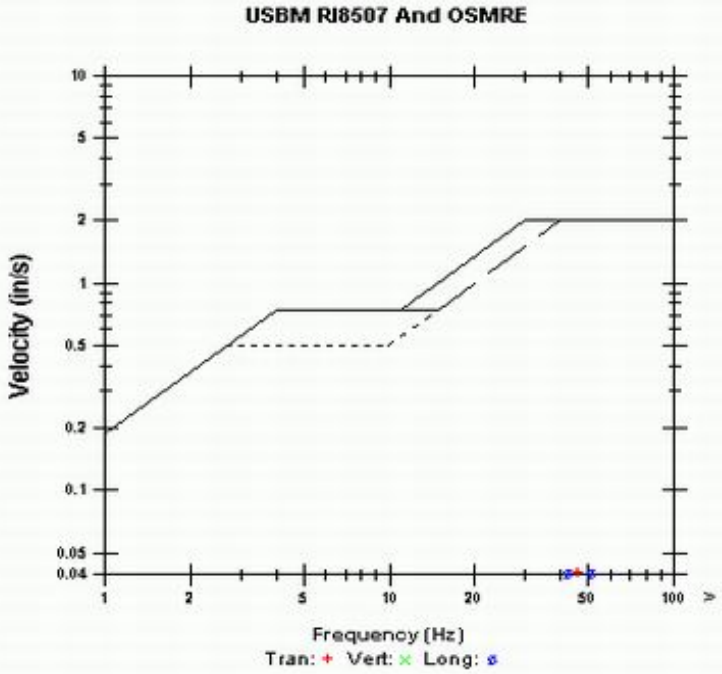
Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IX86.HYOH

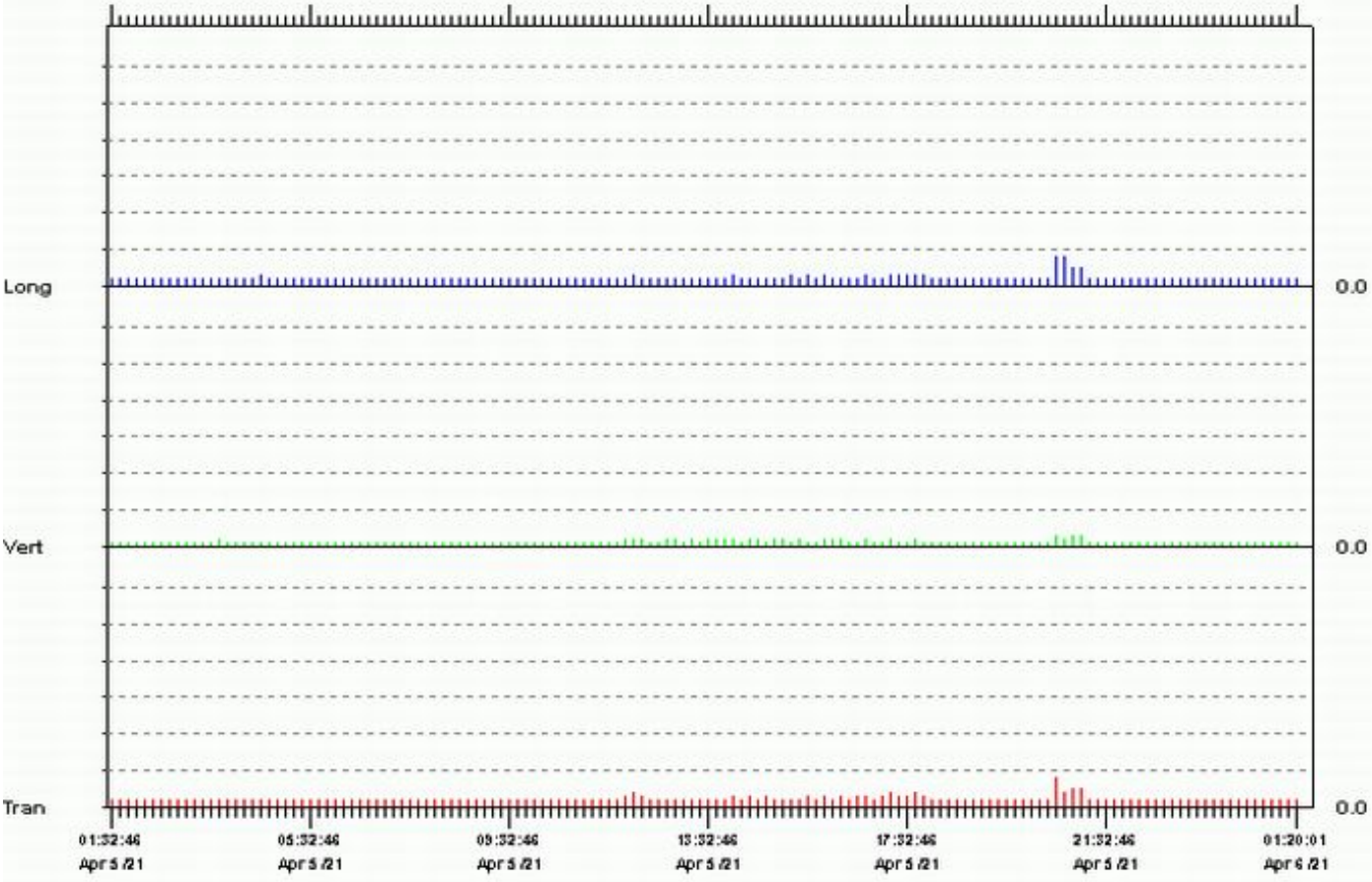
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0400	0.0150	0.0400	in/s
ZC Freq	47	85	51	Hz
Date	Apr 5 /21	Apr 5 /21	Apr 5 /21	
Time	20:28:01	20:28:01	20:28:01	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0497 in/s on April 5, 2021 At 20:28:01





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 6, 2021 (V - 10.40)

Start	01:22:44 April 6, 2021
Finish	01:20:01 April 7, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

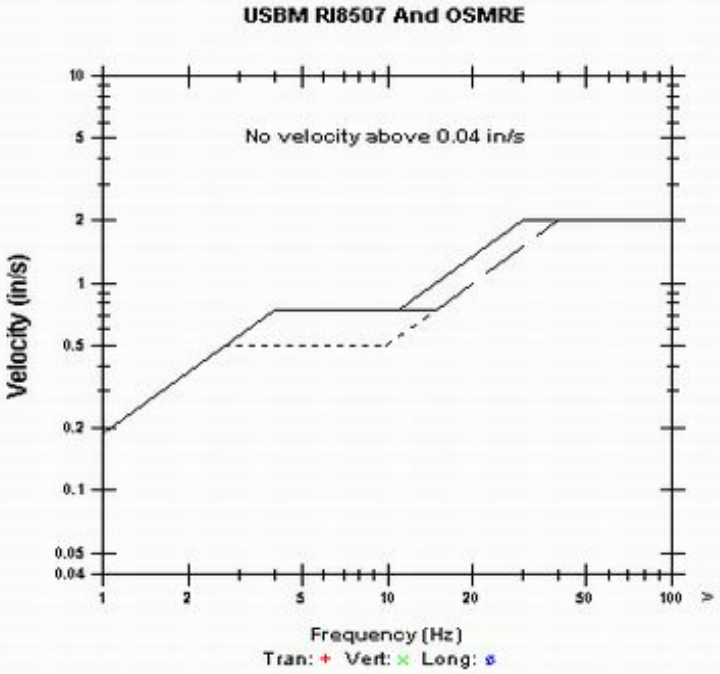
Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IXA1.5WDH

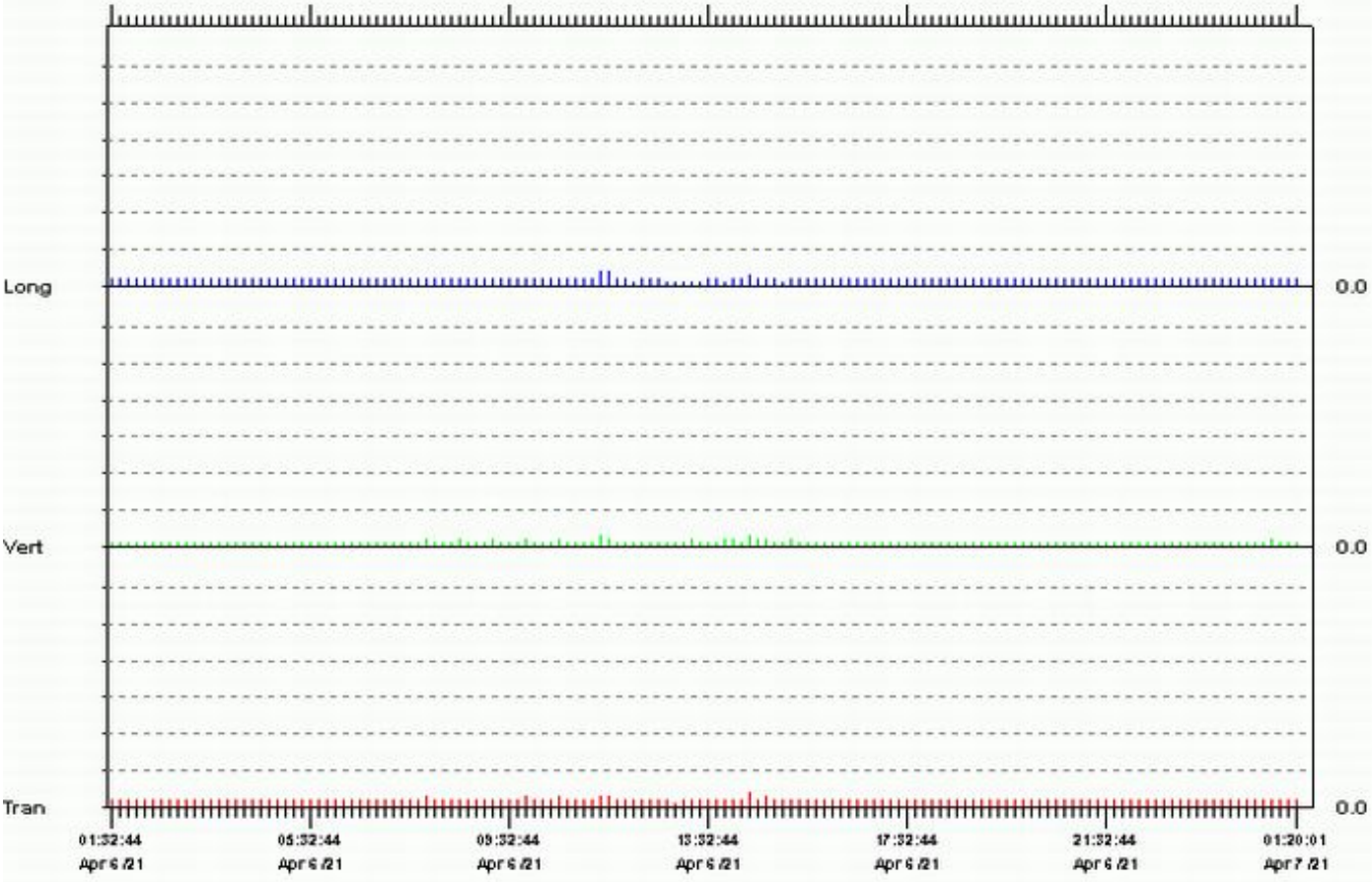
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0200	0.0150	0.0200	in/s
ZC Freq	12	85	57	Hz
Date	Apr 6 /21	Apr 6 /21	Apr 6 /21	
Time	14:17:44	11:15:29	11:15:29	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0229 in/s on April 6, 2021 At 11:15:29





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 7, 2021 (V - 10.40)

Start	01:22:46 April 7, 2021
Finish	01:20:01 April 8, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IXBV.TY0H

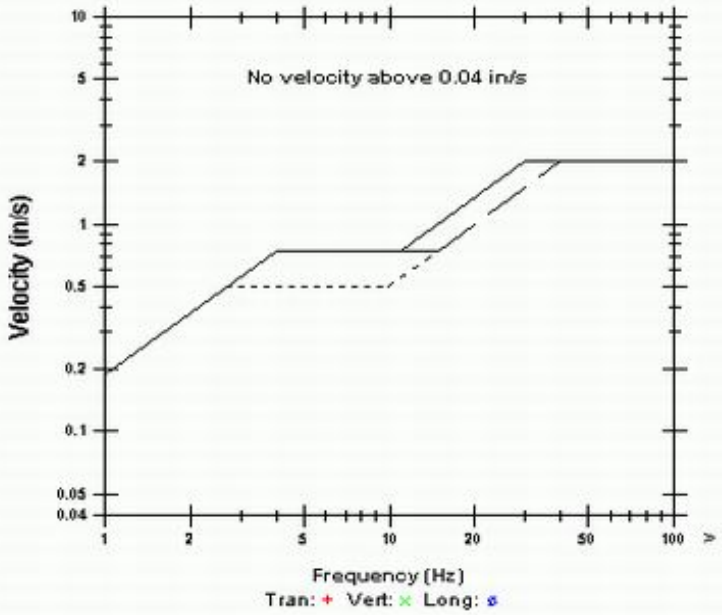
Post Event Notes

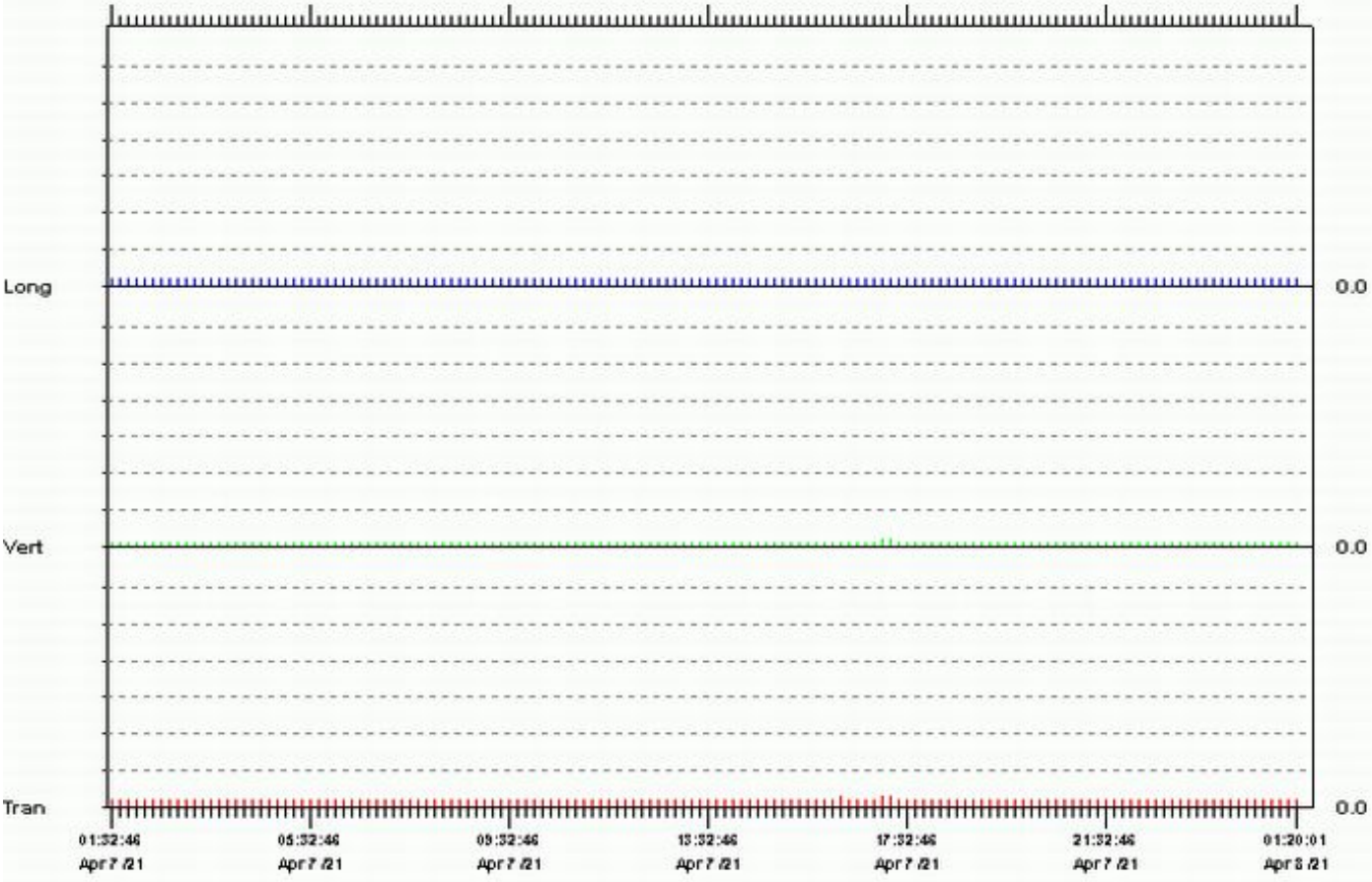
Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.01000	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	Apr 7 /21	Apr 7 /21	Apr 7 /21	
Time	16:04:01	16:58:01	01:23:16	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0166 in/s on April 7, 2021 At 17:03:46

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 8, 2021 (V - 10.40)

Start	01:22:41 April 8, 2021
Finish	01:20:01 April 9, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IXDQ.HTOH

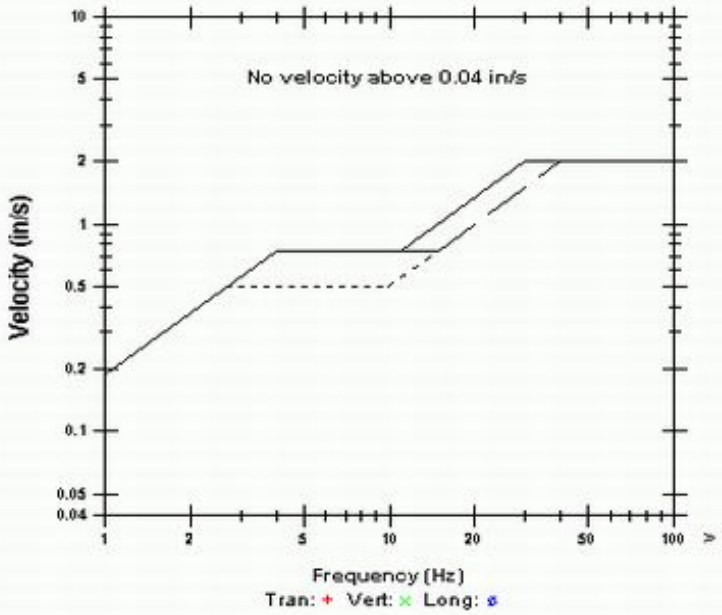
Post Event Notes

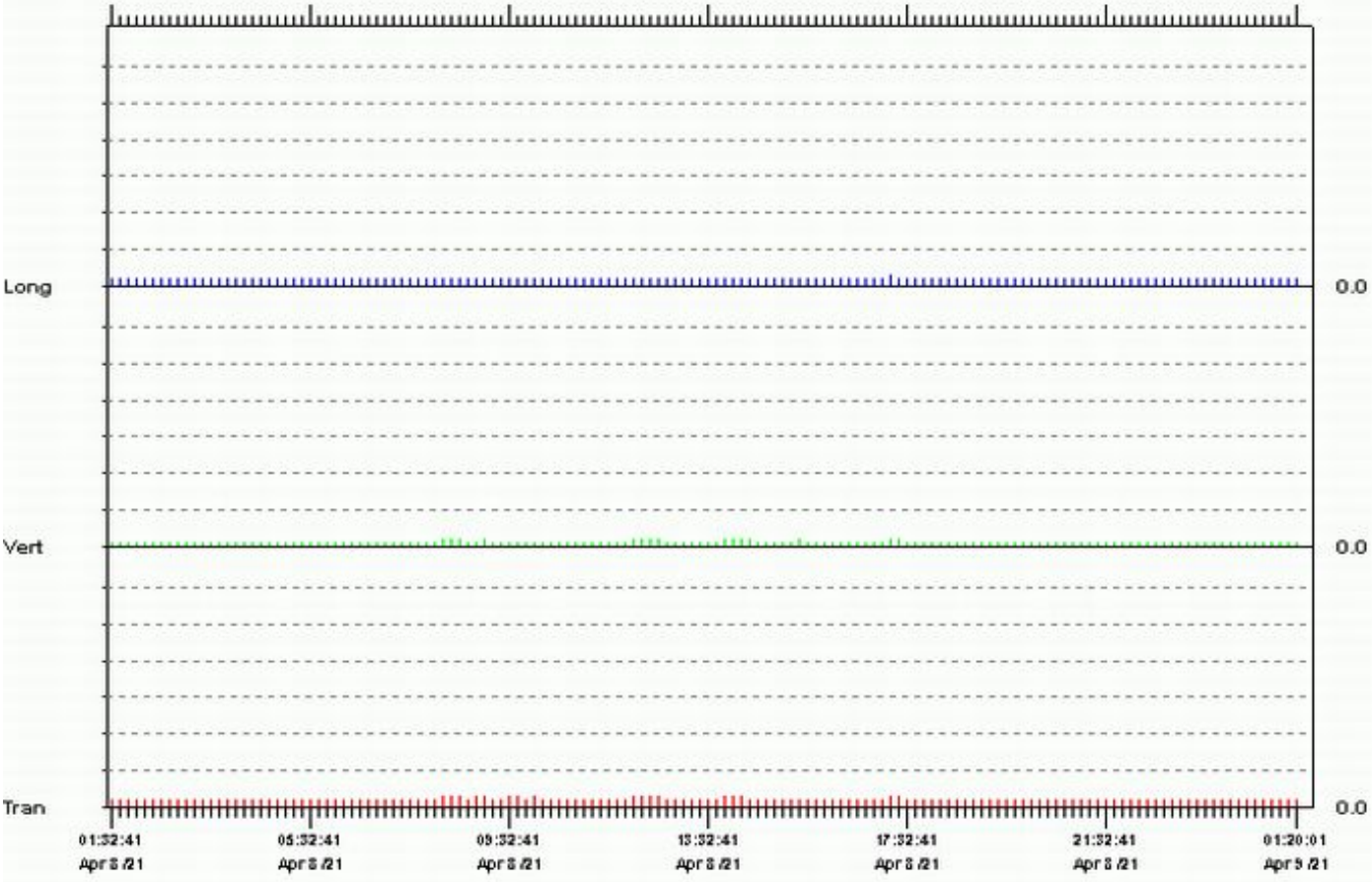
Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.01000	0.0150	in/s
ZC Freq	11	43	14	Hz
Date	Apr 8 /21	Apr 8 /21	Apr 8 /21	
Time	08:07:56	08:07:56	17:06:41	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0187 in/s on April 8, 2021 At 08:25:41

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 9, 2021 (V - 10.40)

Start	01:22:47 April 9, 2021
Finish	01:20:01 April 10, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

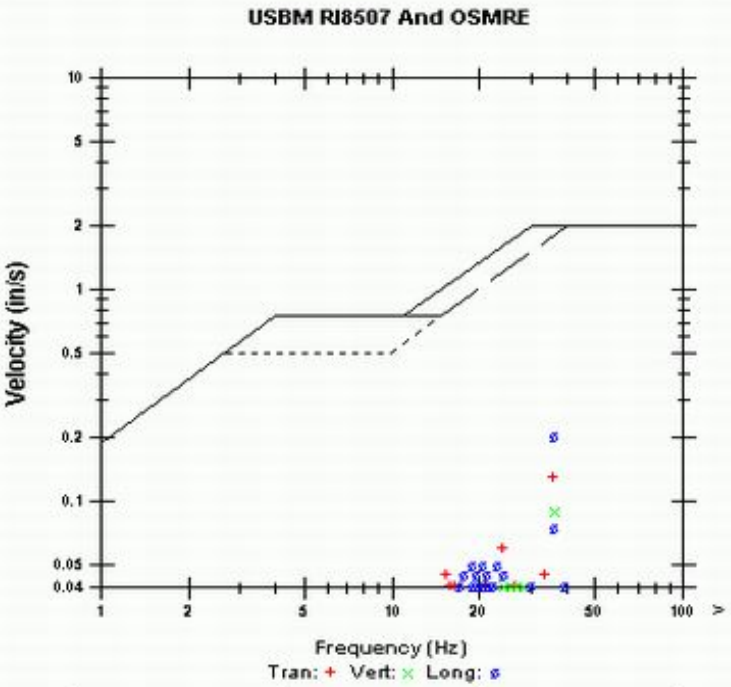
Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IXFL.5Z0H

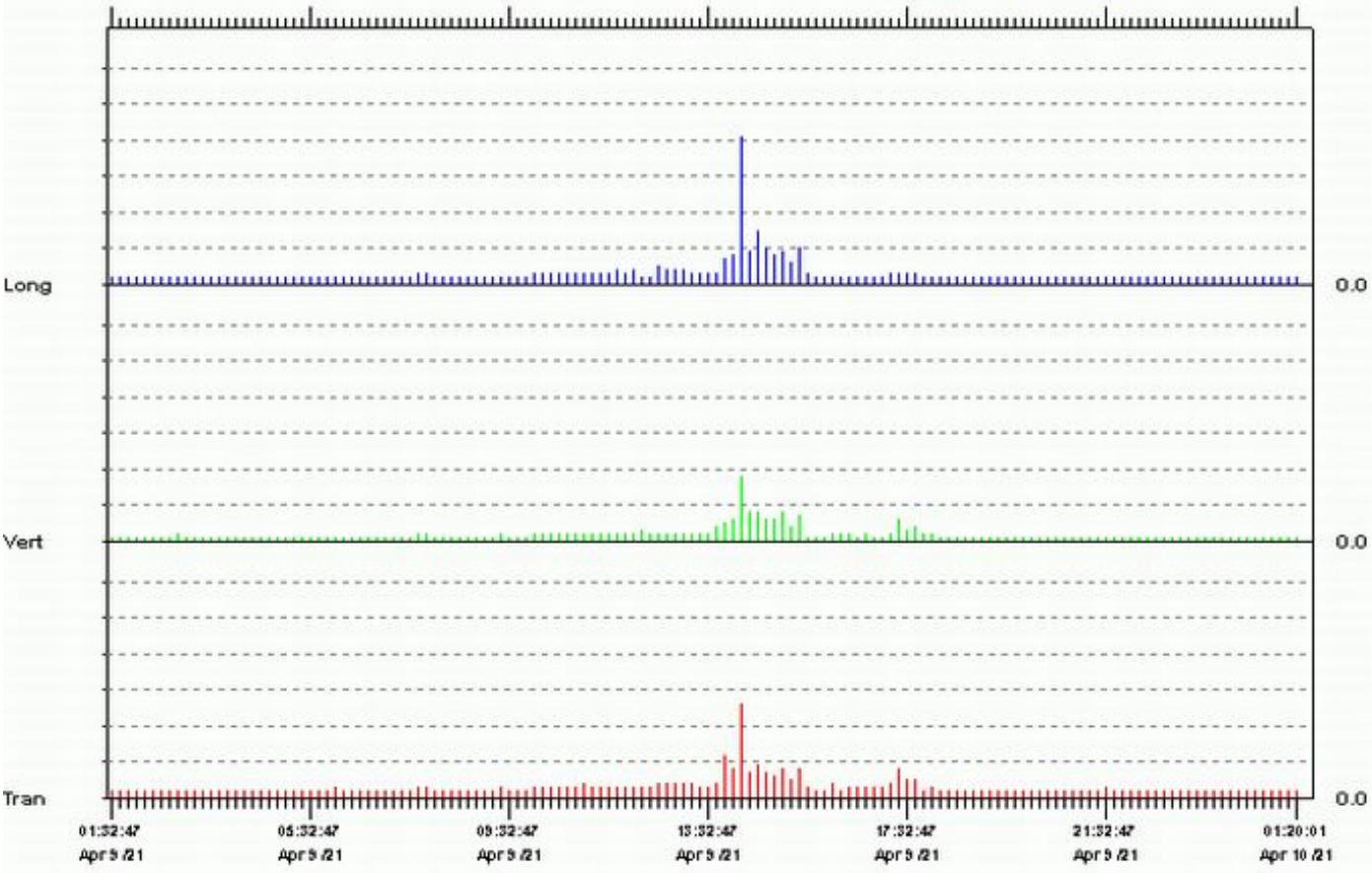
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.130	0.0900	0.205	in/s
ZC Freq	37	37	37	Hz
Date	Apr 9 /21	Apr 9 /21	Apr 9 /21	
Time	14:03:02	14:03:02	14:03:02	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.232 in/s on April 9, 2021 At 14:03:02





Created: April 10, 2021 (V - 10.49)

Start	01:22:50 April 10, 2021
Finish	01:20:01 April 11, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IXHF.U20H

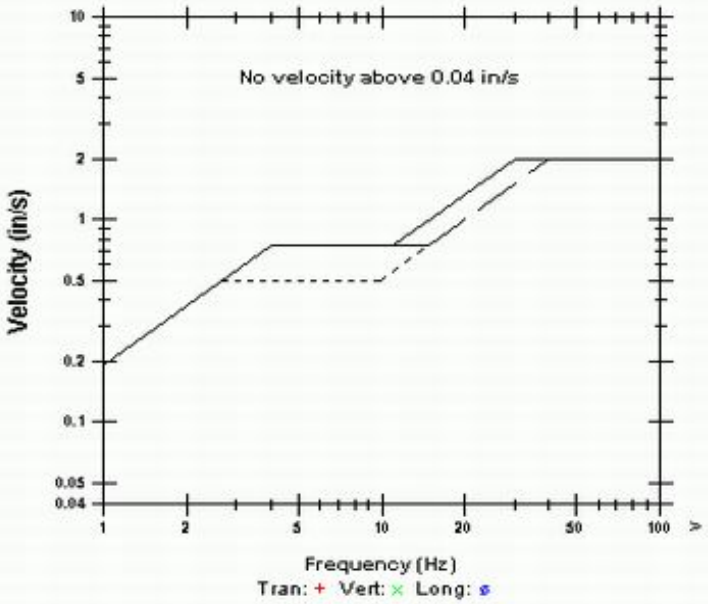
Post Event Notes

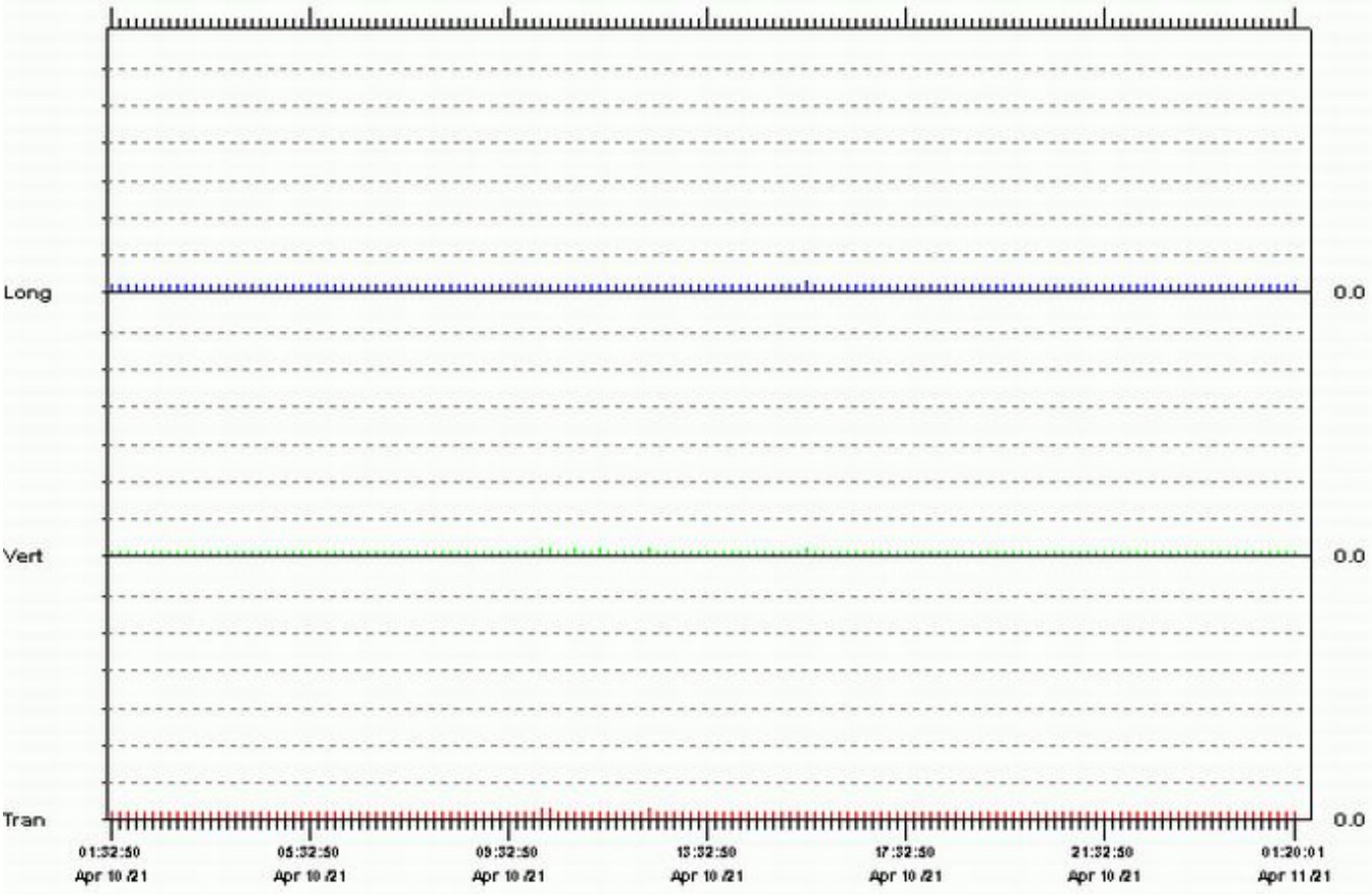
Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.01000	0.0150	in/s
ZC Freq	12	>100	9.3	Hz
Date	Apr 10 /21	Apr 10 /21	Apr 10 /21	
Time	10:06:35	10:06:35	15:32:20	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0180 in/s on April 10, 2021 At 15:32:20

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 11, 2021 (V - 10.49)

Start	01:22:46 April 11, 2021
Finish	01:20:01 April 12, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IXJA.HYOH

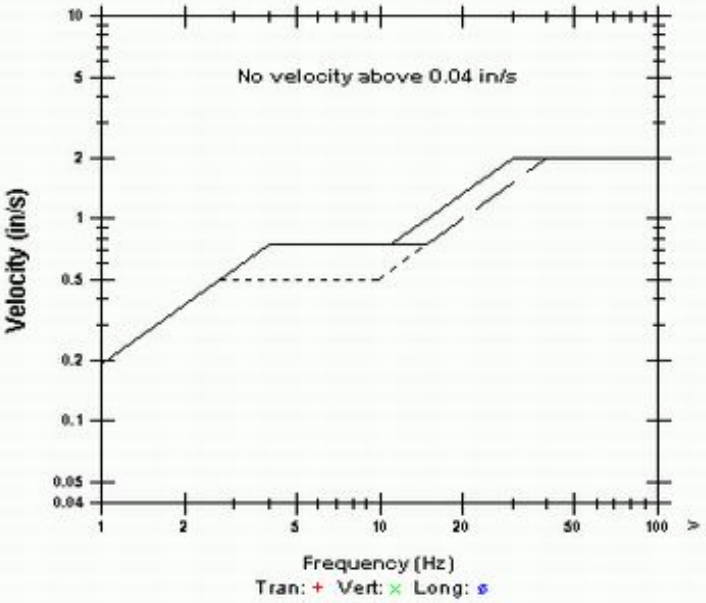
Post Event Notes

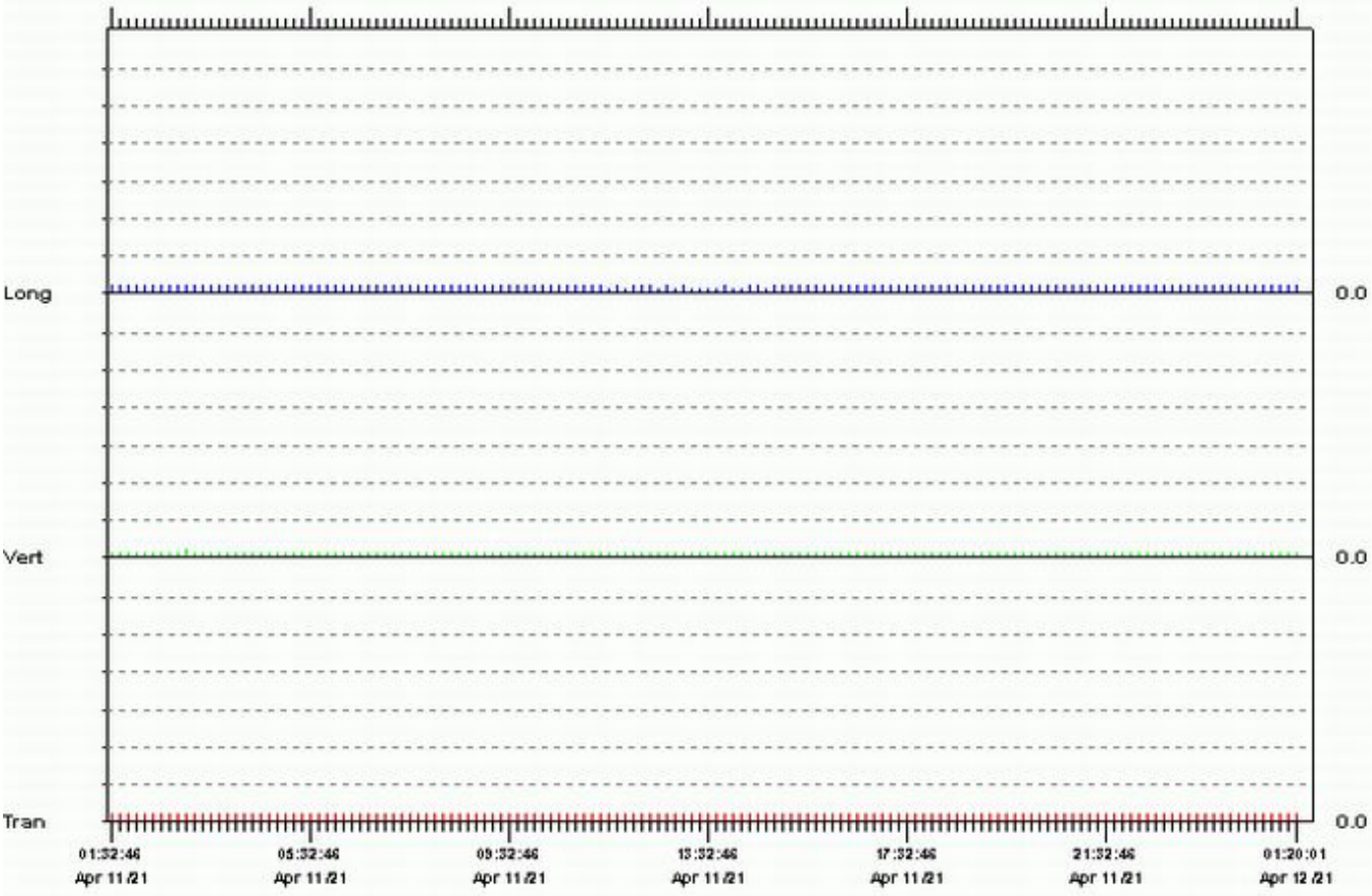
Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.01000	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	Apr 11 /21	Apr 11 /21	Apr 11 /21	
Time	01:23:01	02:53:01	01:23:01	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0150 in/s on April 11, 2021 At 01:29:01

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 12, 2021 (V - 10.49)

Start	01:23:30 April 12, 2021
Finish	01:20:01 April 13, 2021
Intervals	5747.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IXL5.760H

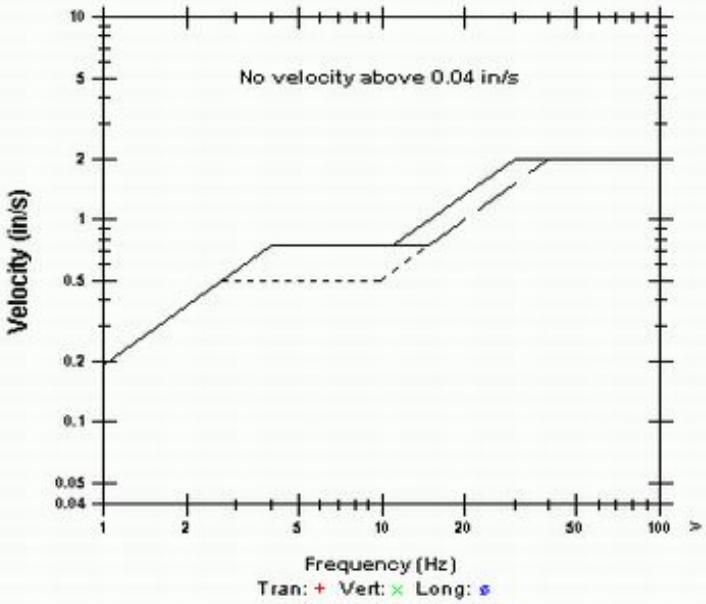
Post Event Notes

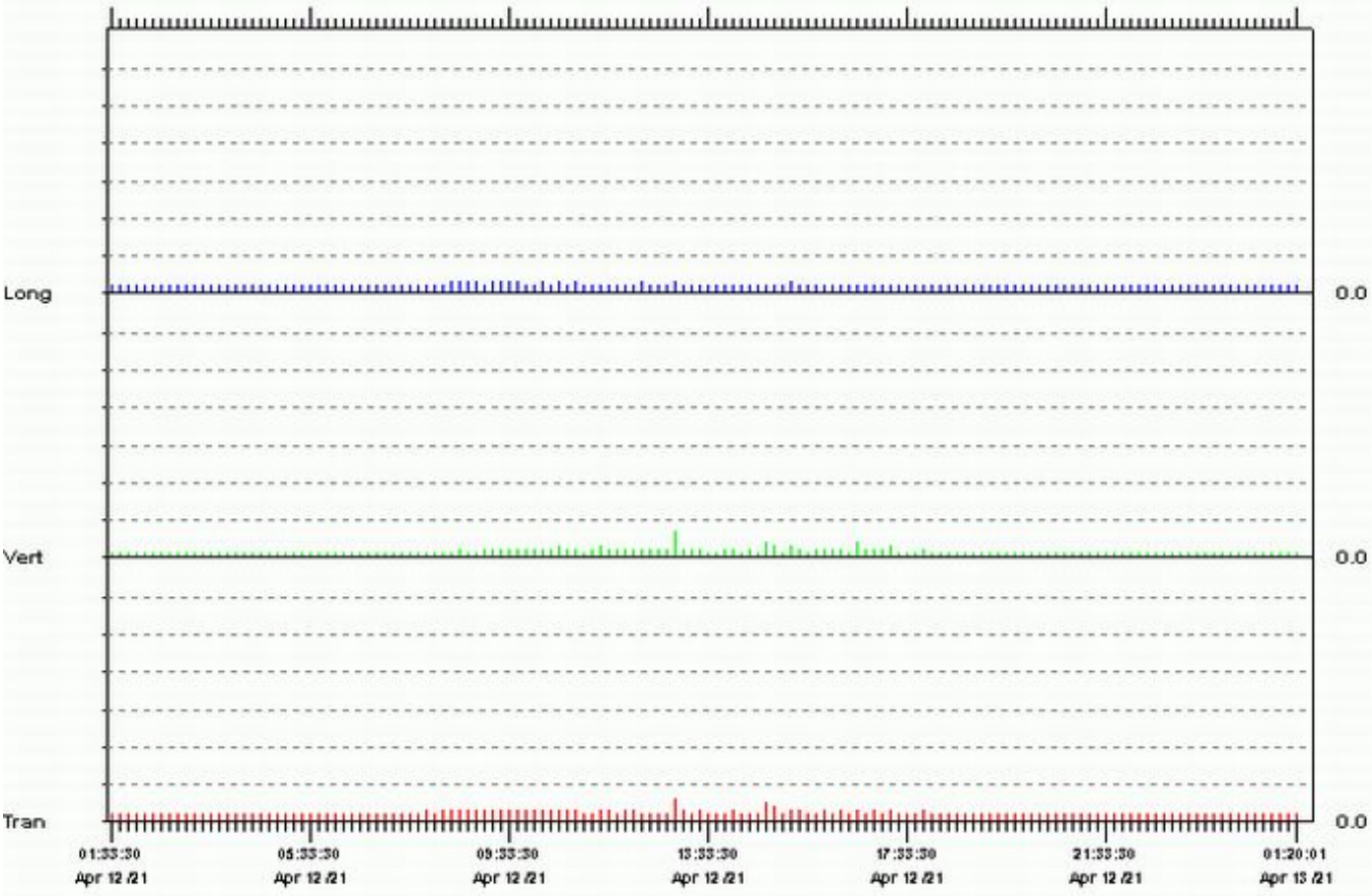
Extended Notes

	Tran	Vert	Long	
PPV	0.0300	0.0350	0.0150	in/s
ZC Freq	11	12	8.5	Hz
Date	Apr 12 /21	Apr 12 /21	Apr 12 /21	
Time	12:46:15	12:46:15	08:23:00	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0367 in/s on April 12, 2021 At 12:46:15

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 13, 2021 (V - 10.49)

Start	01:22:49 April 13, 2021
Finish	01:20:01 April 14, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IXMZ.U10H

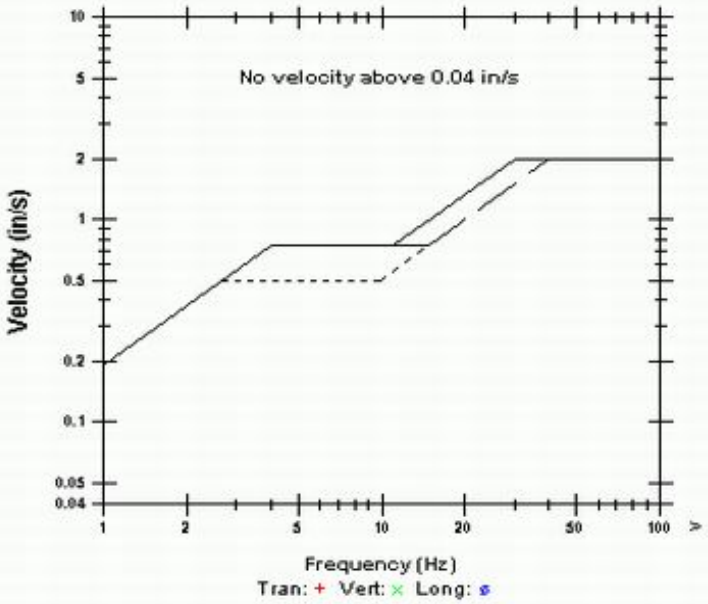
Post Event Notes

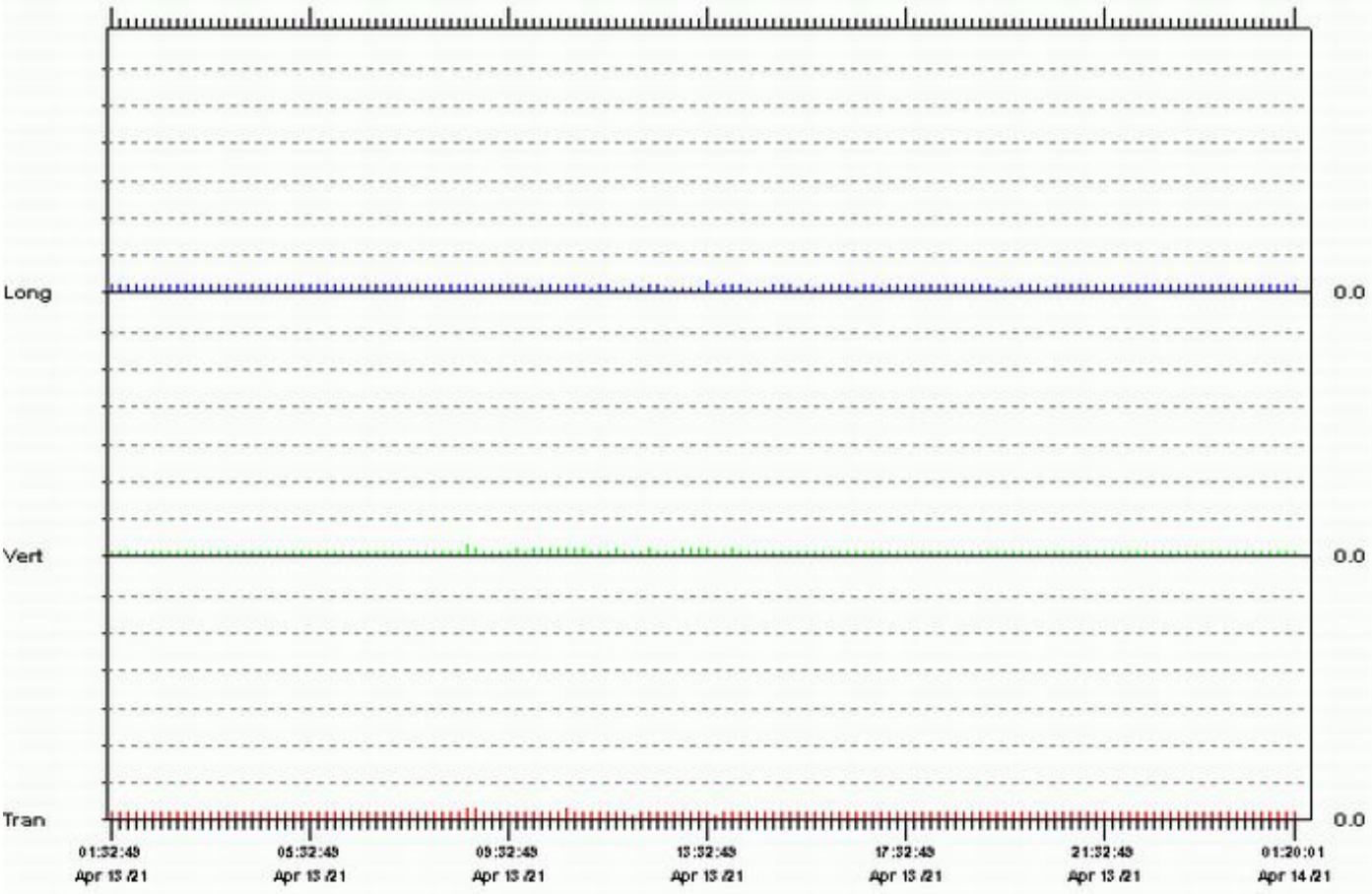
Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.0150	0.0150	in/s
ZC Freq	18	24	28	Hz
Date	Apr 13 /21	Apr 13 /21	Apr 13 /21	
Time	08:33:34	08:33:34	13:27:19	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0206 in/s on April 13, 2021 At 08:33:34

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 14, 2021 (V - 10.49)

Start	01:22:46 April 14, 2021
Finish	01:20:01 April 15, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IXOU.HYOH

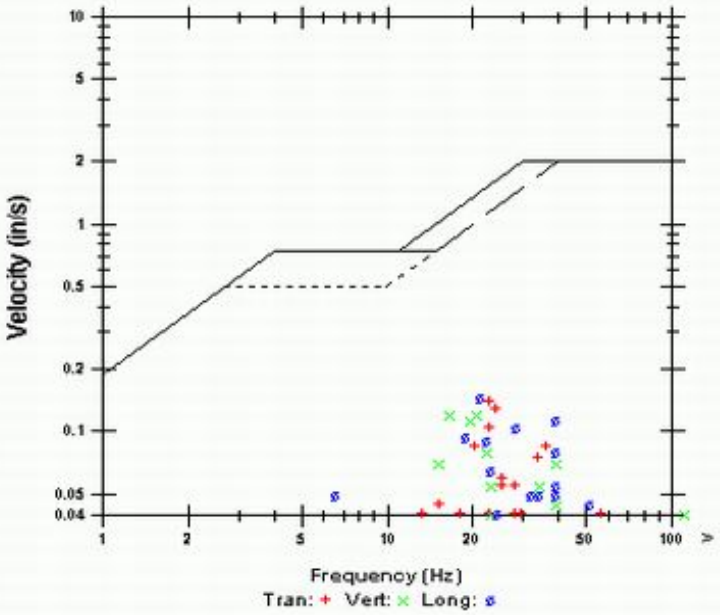
Post Event Notes

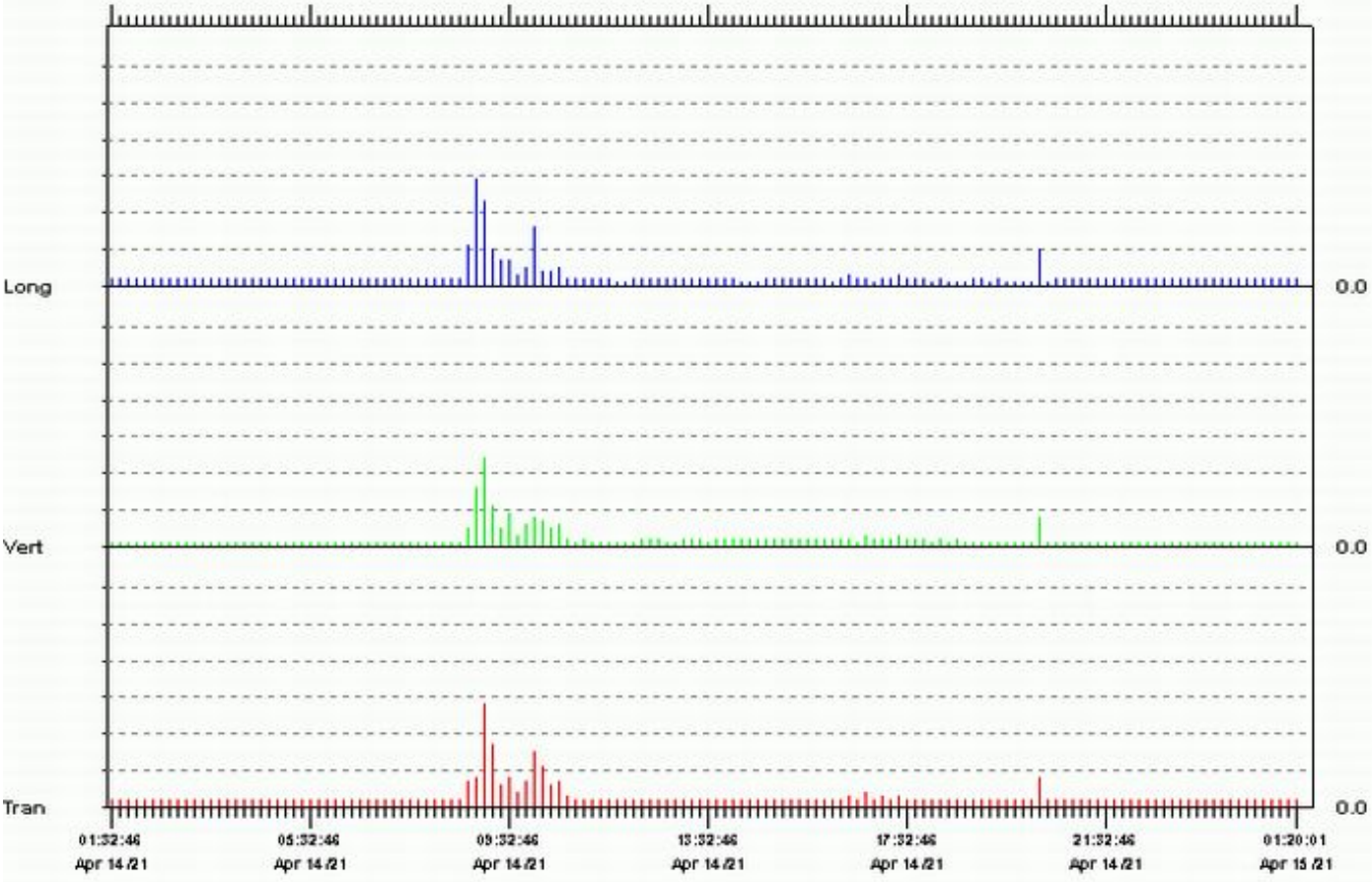
Extended Notes

	Tran	Vert	Long	
PPV	0.140	0.120	0.145	in/s
ZC Freq	23	17	21	Hz
Date	Apr 14 /21	Apr 14 /21	Apr 14 /21	
Time	09:01:01	09:00:01	08:45:01	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.178 in/s on April 14, 2021 At 08:59:31

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 15, 2021 (V - 10.49)

Start	01:23:09 April 15, 2021
Finish	01:20:01 April 16, 2021
Intervals	5748.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

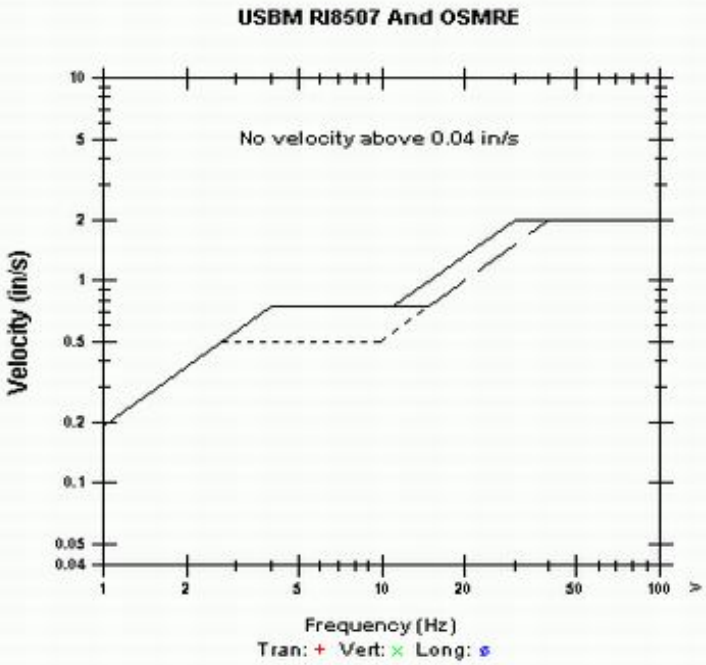
Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IXQP.6L0H

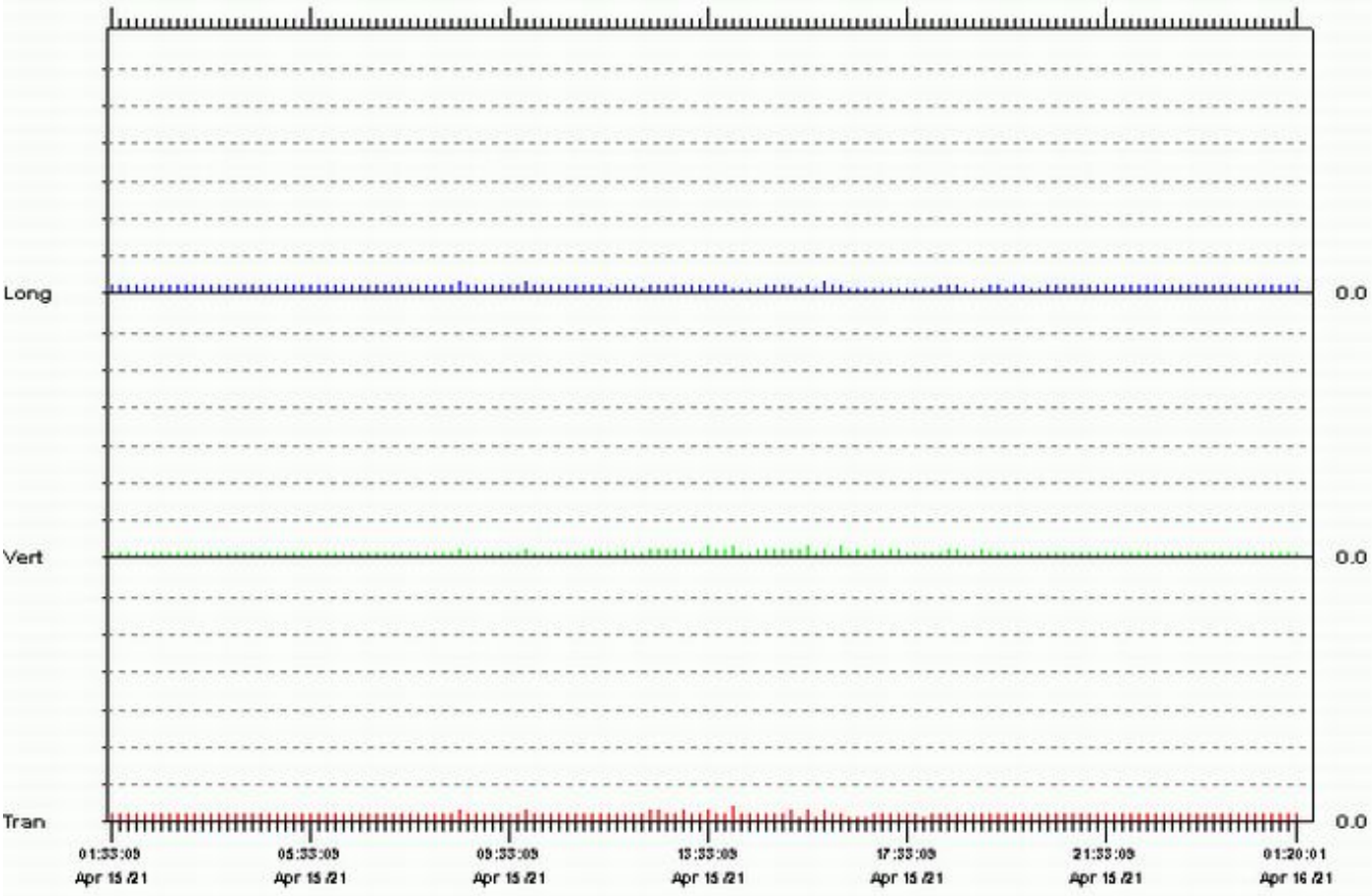
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0200	0.0150	0.0150	in/s
ZC Freq	12	26	37	Hz
Date	Apr 15 /21	Apr 15 /21	Apr 15 /21	
Time	13:54:09	13:28:09	08:28:09	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0218 in/s on April 15, 2021 At 13:54:09





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 16, 2021 (V - 10.49)

Start	01:22:45 April 16, 2021
Finish	01:20:01 April 17, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IXSJ.TX0H

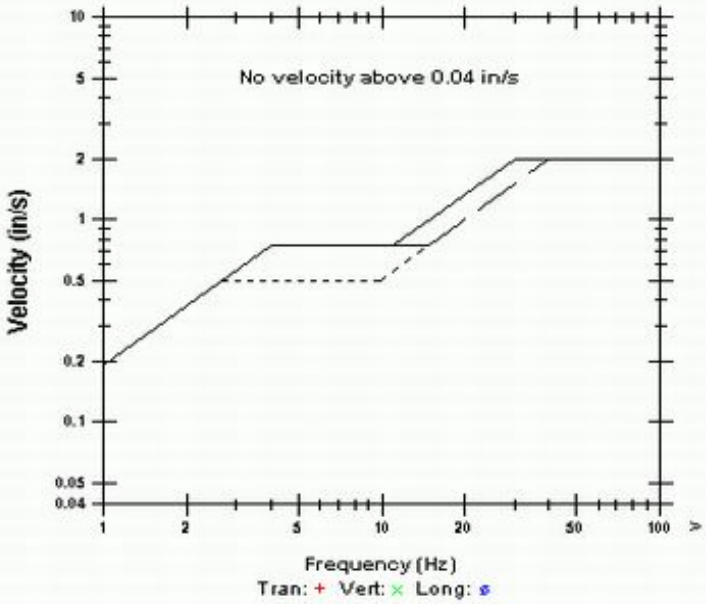
Post Event Notes

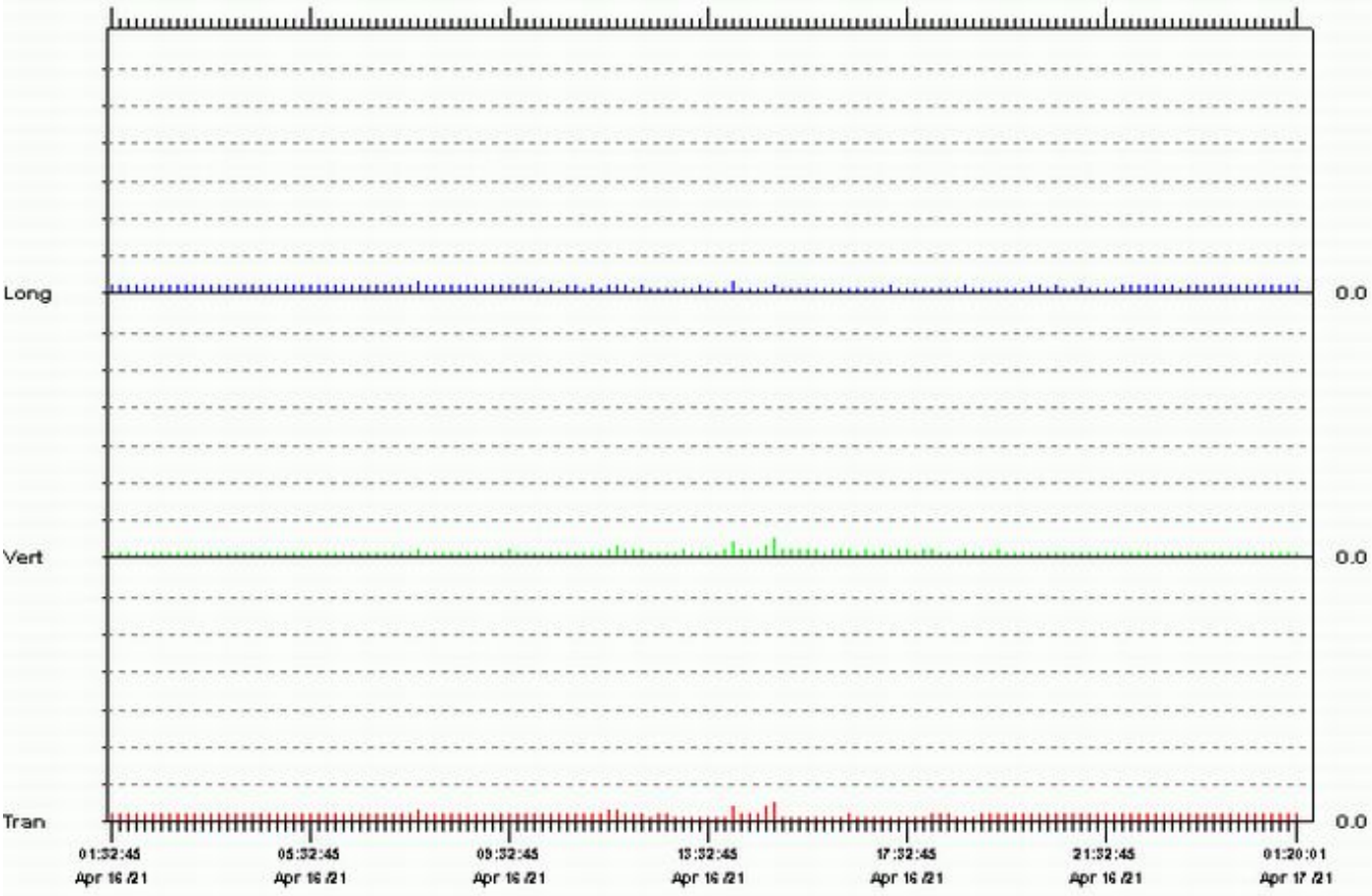
Extended Notes

	Tran	Vert	Long	
PPV	0.0250	0.0250	0.0150	in/s
ZC Freq	16	13	12	Hz
Date	Apr 16 /21	Apr 16 /21	Apr 16 /21	
Time	14:46:45	14:46:15	07:42:15	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0269 in/s on April 16, 2021 At 14:46:45

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 17, 2021 (V - 10.49)

Start	01:22:44 April 17, 2021
Finish	01:20:01 April 18, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IXUE.HWDH

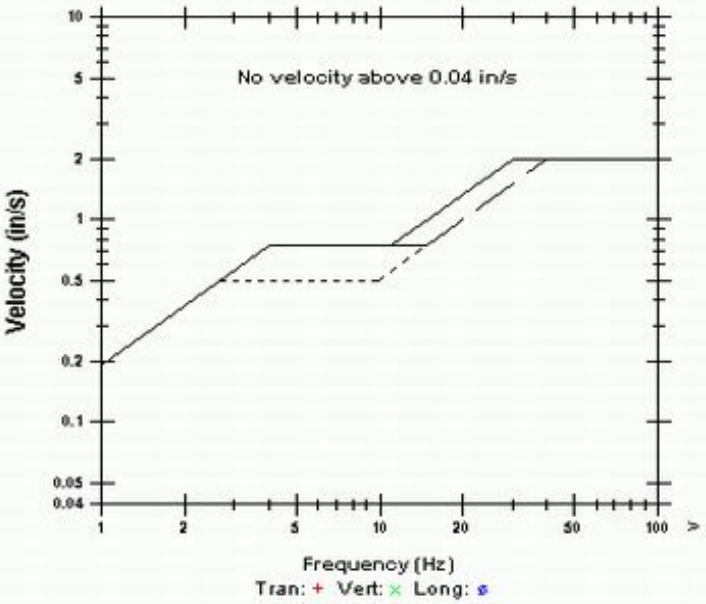
Post Event Notes

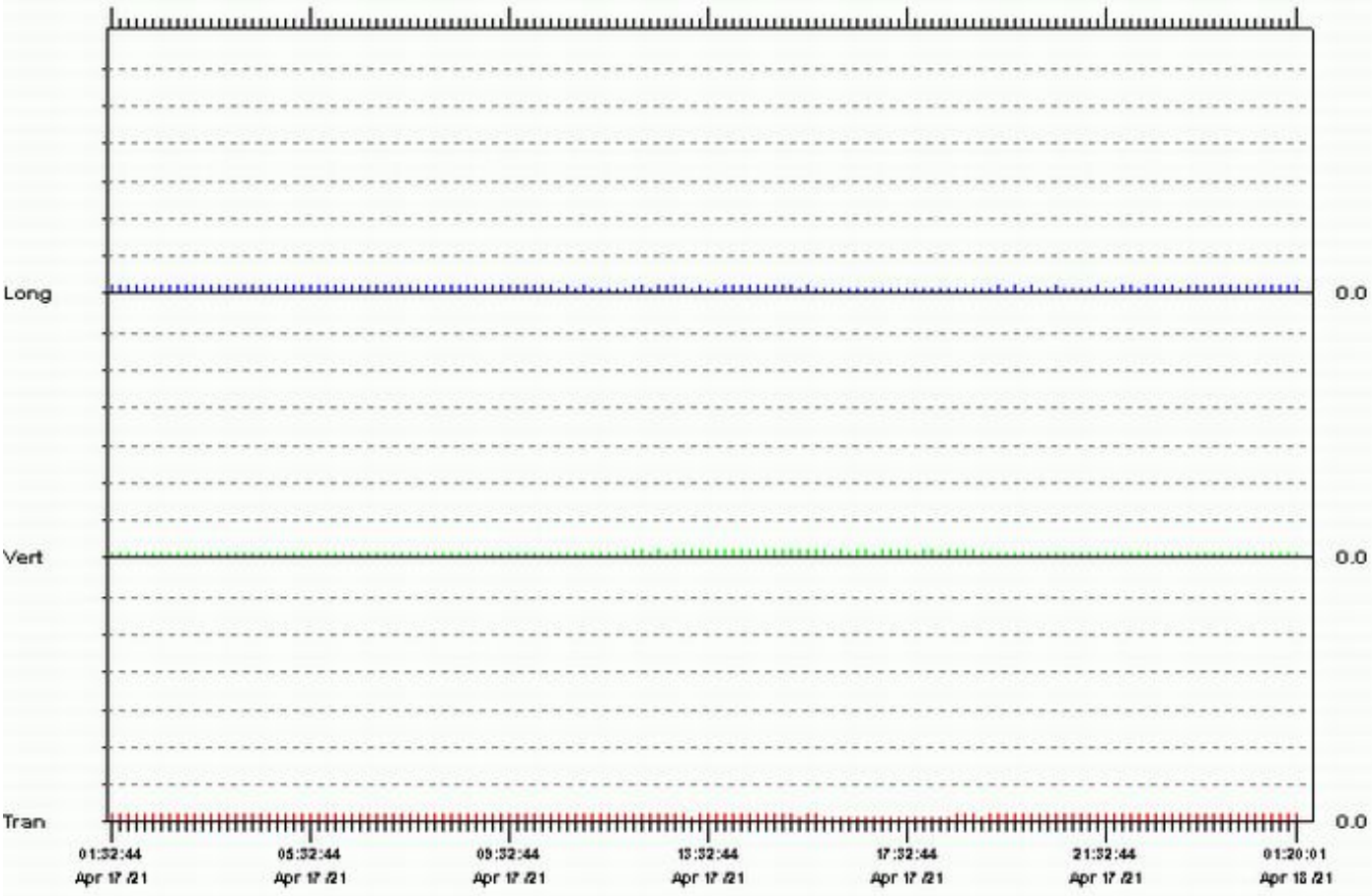
Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.01000	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	Apr 17 /21	Apr 17 /21	Apr 17 /21	
Time	01:22:59	11:55:59	01:26:14	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0150 in/s on April 17, 2021 At 15:31:44

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 18, 2021 (V - 10.49)

Start	01:22:43 April 18, 2021
Finish	01:20:01 April 19, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IX0I9.5V0H

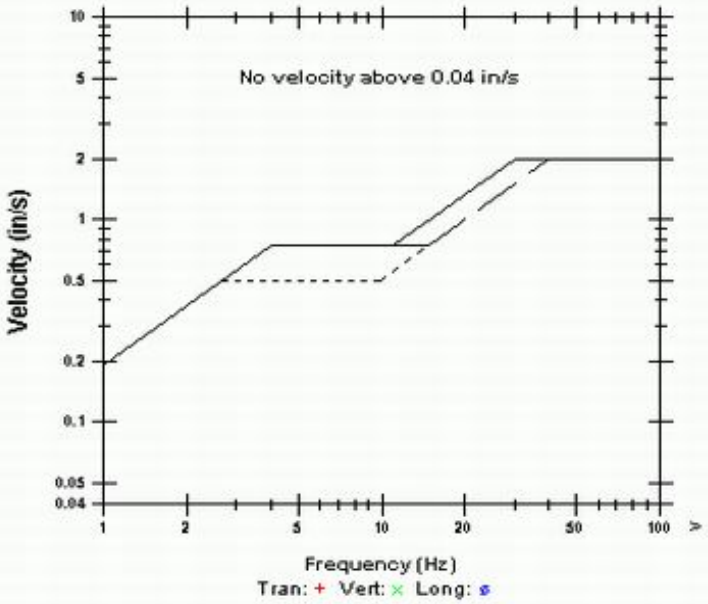
Post Event Notes

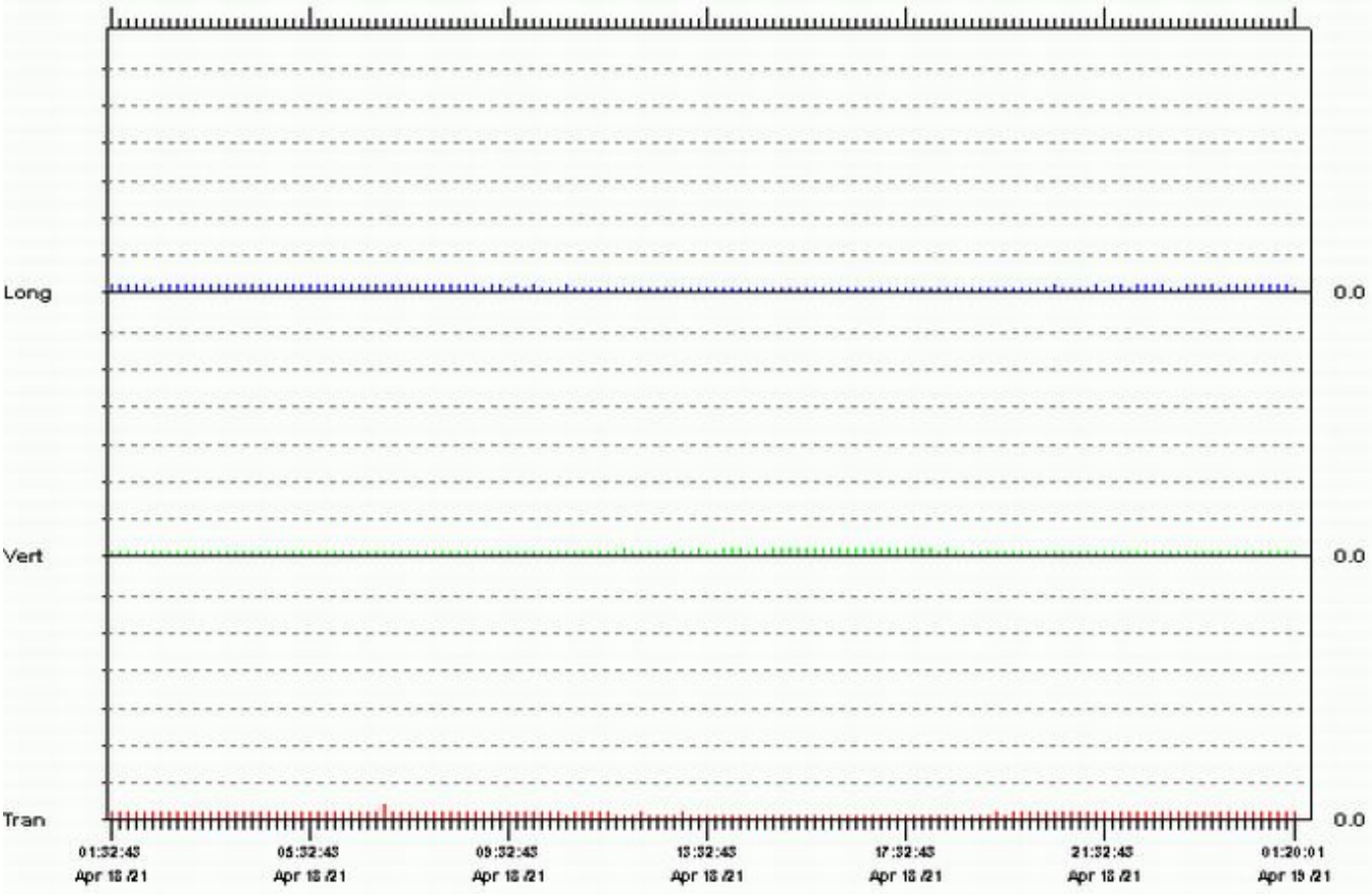
Extended Notes

	Tran	Vert	Long	
PPV	0.0200	0.01000	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	Apr 18 /21	Apr 18 /21	Apr 18 /21	
Time	06:53:43	11:43:43	01:25:28	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0206 in/s on April 18, 2021 At 06:53:43

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 19, 2021 (V - 10.49)

Start	01:22:47 April 19, 2021
Finish	01:20:01 April 20, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IXY3.TZ0H

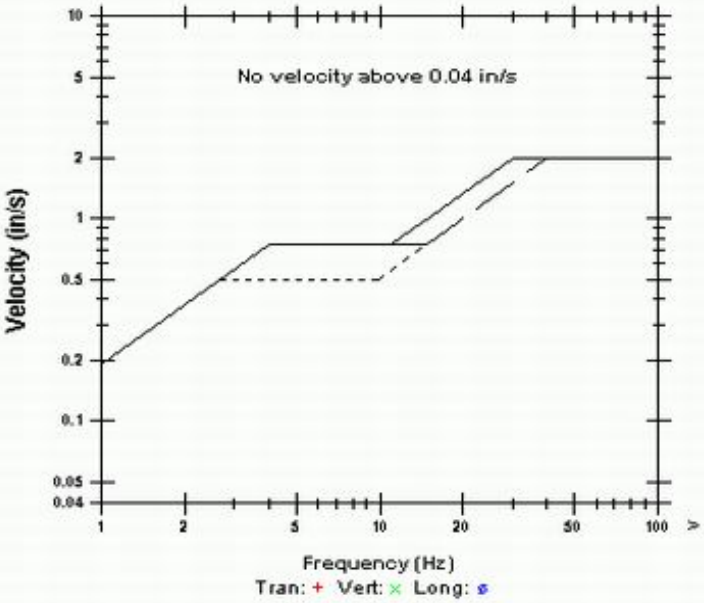
Post Event Notes

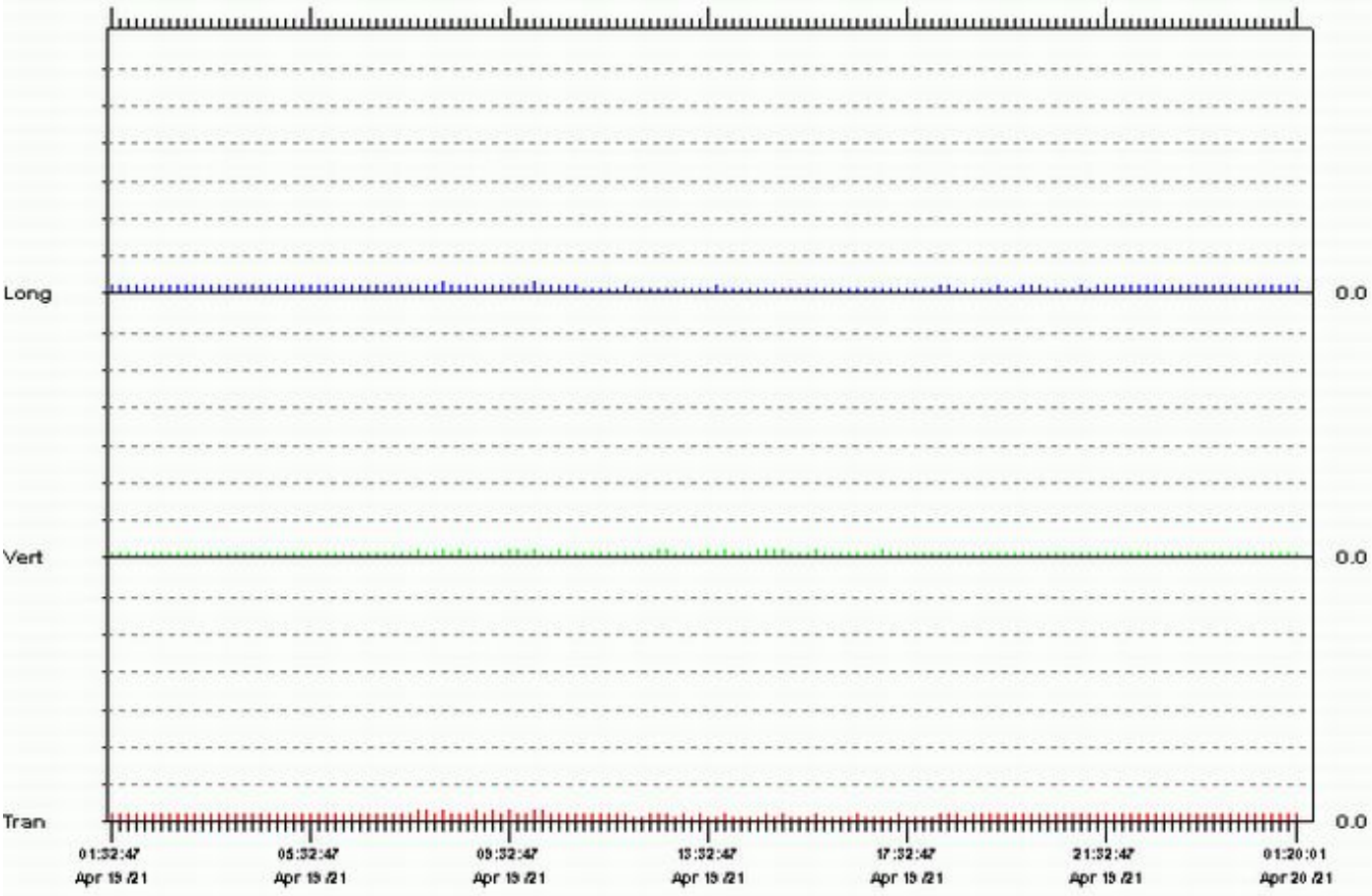
Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.01000	0.0150	in/s
ZC Freq	19	>100	14	Hz
Date	Apr 19 /21	Apr 19 /21	Apr 19 /21	
Time	07:35:17	07:34:02	08:08:32	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0166 in/s on April 19, 2021 At 07:35:17

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 20, 2021 (V - 10.49)

Start	01:22:46 April 20, 2021
Finish	01:20:01 April 21, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

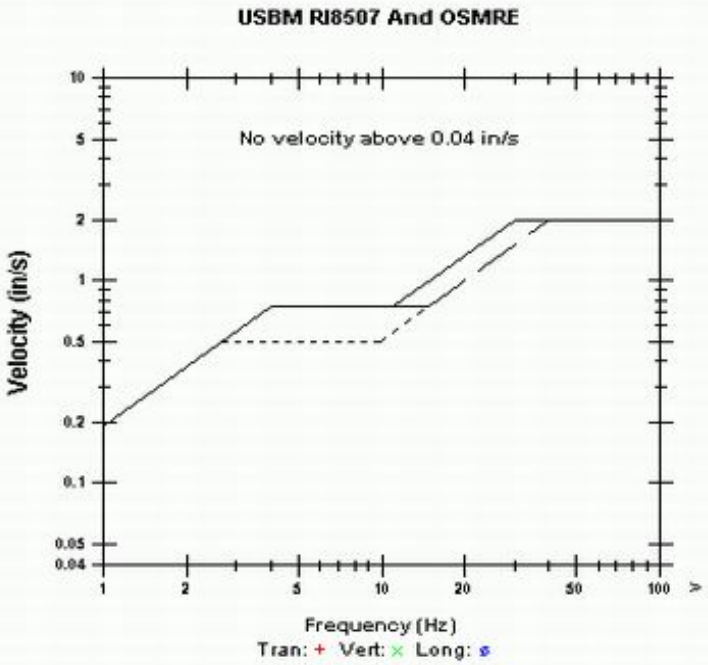
Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IXZY.HY0H

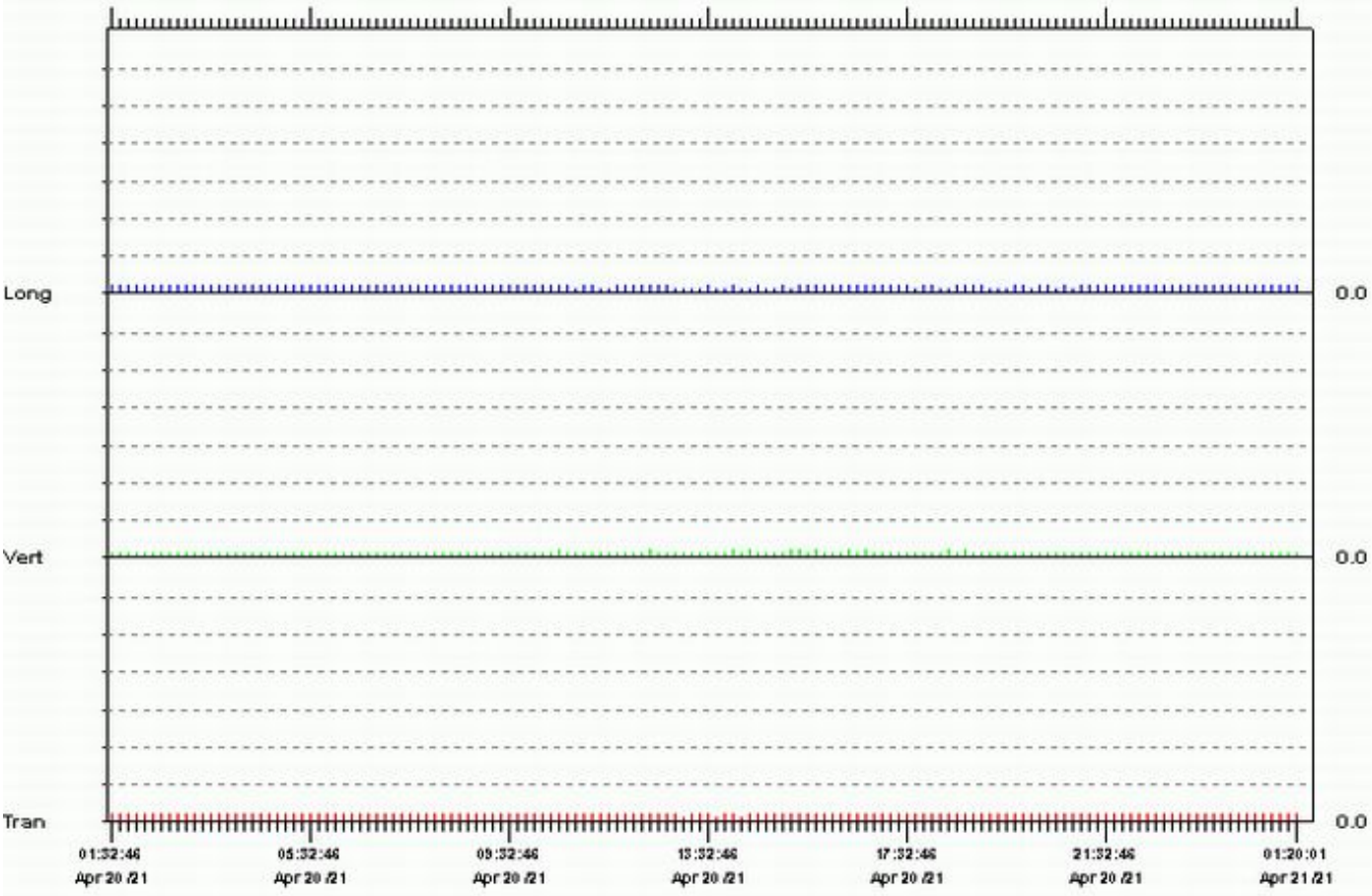
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.01000	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	Apr 20 /21	Apr 20 /21	Apr 20 /21	
Time	01:23:01	10:25:31	01:23:16	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0150 in/s on April 20, 2021 At 03:34:01





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 21, 2021 (V - 10.49)

Start	01:22:49 April 21, 2021
Finish	01:20:01 April 22, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IY1T.610H

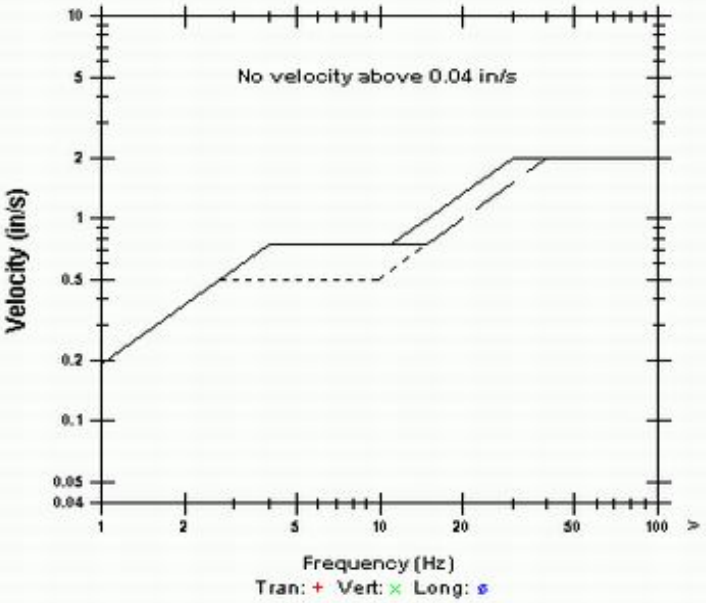
Post Event Notes

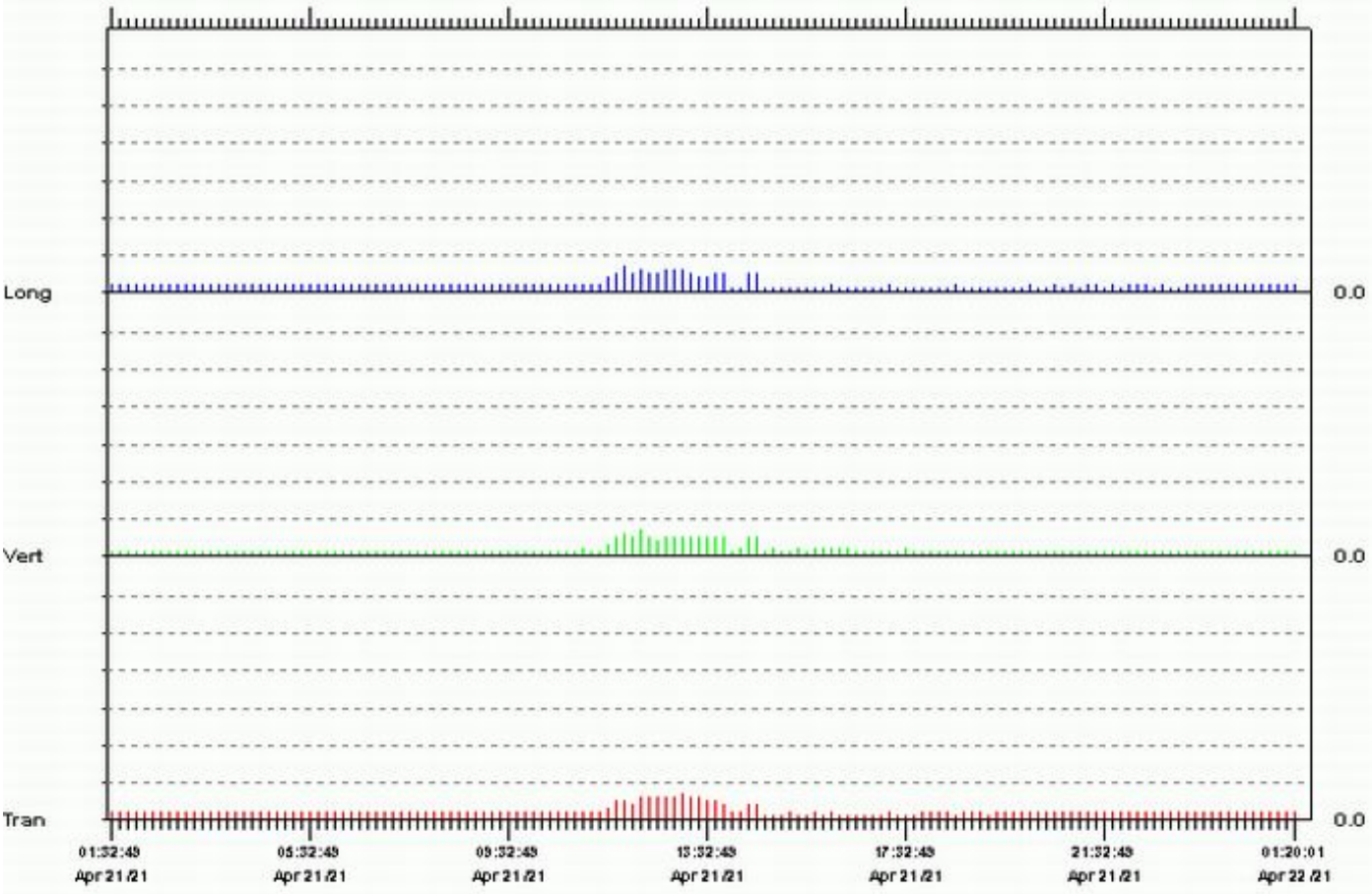
Extended Notes

	Tran	Vert	Long	
PPV	0.0350	0.0350	0.0350	in/s
ZC Freq	8.5	8.5	7.3	Hz
Date	Apr 21 /21	Apr 21 /21	Apr 21 /21	
Time	13:02:19	12:11:34	11:47:04	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0439 in/s on April 21, 2021 At 12:11:34

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 22, 2021 (V - 10.49)

Start	01:22:44 April 22, 2021
Finish	01:20:01 April 23, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

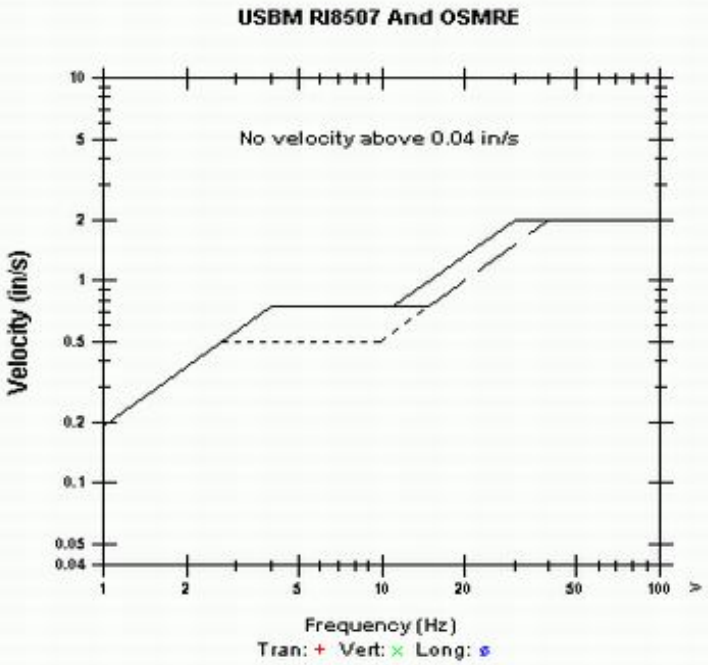
Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441DY3N.TWDH

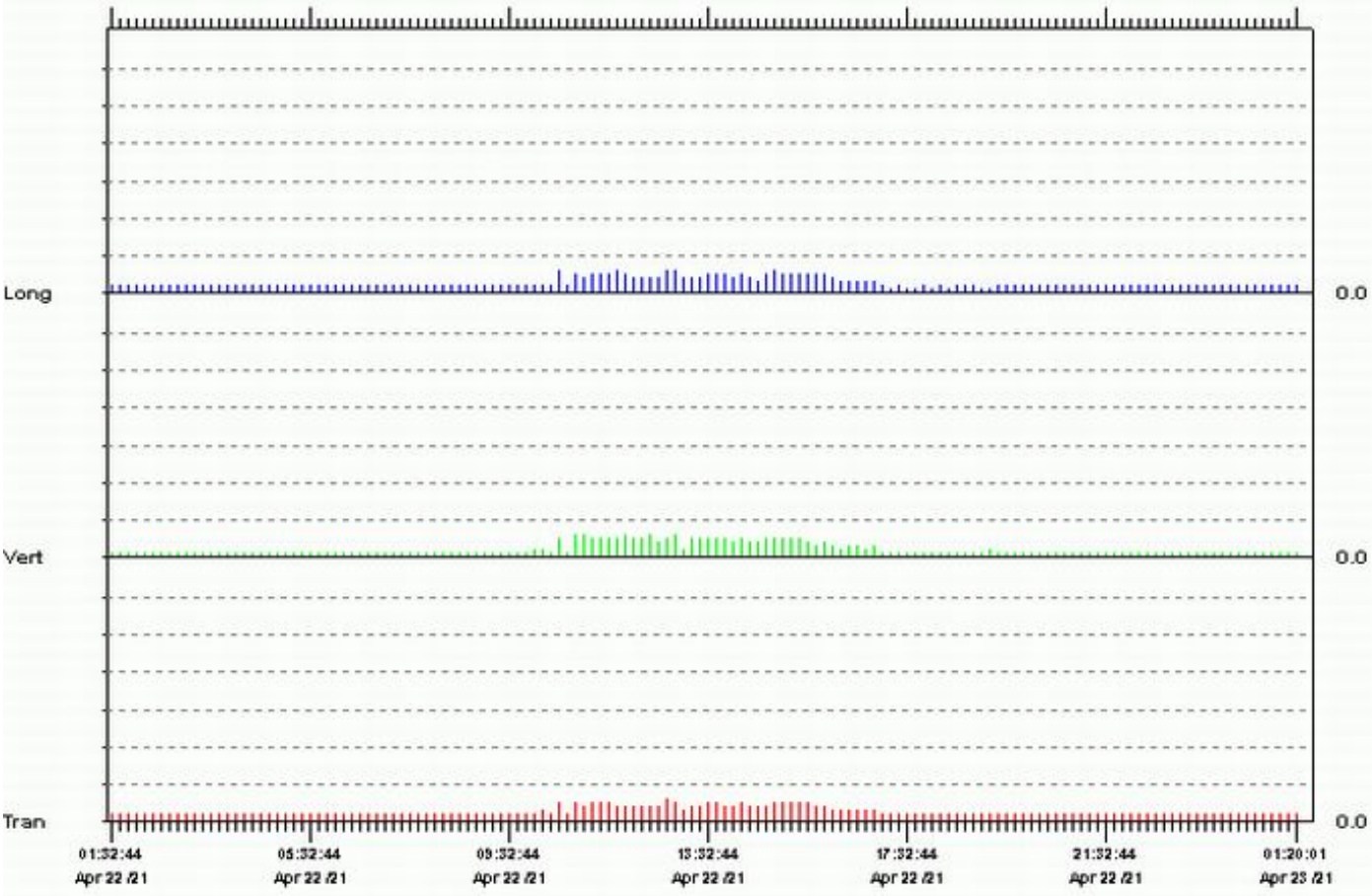
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0300	0.0300	0.0300	in/s
ZC Freq	6.7	5.8	7.1	Hz
Date	Apr 22 /21	Apr 22 /21	Apr 22 /21	
Time	12:39:44	10:46:14	10:23:59	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0354 in/s on April 22, 2021 At 10:23:59





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 23, 2021 (V - 10.49)

Start	01:22:48 April 23, 2021
Finish	01:20:01 April 24, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

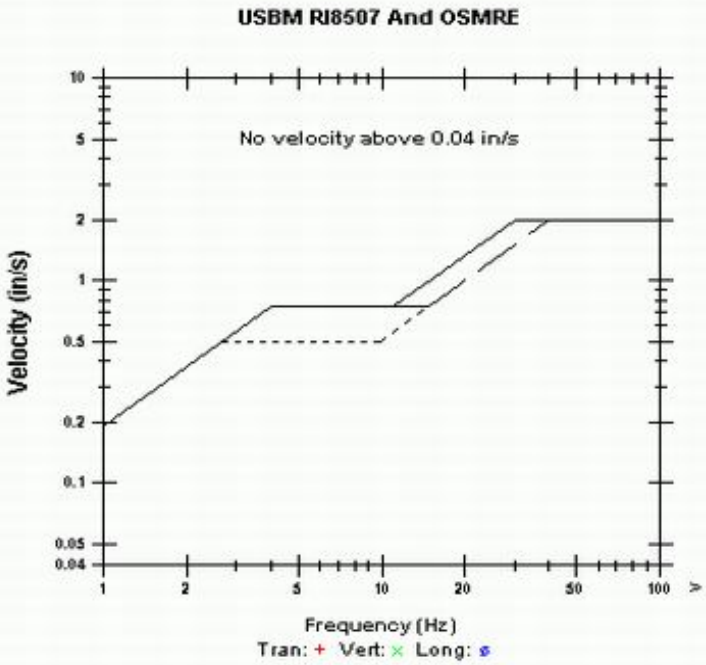
Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IY5I.I00H

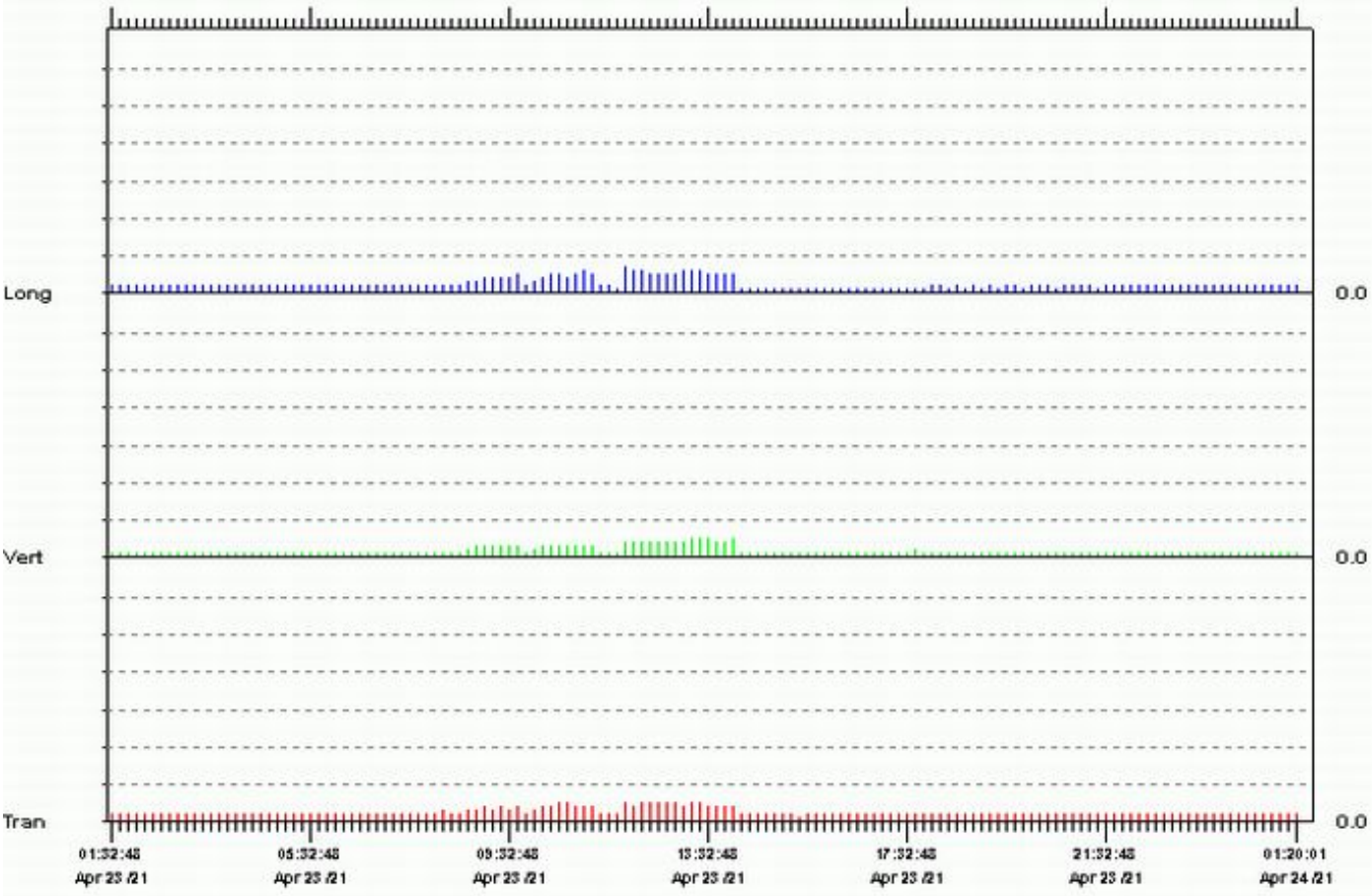
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0250	0.0250	0.0350	in/s
ZC Freq	6.2	8.3	6.2	Hz
Date	Apr 23 /21	Apr 23 /21	Apr 23 /21	
Time	10:27:48	13:08:48	11:50:03	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0367 in/s on April 23, 2021 At 11:50:03





Created: April 24, 2021 (V - 10.49)

Start	01:22:47 April 24, 2021
Finish	01:20:01 April 25, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

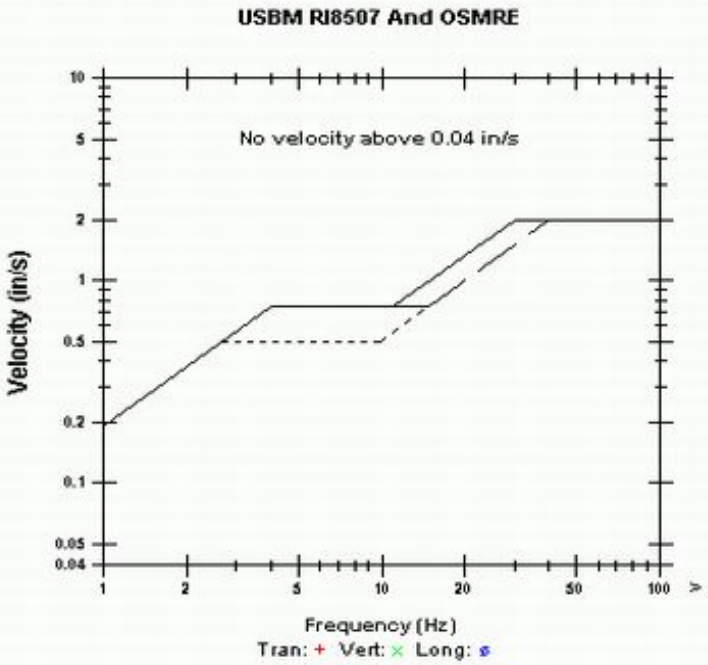
Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IY7D.5Z0H

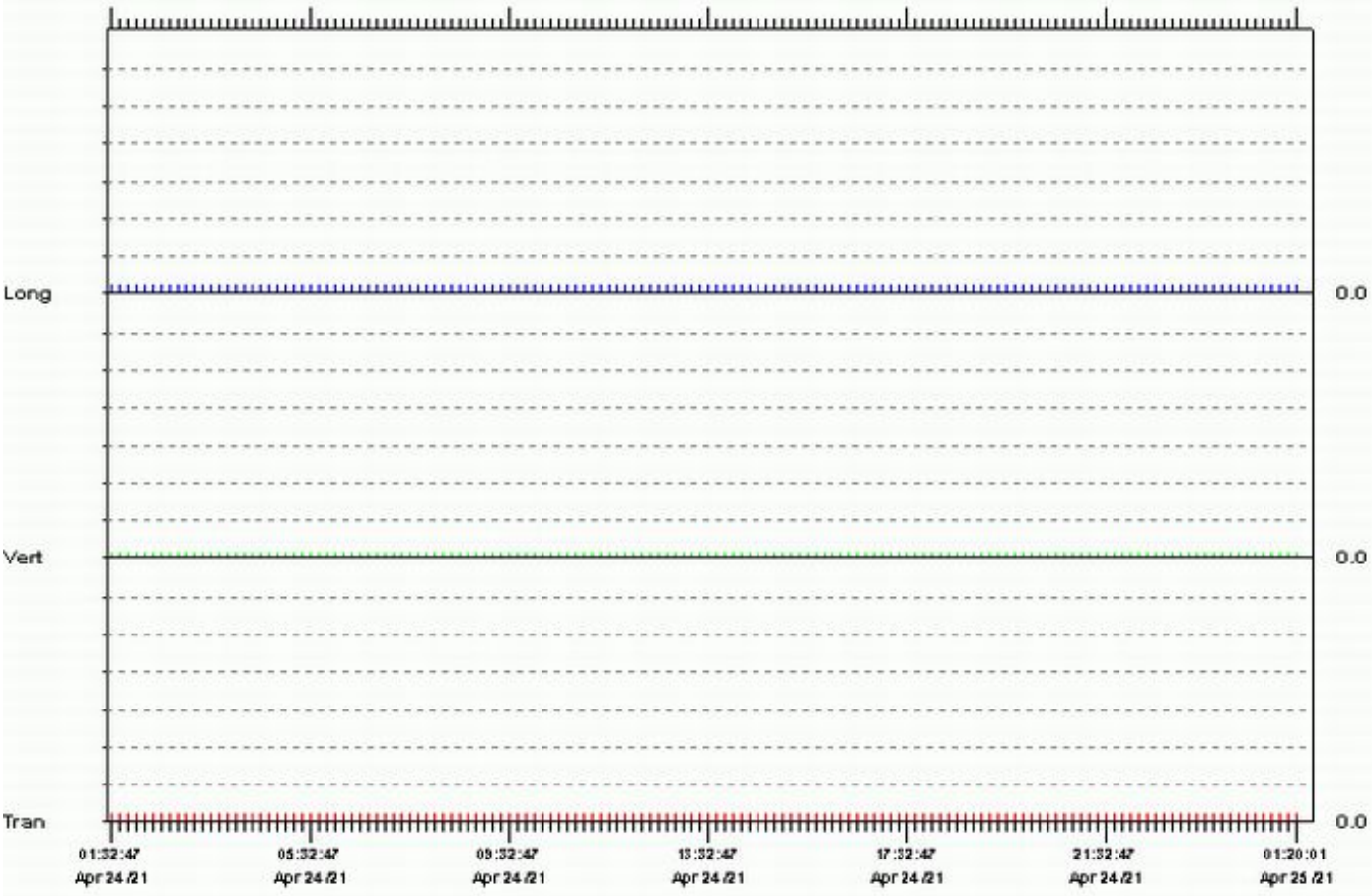
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.00500	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	Apr 24 /21	Apr 24 /21	Apr 24 /21	
Time	01:23:02	01:23:02	01:25:32	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0150 in/s on April 24, 2021 At 07:29:47





Created: April 25, 2021 (V - 10.49)

Start	01:22:49 April 25, 2021
Finish	01:20:01 April 26, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IY97.U10H

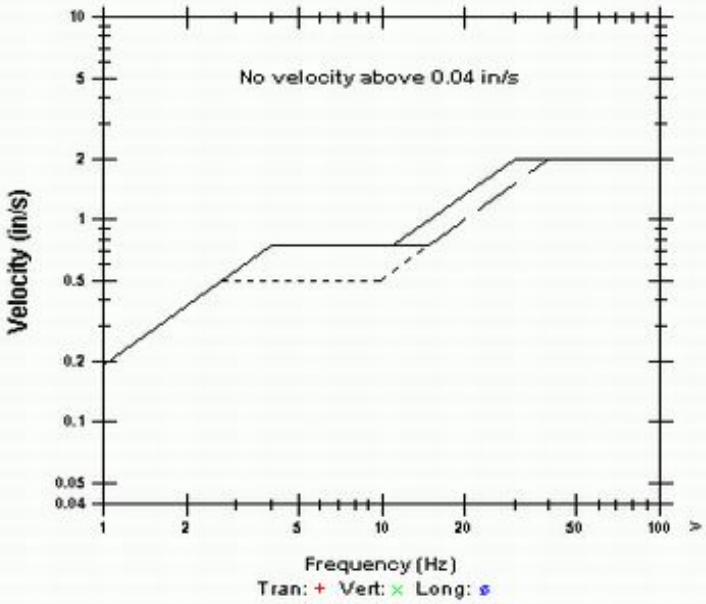
Post Event Notes

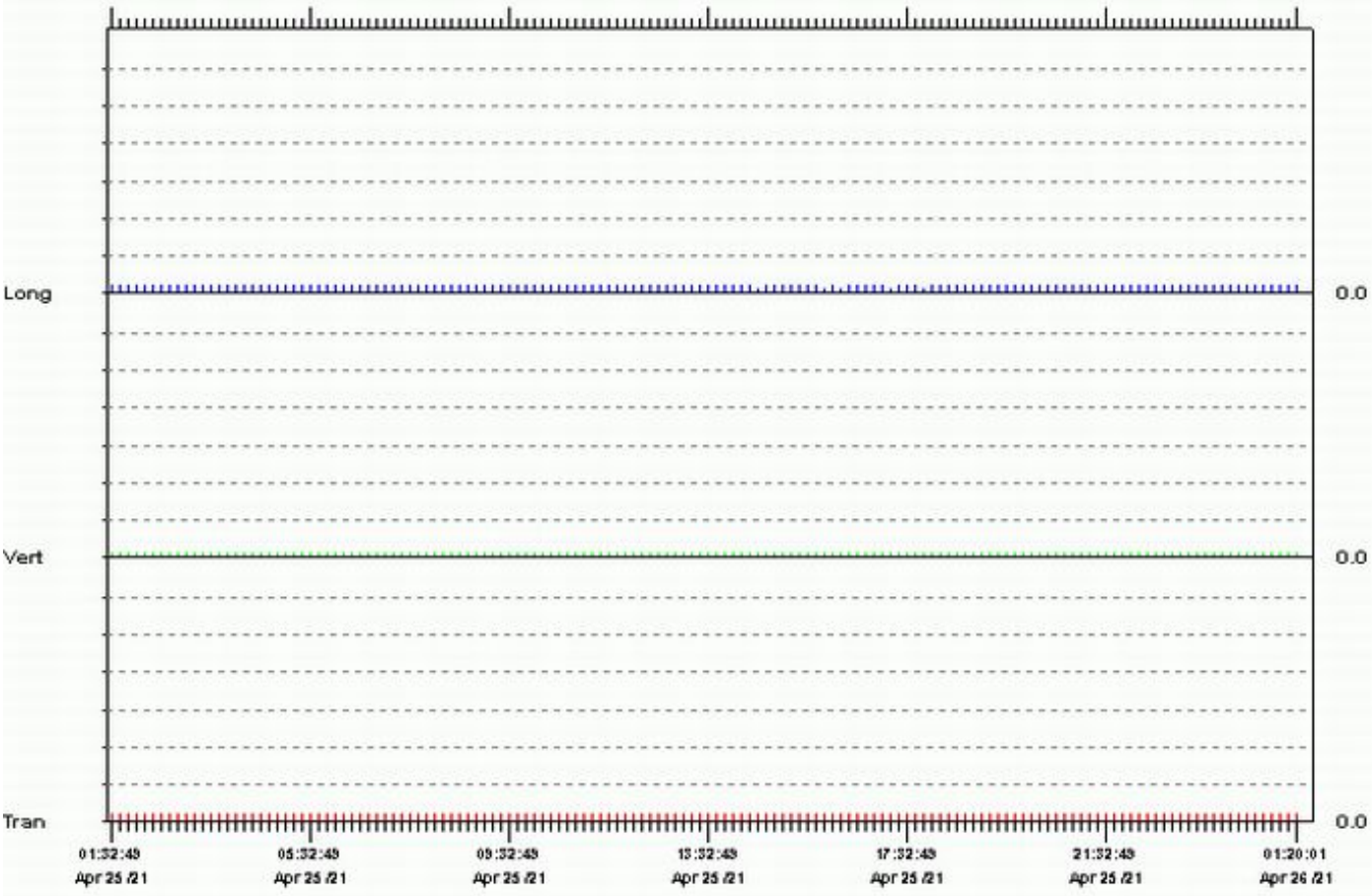
Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.00500	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	Apr 25 /21	Apr 25 /21	Apr 25 /21	
Time	01:23:04	01:23:04	01:23:04	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0150 in/s on April 25, 2021 At 06:59:34

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 26, 2021 (V - 10.49)

Start	01:22:46 April 26, 2021
Finish	01:20:01 April 27, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IYB2.HYOH

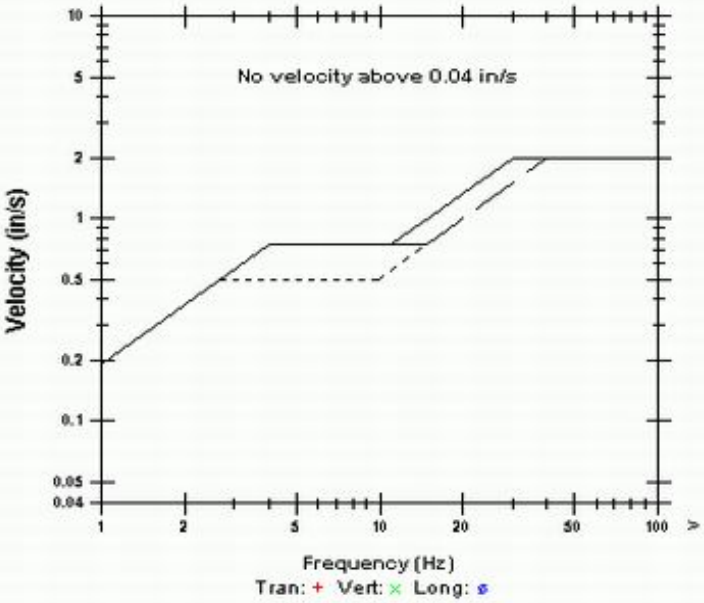
Post Event Notes

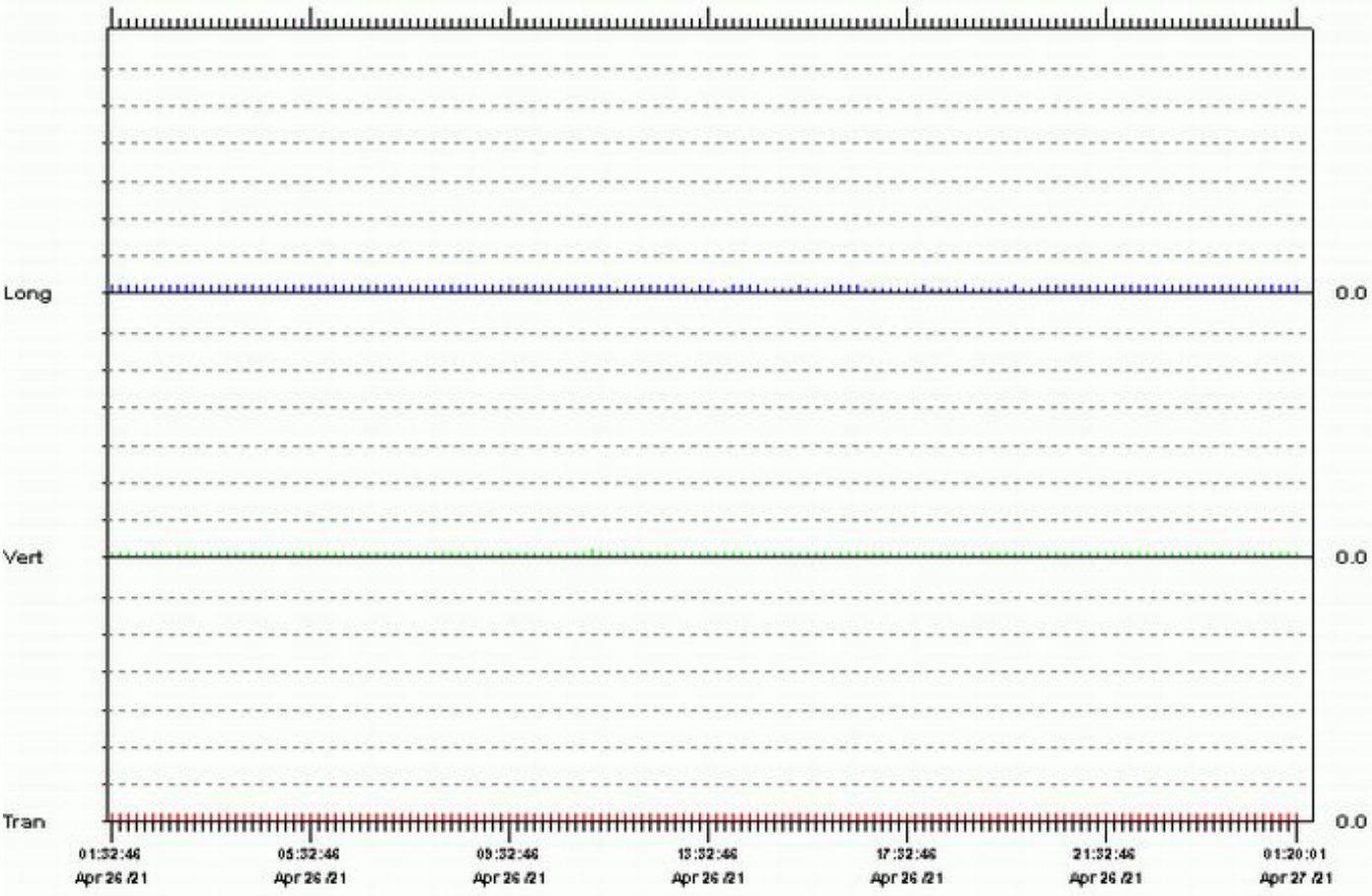
Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.01000	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	Apr 26 /21	Apr 26 /21	Apr 26 /21	
Time	01:23:01	11:08:01	01:25:31	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0141 in/s on April 26, 2021 At 05:37:46

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 27, 2021 (V - 10.49)

Start	01:22:49 April 27, 2021
Finish	01:20:01 April 28, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

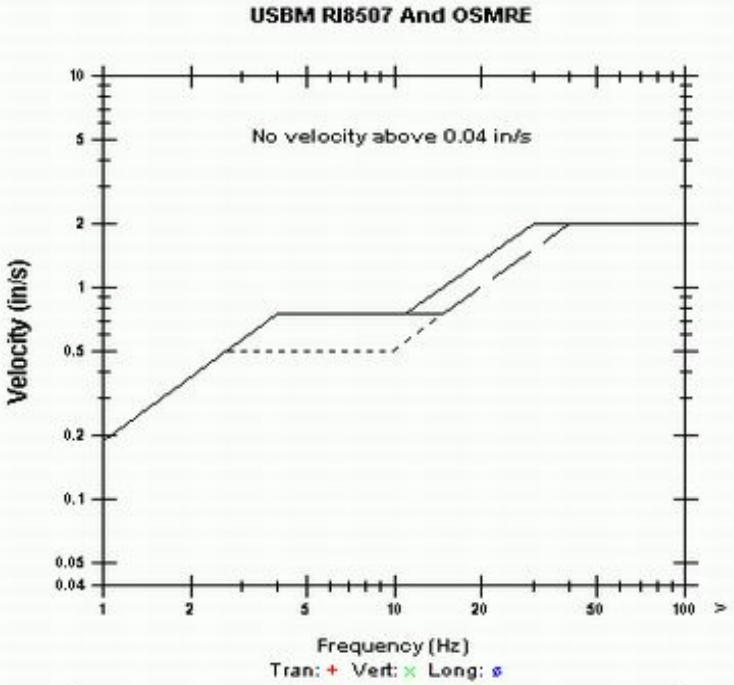
Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IYCX.610H

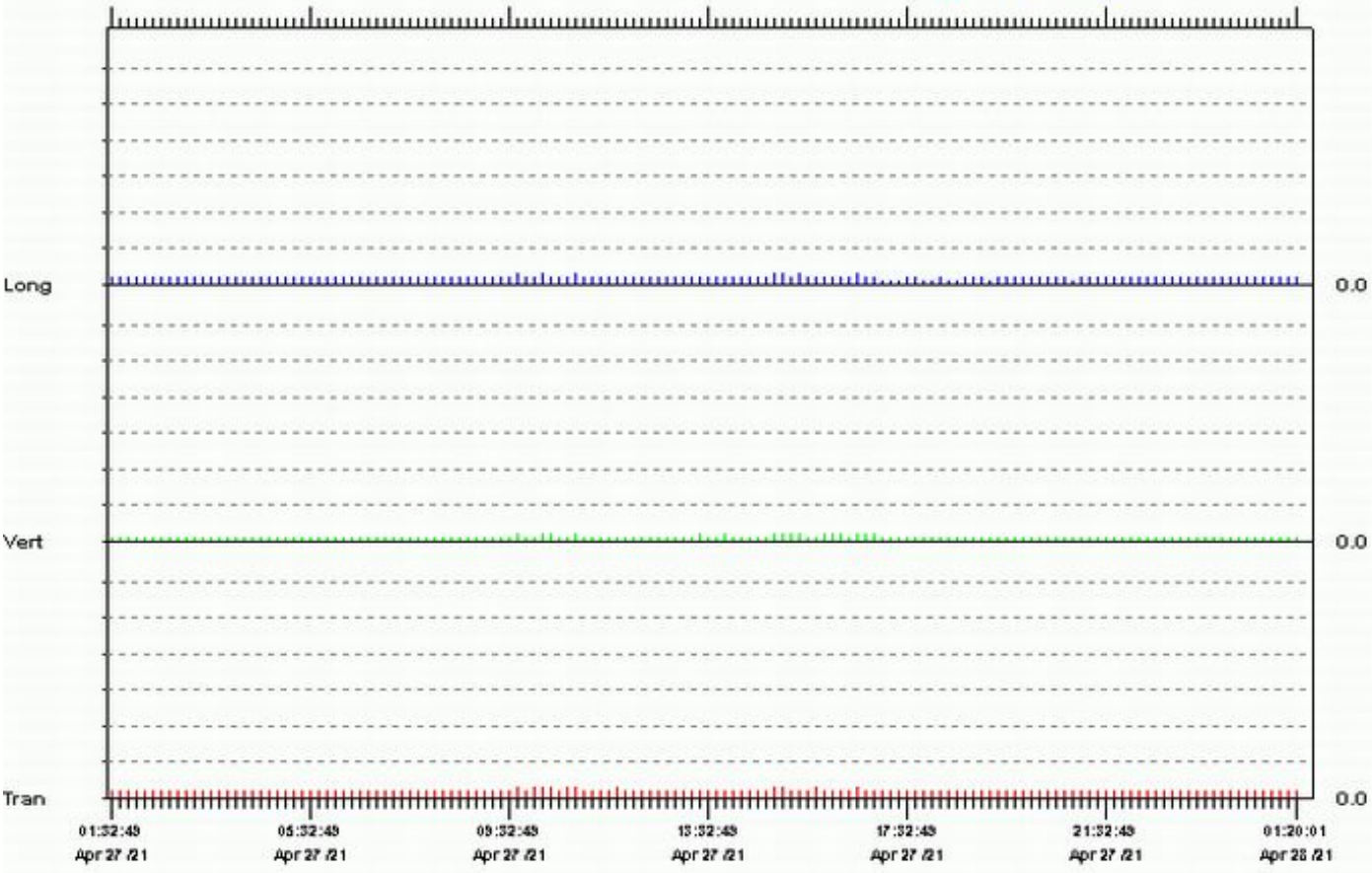
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.01000	0.0150	in/s
ZC Freq	NA	>100	13	Hz
Date	Apr 27 /21	Apr 27 /21	Apr 27 /21	
Time	09:37:19	09:34:49	09:34:49	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0187 in/s on April 27, 2021 At 09:37:19
NA: Not Applicable





Created: April 28, 2021 (V - 10.49)

Start	01:22:47 April 29, 2021
Finish	01:20:01 April 30, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IYGM.HZ0H

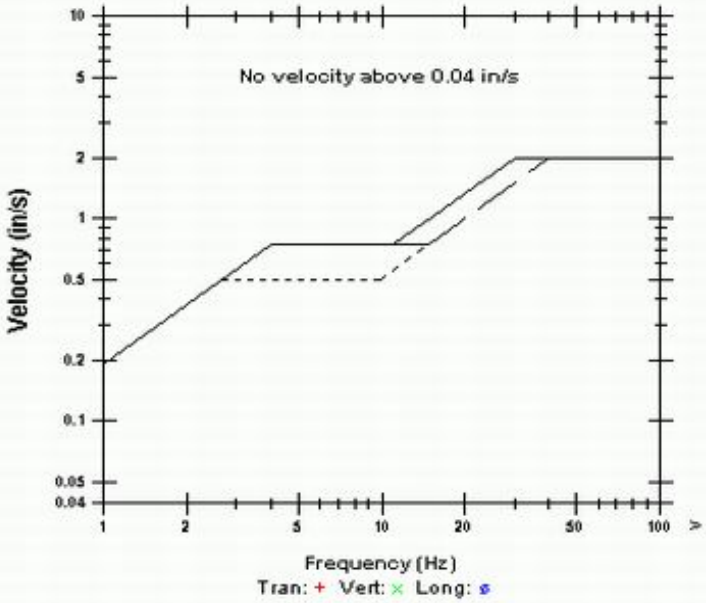
Post Event Notes

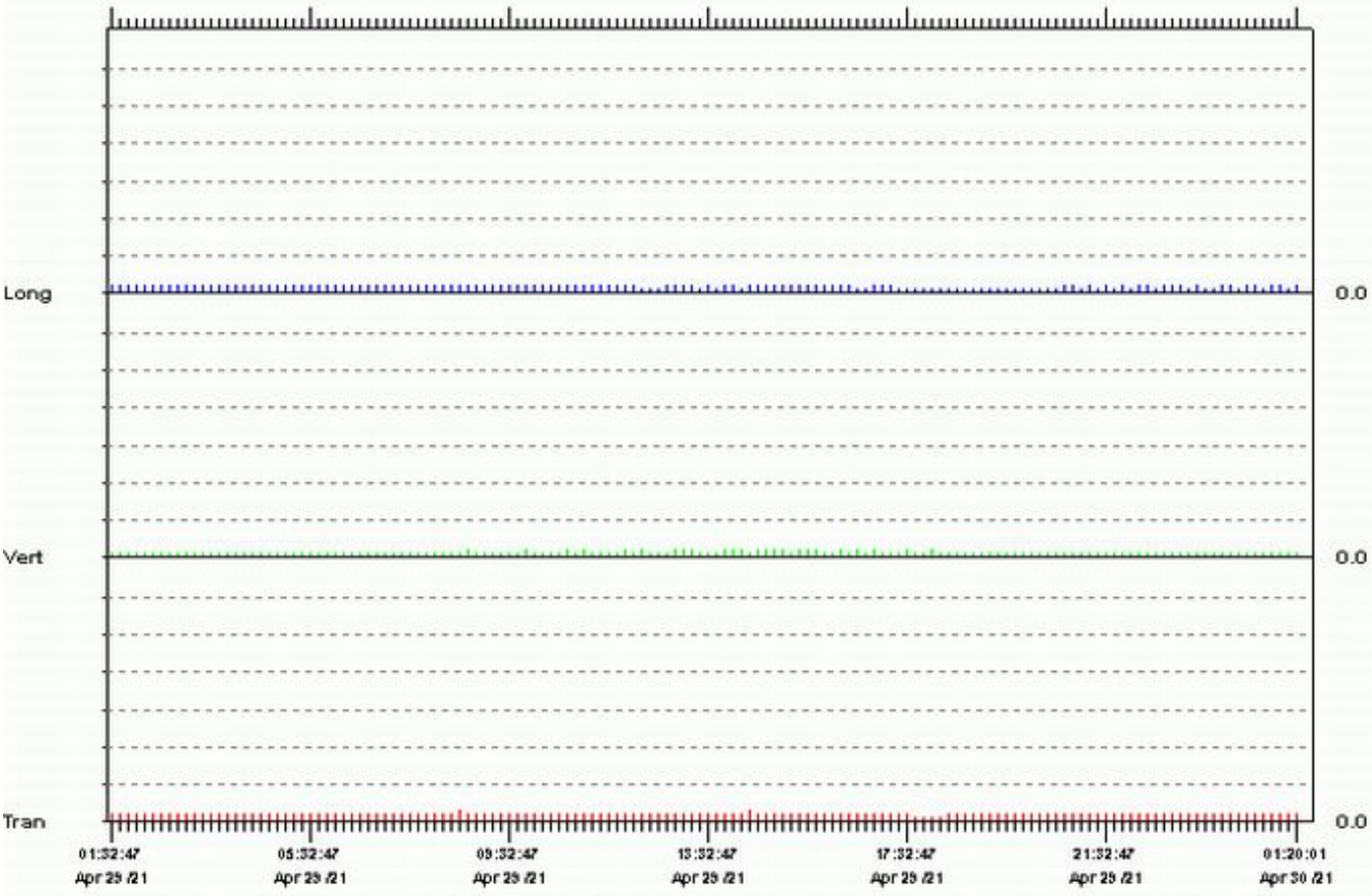
Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.01000	0.01000	in/s
ZC Freq	39	>100	>100	Hz
Date	Apr 29 /21	Apr 29 /21	Apr 29 /21	
Time	08:30:17	08:36:17	01:26:47	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0166 in/s on April 29, 2021 At 08:30:17

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 30, 2021 (V - 10.49)

Start	01:22:47 April 30, 2021
Finish	01:20:01 May 1, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441DYIH.5ZDH

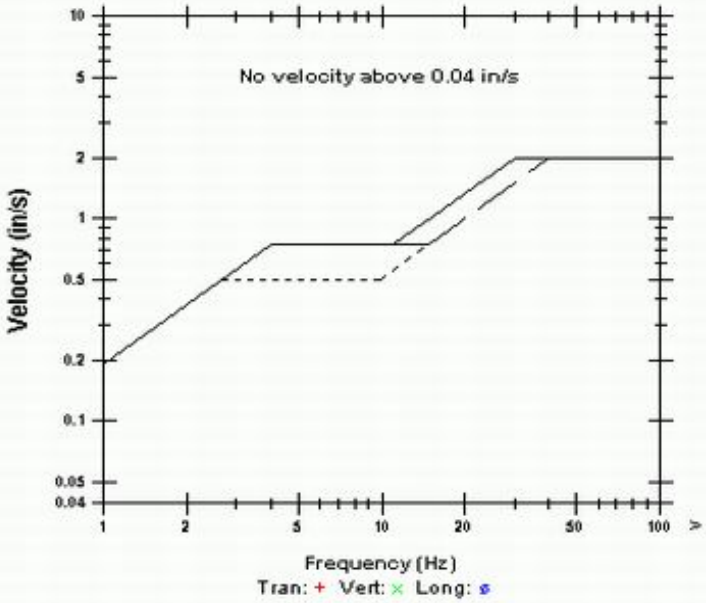
Post Event Notes

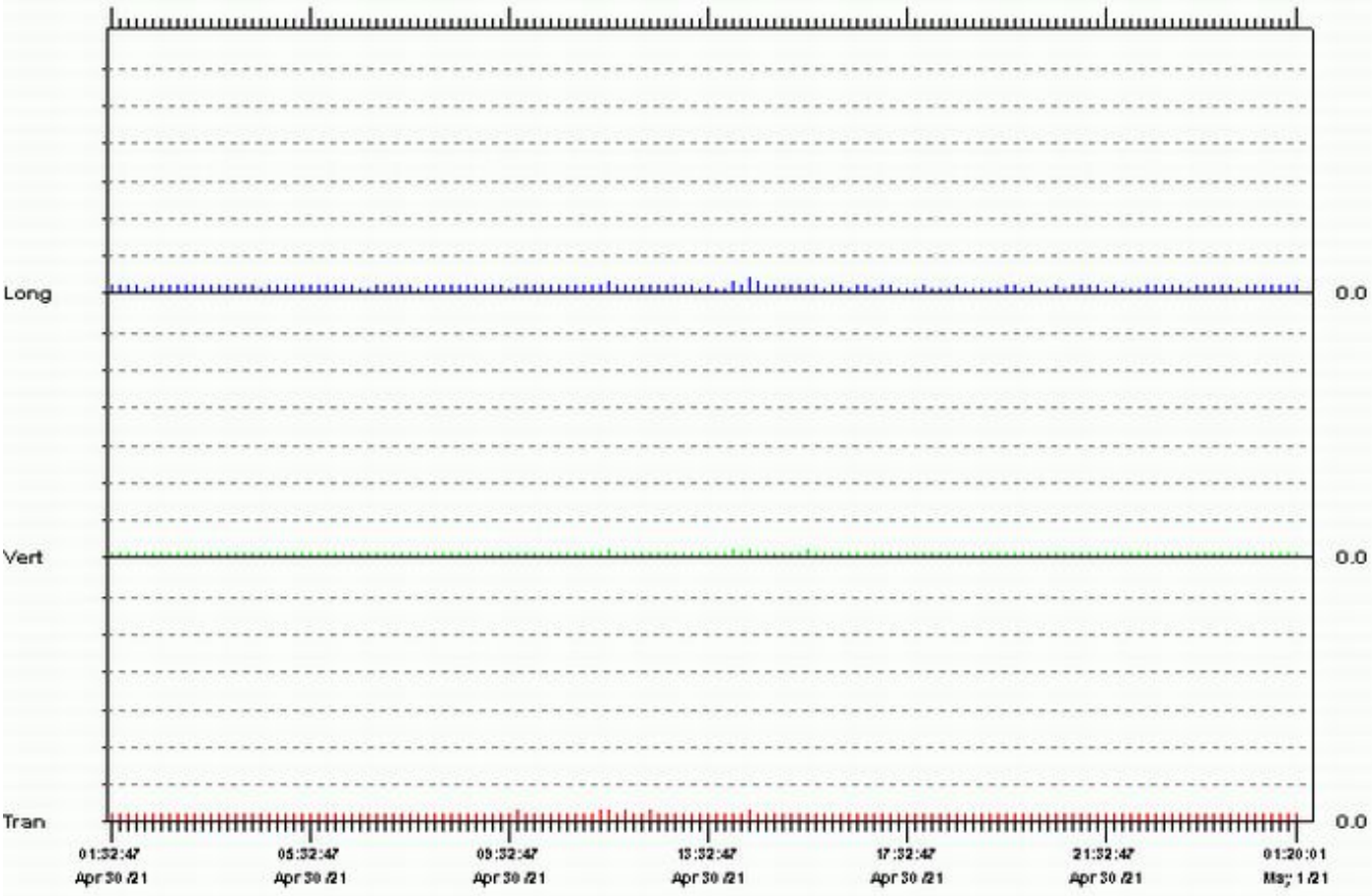
Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.01000	0.0200	in/s
ZC Freq	12	>100	9.3	Hz
Date	Apr 30 /21	Apr 30 /21	Apr 30 /21	
Time	09:37:47	11:23:17	14:18:17	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0250 in/s on April 30, 2021 At 14:18:17

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 1, 2021 (V - 10.40)

Start	01:22:47 May 1, 2021
Finish	01:20:01 May 2, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IYKB.TZ0H

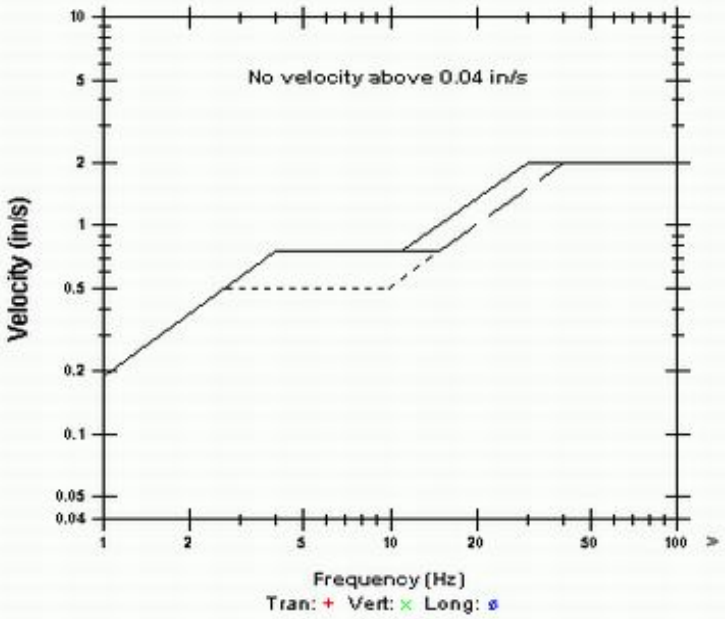
Post Event Notes

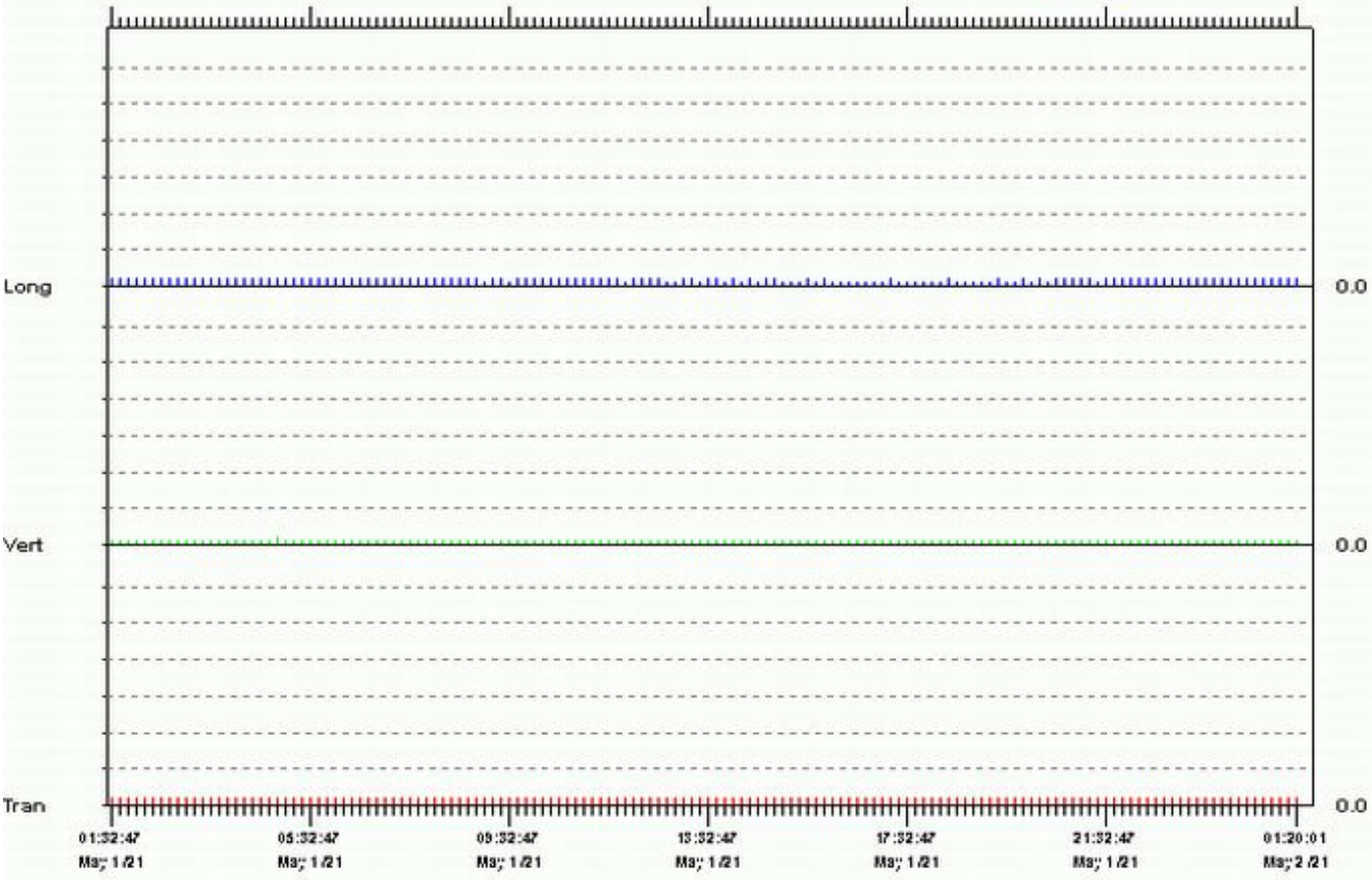
Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.01000	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	May 1 /21	May 1 /21	May 1 /21	
Time	01:23:02	04:45:17	01:24:17	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0141 in/s on May 1, 2021 At 04:28:02

USBM RI8507 And OSMRE





Created: May 2, 2021 (V - 10.40)

Start	01:23:26 May 2, 2021
Finish	01:20:01 May 3, 2021
Intervals	5747.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441DYM6.J20H

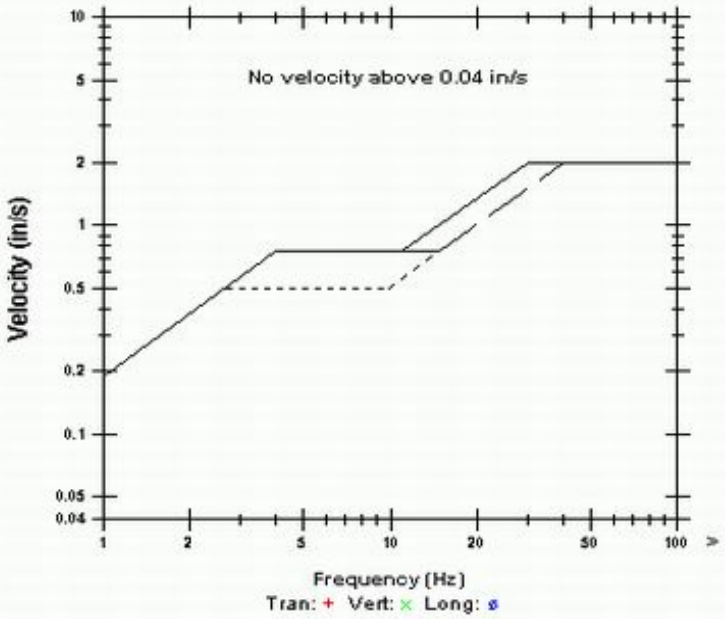
Post Event Notes

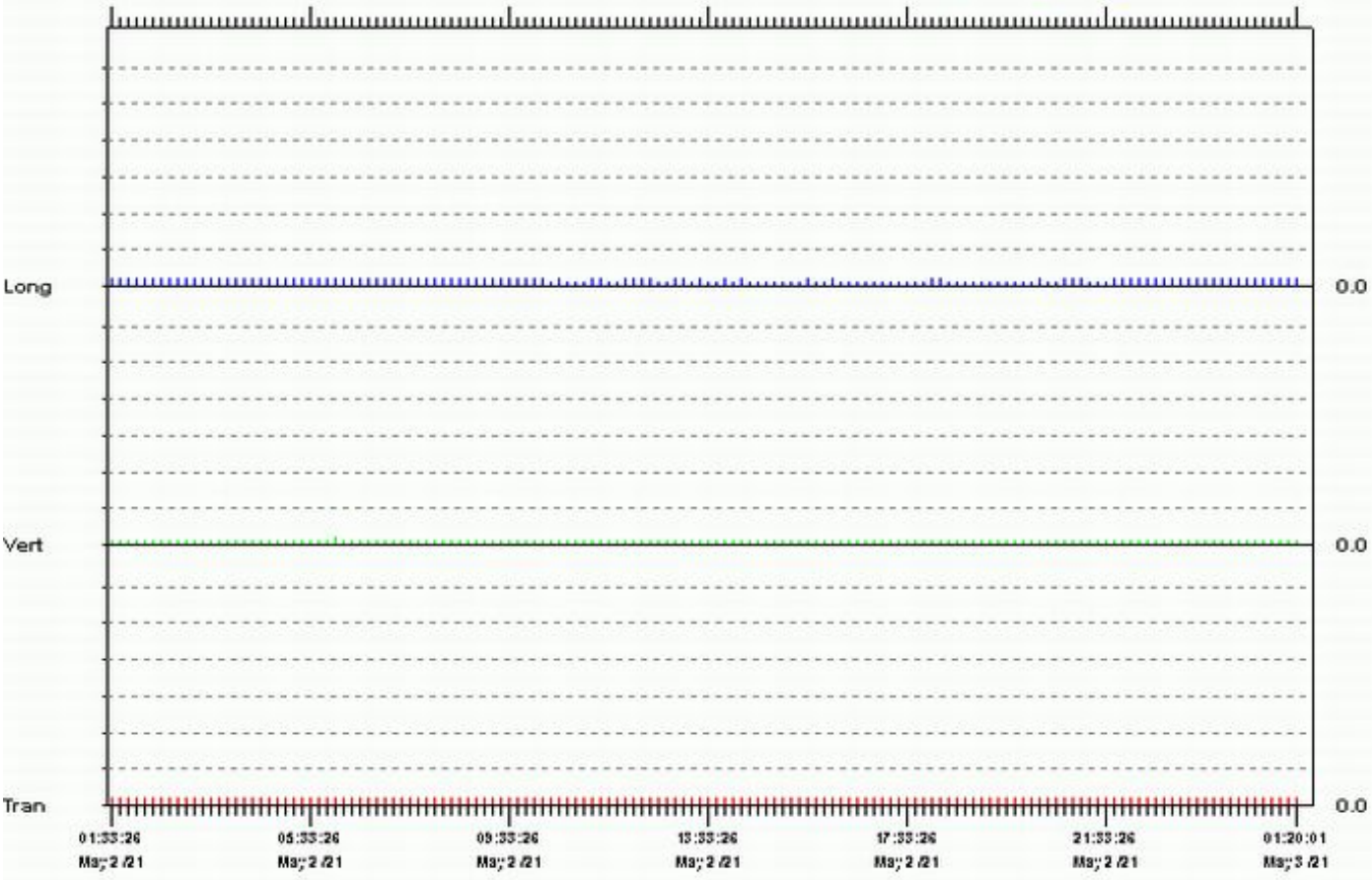
Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.01000	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	May 2 /21	May 2 /21	May 2 /21	
Time	01:23:41	05:58:41	01:26:41	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0141 in/s on May 2, 2021 At 02:43:56

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 3, 2021 (V - 10.40)

Start	01:22:49 May 3, 2021
Finish	01:20:01 May 4, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

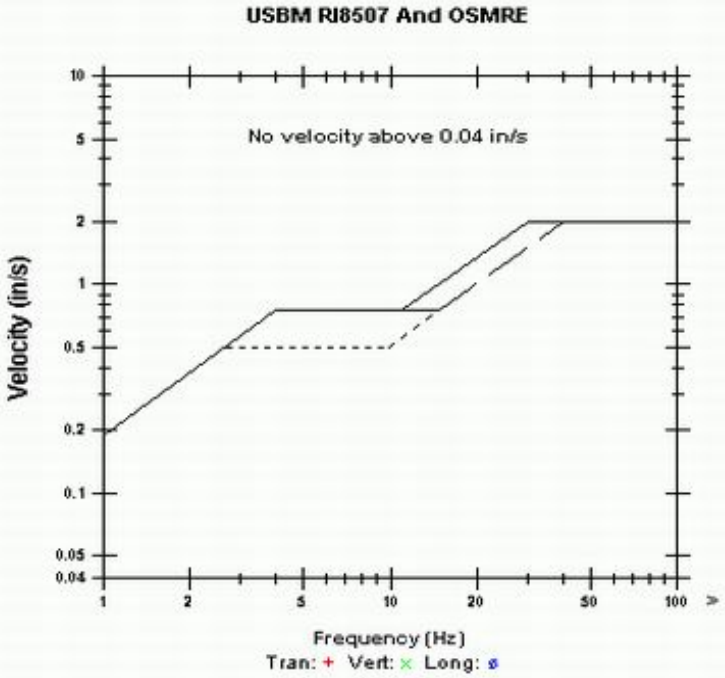
Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IYO1.610H

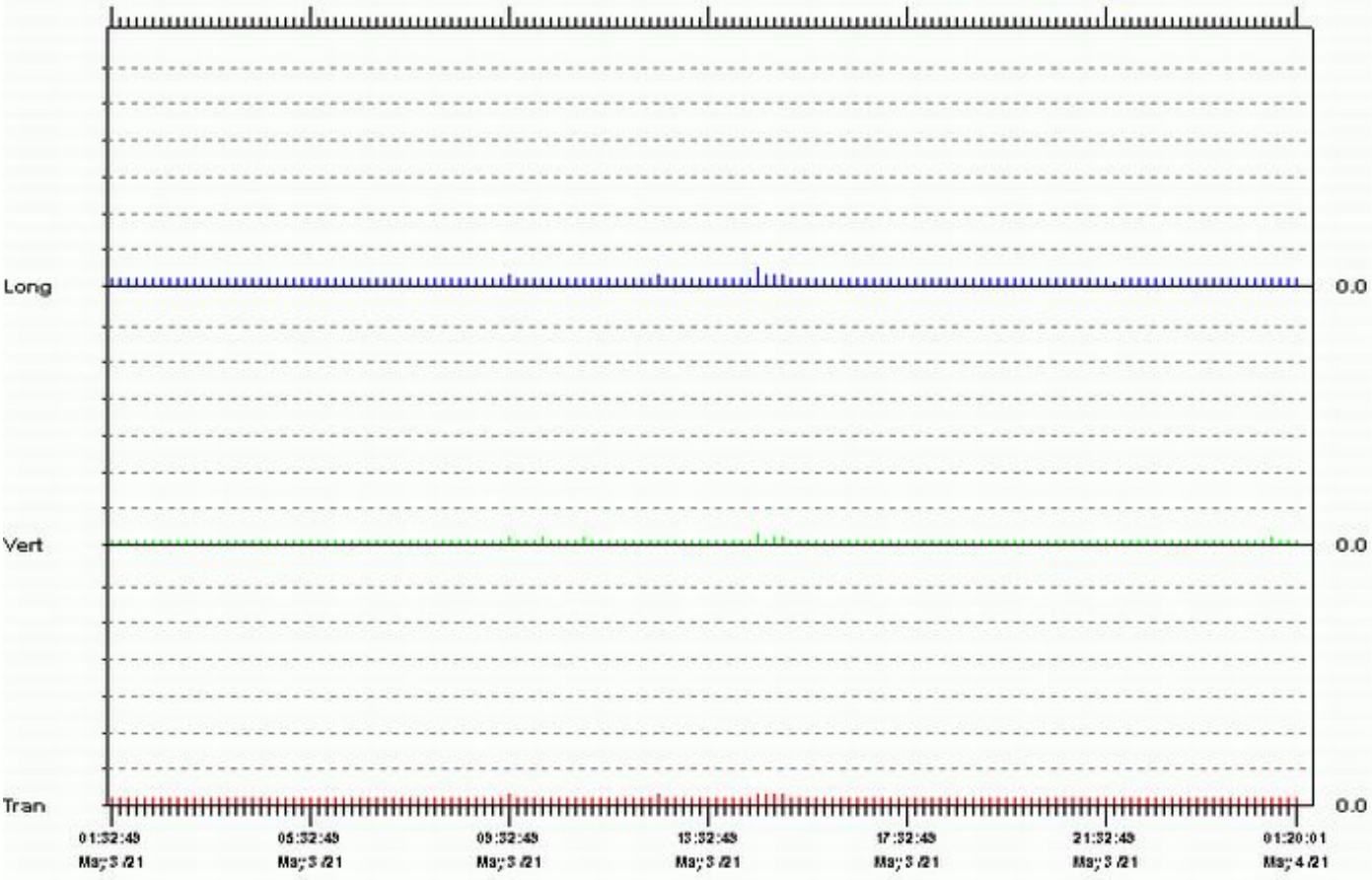
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.0150	0.0250	in/s
ZC Freq	17	43	17	Hz
Date	May 3 /21	May 3 /21	May 3 /21	
Time	09:31:34	14:23:49	14:23:49	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0274 in/s on May 3, 2021 At 14:23:49





Created: May 4, 2021 (V - 10.40)

Start	01:22:49 May 4, 2021
Finish	01:20:01 May 5, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IYPV.U10H

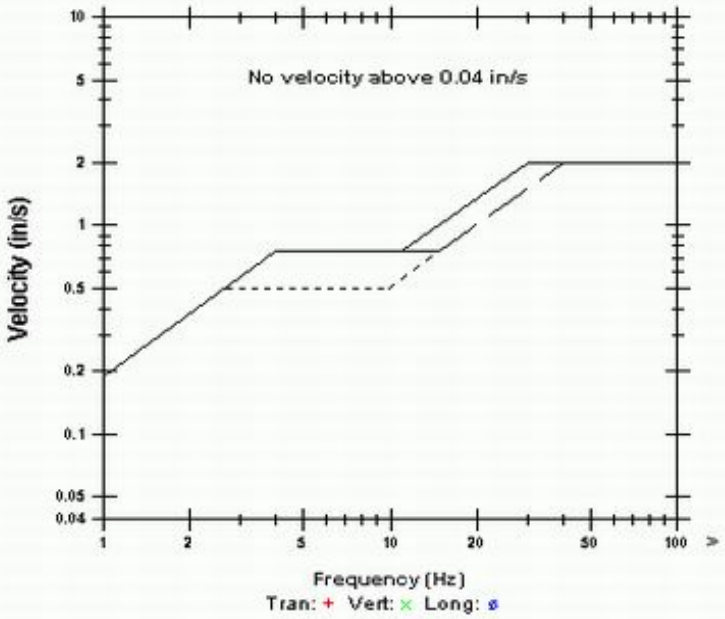
Post Event Notes

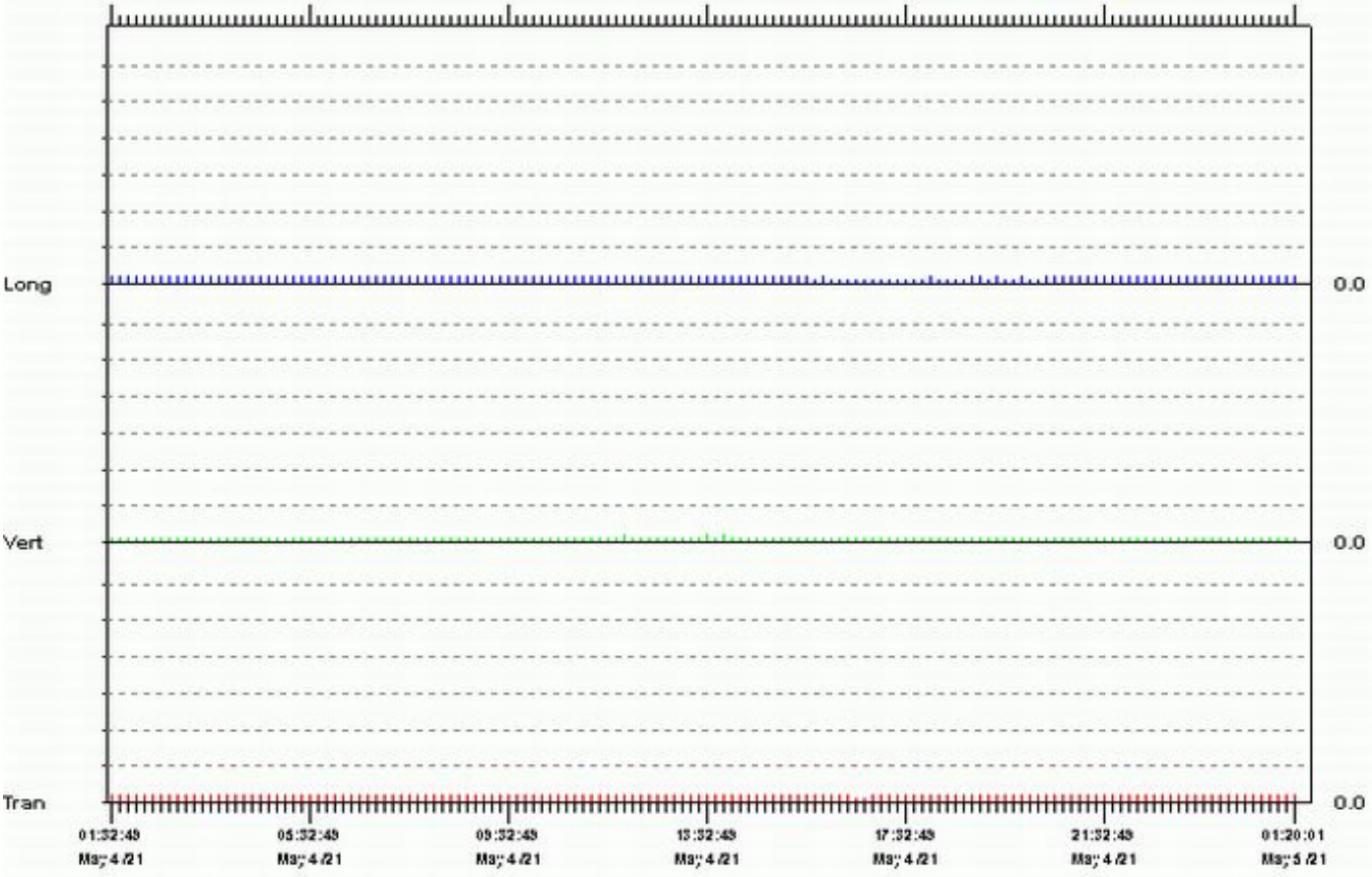
Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.01000	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	May 4 /21	May 4 /21	May 4 /21	
Time	01:23:04	11:46:34	01:24:19	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0150 in/s on May 4, 2021 At 15:25:49

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 5, 2021 (V - 10.40)

Start	01:22:47 May 5, 2021
Finish	01:20:01 May 6, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IYRQ.HZ0H

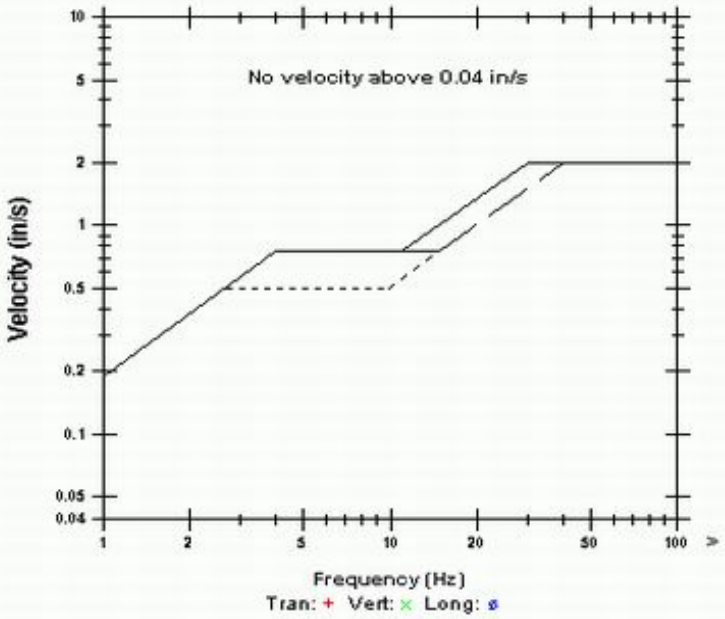
Post Event Notes

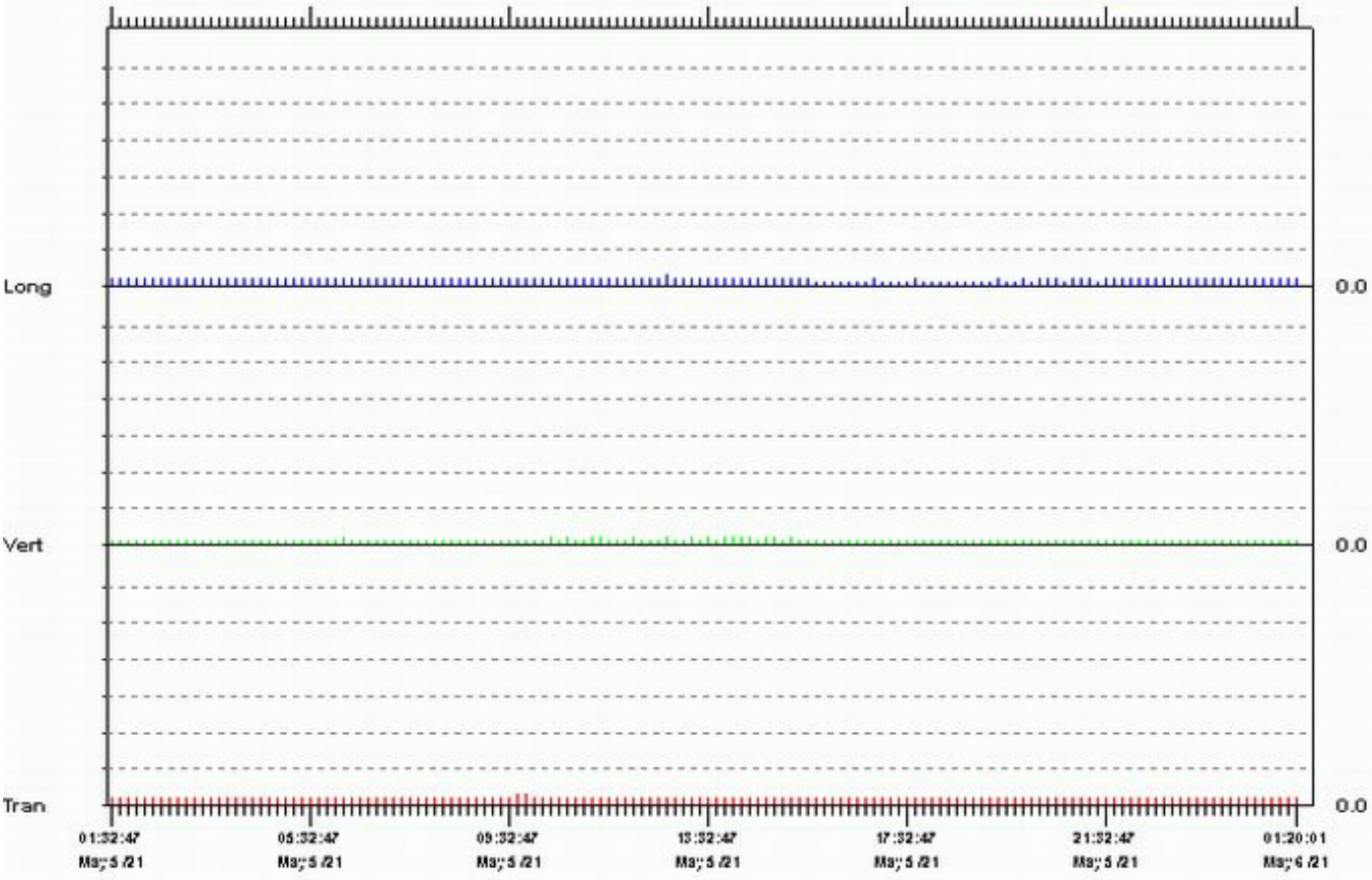
Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.01000	0.0150	in/s
ZC Freq	10	>100	16	Hz
Date	May 5 /21	May 5 /21	May 5 /21	
Time	09:38:02	06:10:02	12:38:32	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0180 in/s on May 5, 2021 At 09:38:02

USBM RI8507 And OSMRE





Created: May 6, 2021 (V - 10.40)

Start	01:22:46 May 6, 2021
Finish	01:20:01 May 7, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IYTL.5YOH

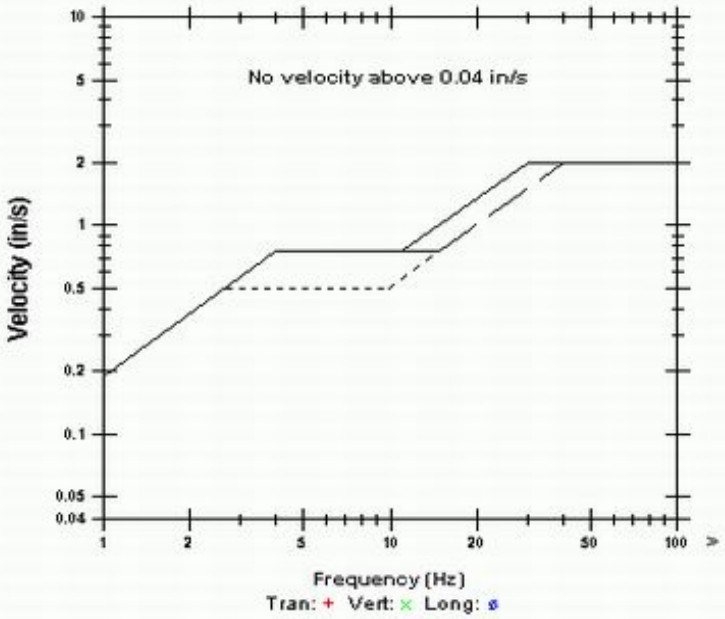
Post Event Notes

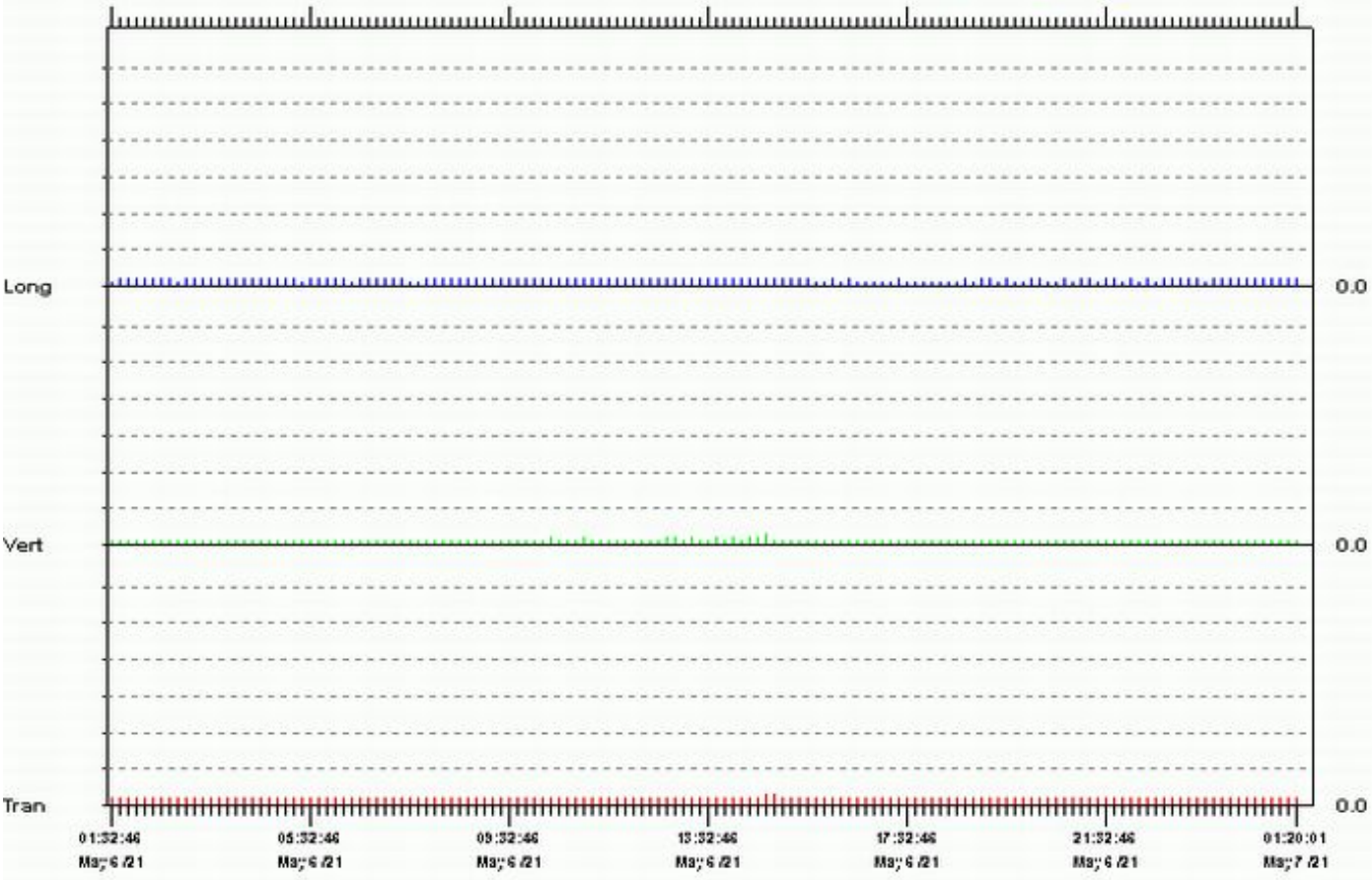
Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.0150	0.01000	in/s
ZC Freq	14	20	>100	Hz
Date	May 6 /21	May 6 /21	May 6 /21	
Time	14:34:01	14:34:01	01:40:16	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0187 in/s on May 6, 2021 At 14:34:01

USBM RI8507 And OSMRE





Created: May 7, 2021 (V - 10.40)

Start	01:22:44 May 7, 2021
Finish	01:20:01 May 8, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441DYVF.TWDH

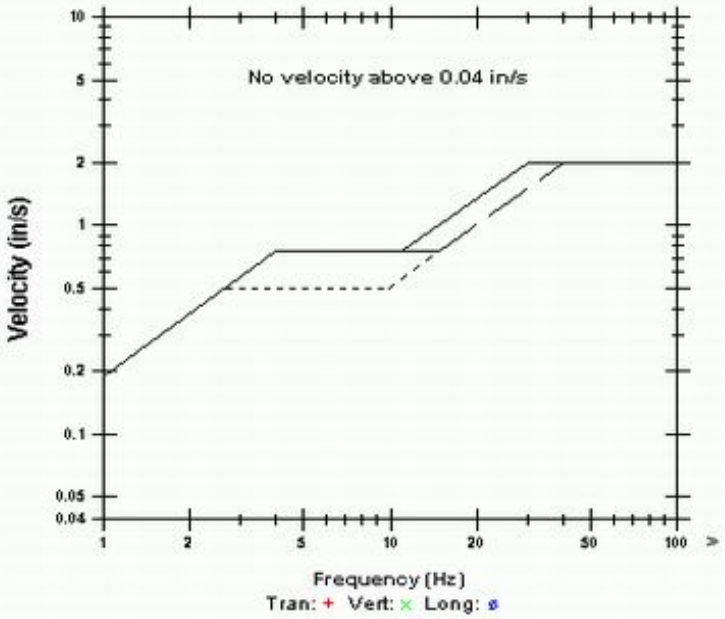
Post Event Notes

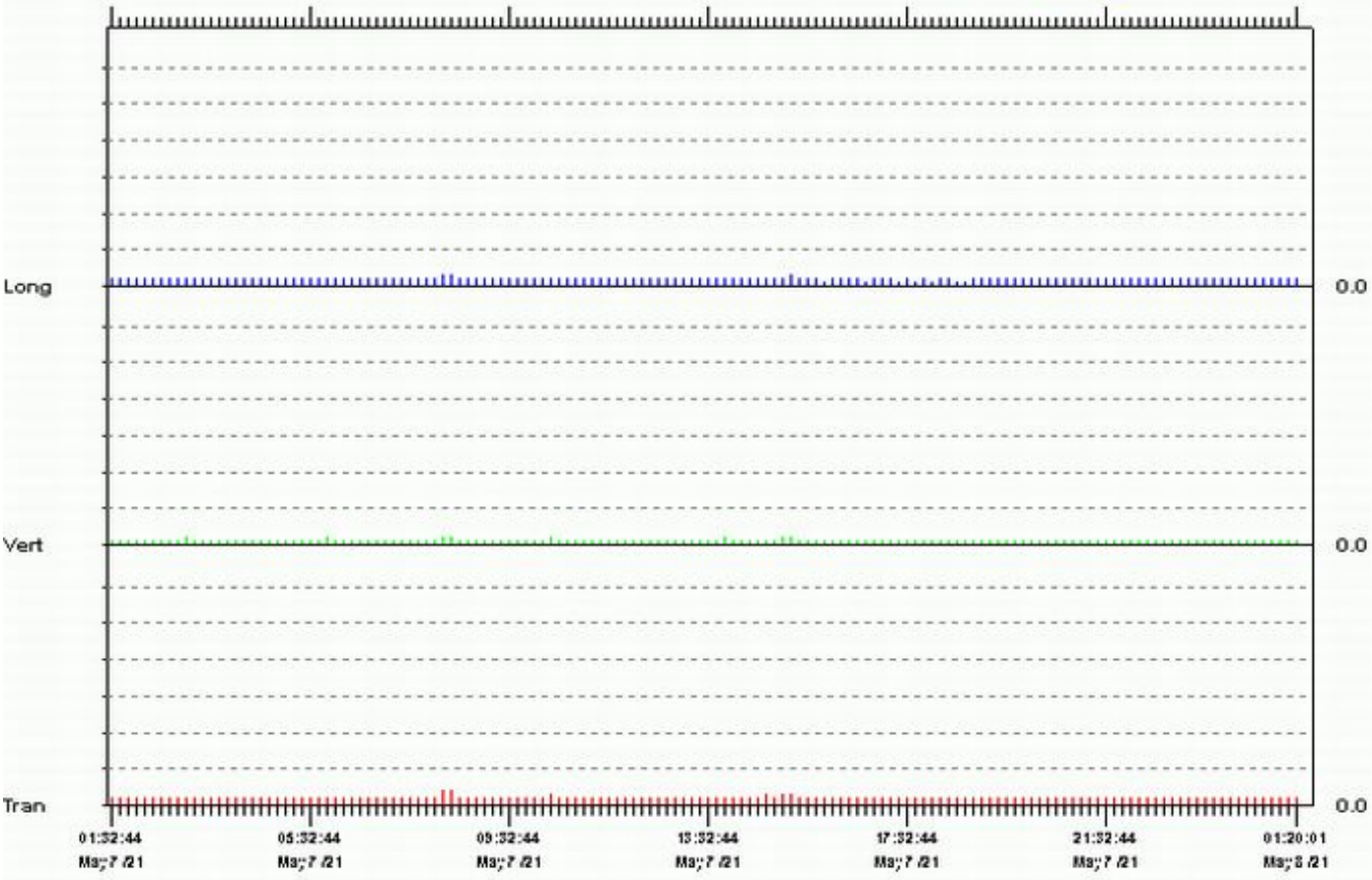
Extended Notes

	Tran	Vert	Long	
PPV	0.0200	0.01000	0.0150	in/s
ZC Freq	9.1	>100	15	Hz
Date	May 7 /21	May 7 /21	May 7 /21	
Time	08:10:44	02:52:59	08:10:44	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0255 in/s on May 7, 2021 At 08:10:44

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 8, 2021 (V - 10.40)

Start	01:24:02 May 8, 2021
Finish	01:20:01 May 9, 2021
Intervals	5744.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IYXA.K20H

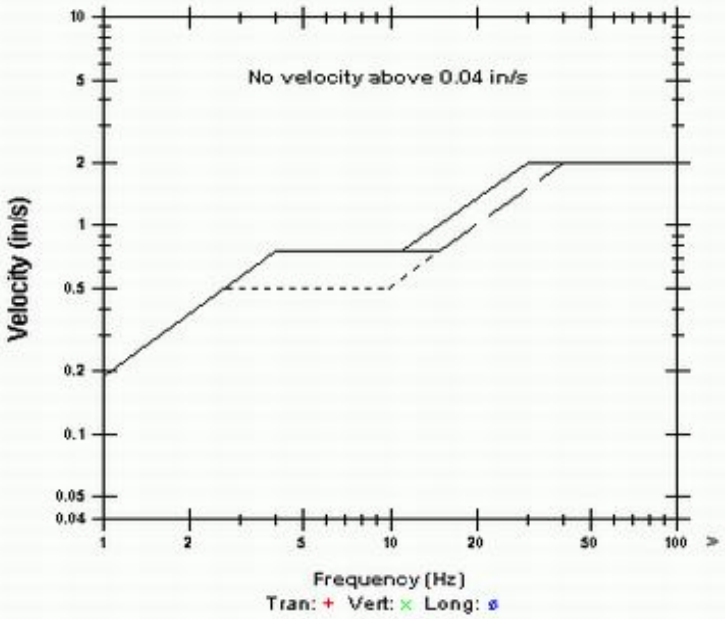
Post Event Notes

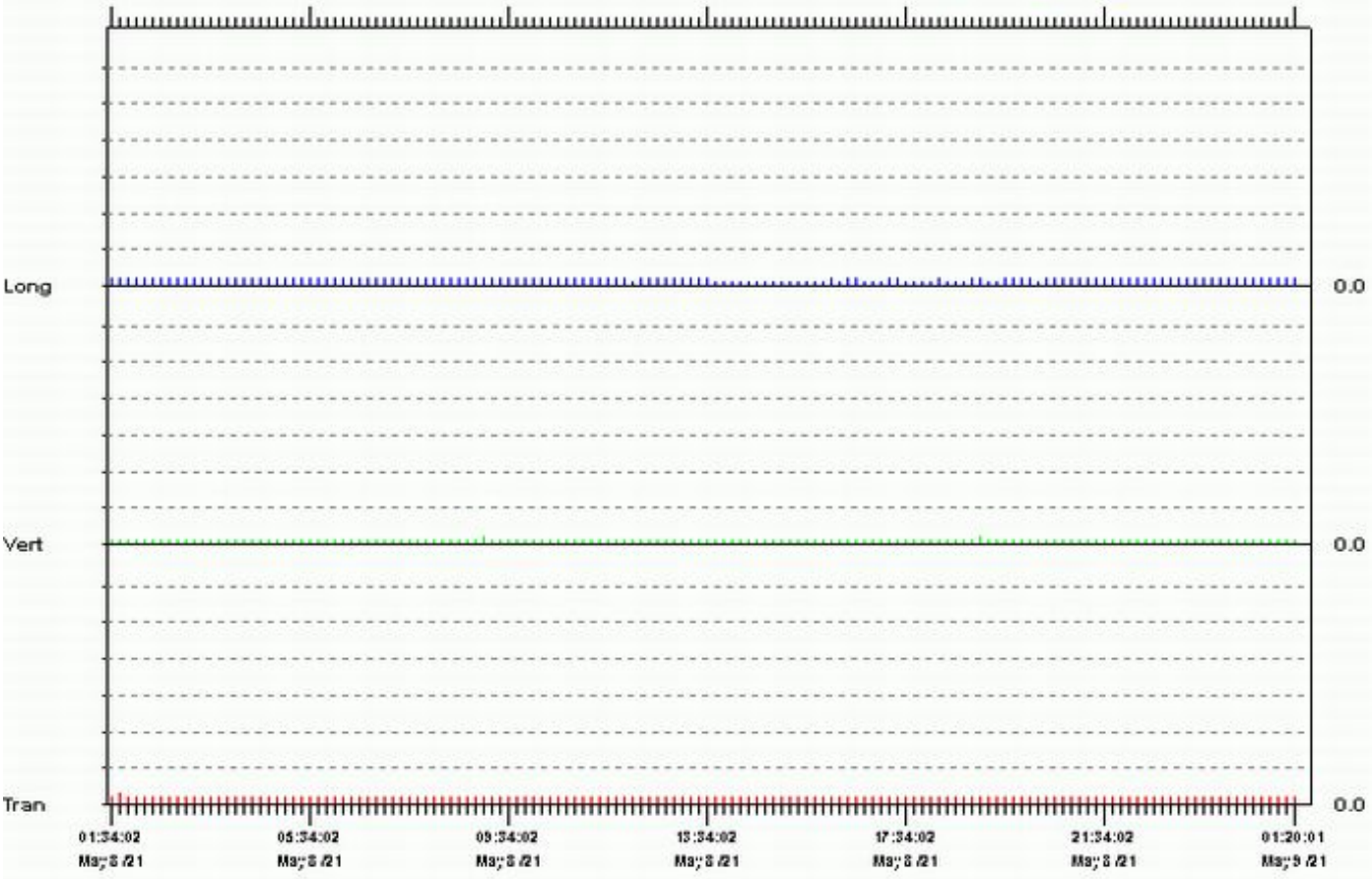
Extended Notes

	Tran	Vert	Long	
PPV	0.0150	0.01000	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	May 8 /21	May 8 /21	May 8 /21	
Time	01:37:17	08:55:17	01:25:17	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0150 in/s on May 8, 2021 At 01:37:17

USBM RI8507 And OSMRE





Created: May 9, 2021 (V - 10.40)

Start	01:22:44 May 9, 2021
Finish	01:20:01 May 10, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

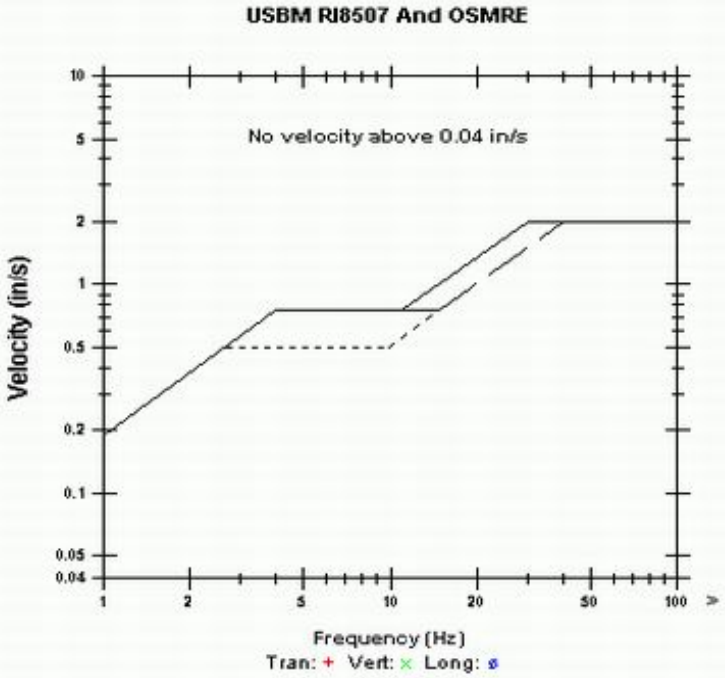
Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IYZ5.5WDH

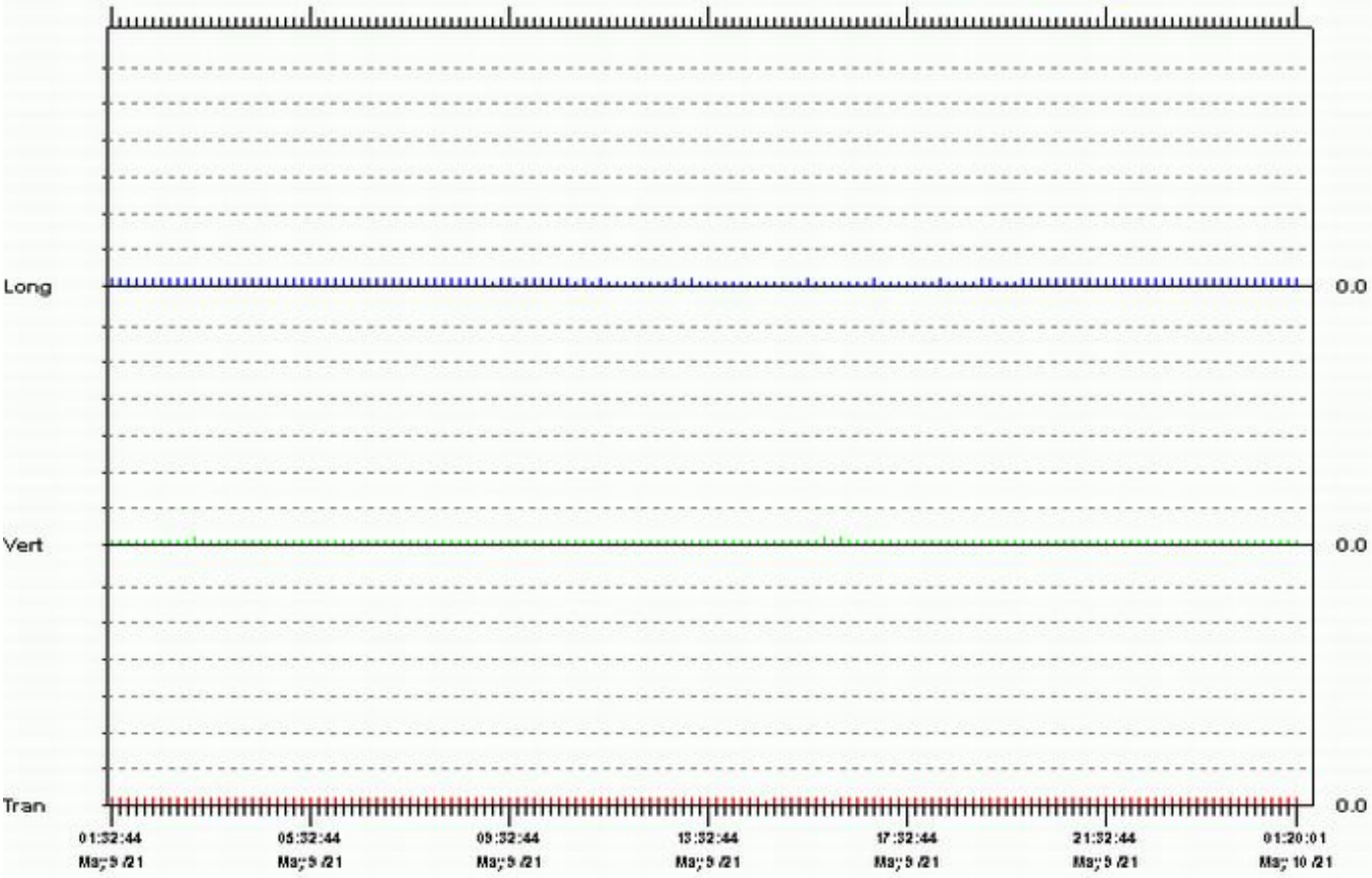
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.01000	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	May 9 /21	May 9 /21	May 9 /21	
Time	01:22:59	03:04:59	01:24:29	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0150 in/s on May 9, 2021 At 04:51:44





Created: May 10, 2021 (V - 10.40)

Start	01:22:47 May 10, 2021
Finish	01:20:01 May 11, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	7.0 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IZ0Z.TZ0H

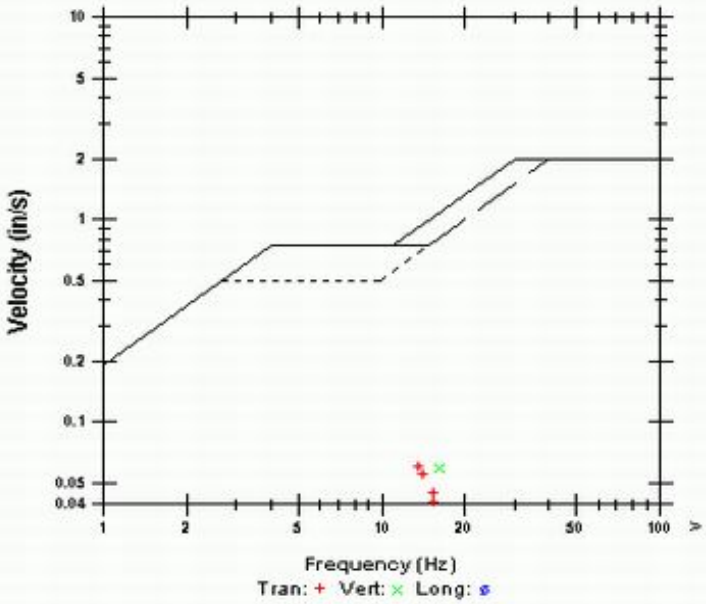
Post Event Notes

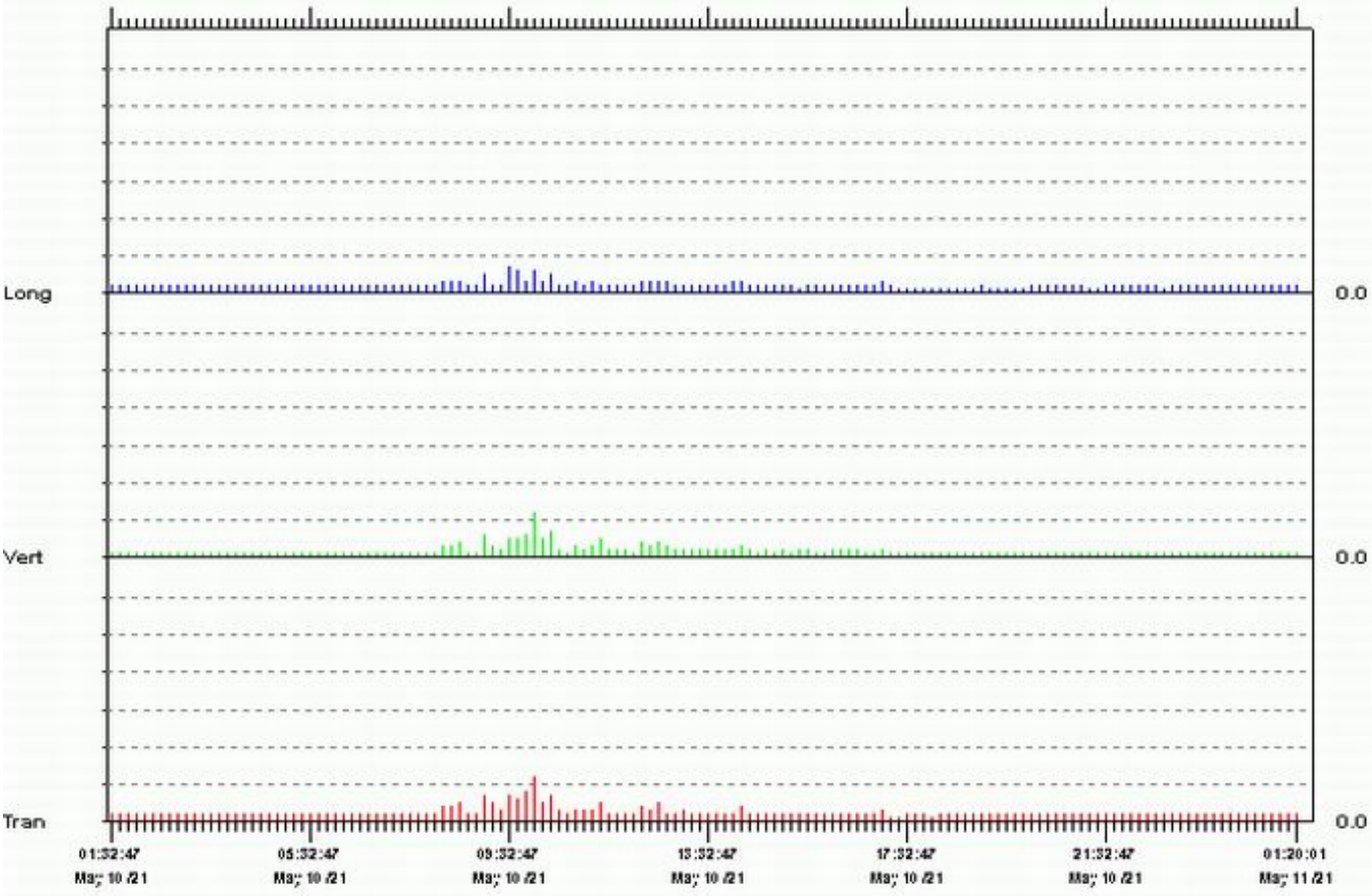
Extended Notes

	Tran	Vert	Long	
PPV	0.0600	0.0600	0.0350	in/s
ZC Freq	14	16	37	Hz
Date	May 10 /21	May 10 /21	May 10 /21	
Time	10:02:32	10:00:02	09:32:32	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0648 in/s on May 10, 2021 At 10:02:32

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 11, 2021 (V - 10.40)

Start	01:23:31 May 11, 2021
Finish	01:20:01 May 12, 2021
Intervals	5746.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IZ2U.J70H

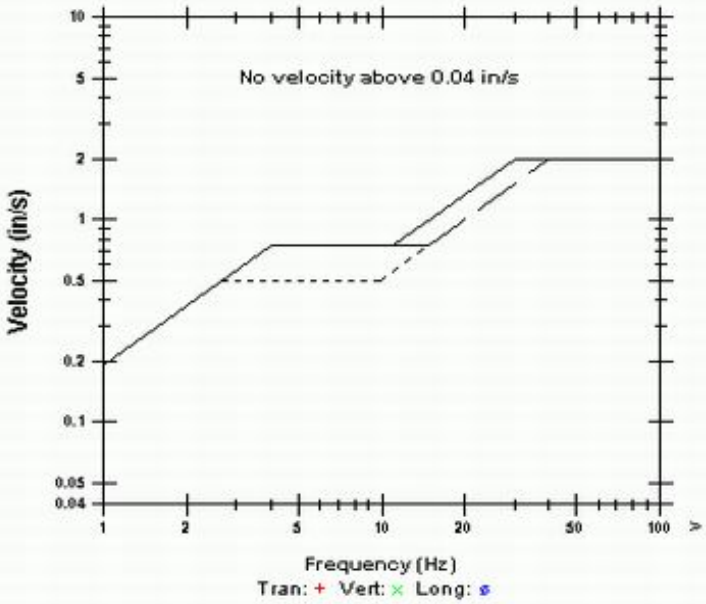
Post Event Notes

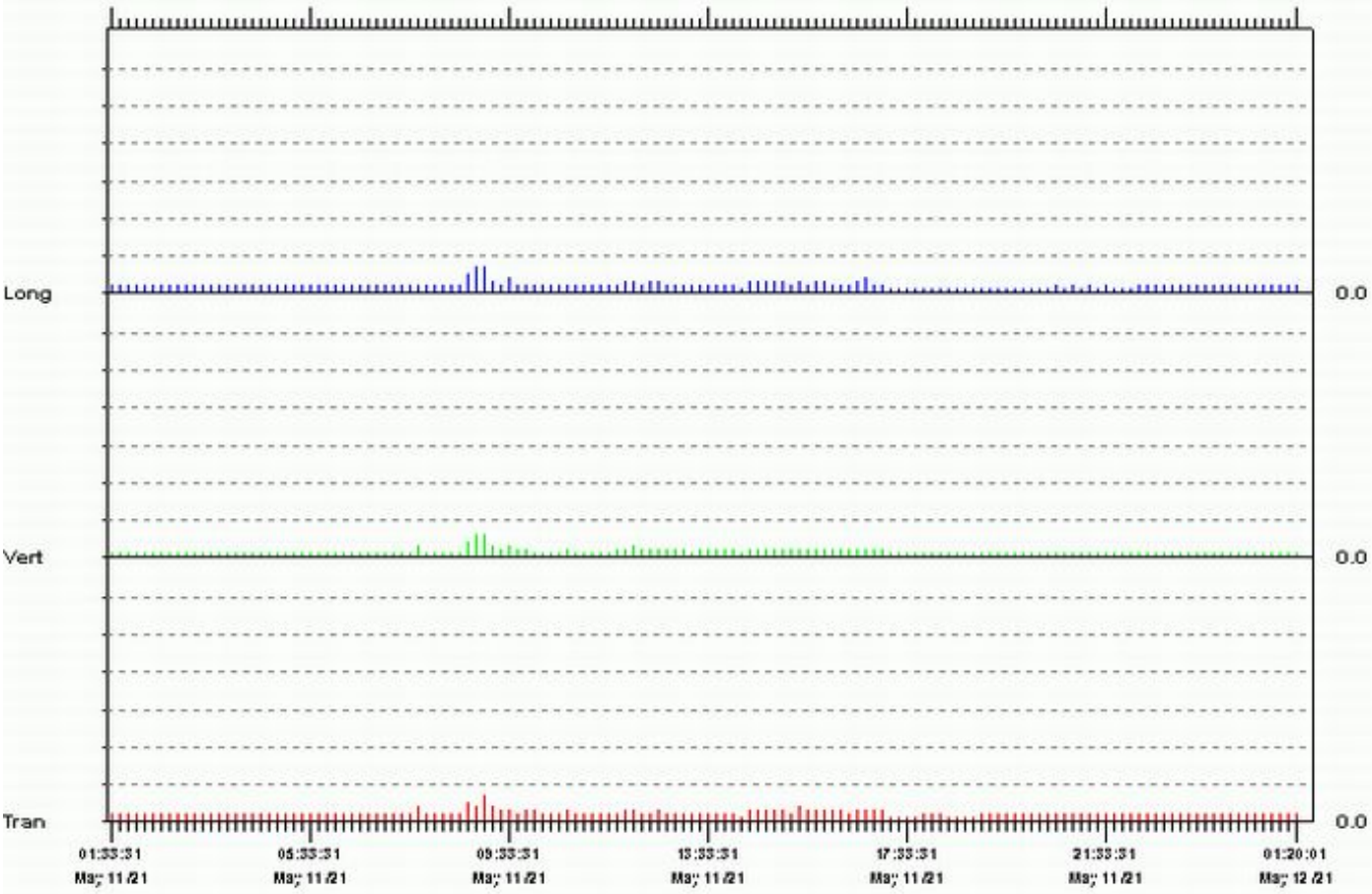
Extended Notes

	Tran	Vert	Long	
PPV	0.0350	0.0300	0.0350	in/s
ZC Freq	32	28	26	Hz
Date	May 11 /21	May 11 /21	May 11 /21	
Time	08:54:01	08:52:46	08:52:46	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0433 in/s on May 11, 2021 At 08:56:01

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 12, 2021 (V - 10.40)

Start	01:22:44 May 12, 2021
Finish	01:20:01 May 13, 2021
Intervals	5750.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

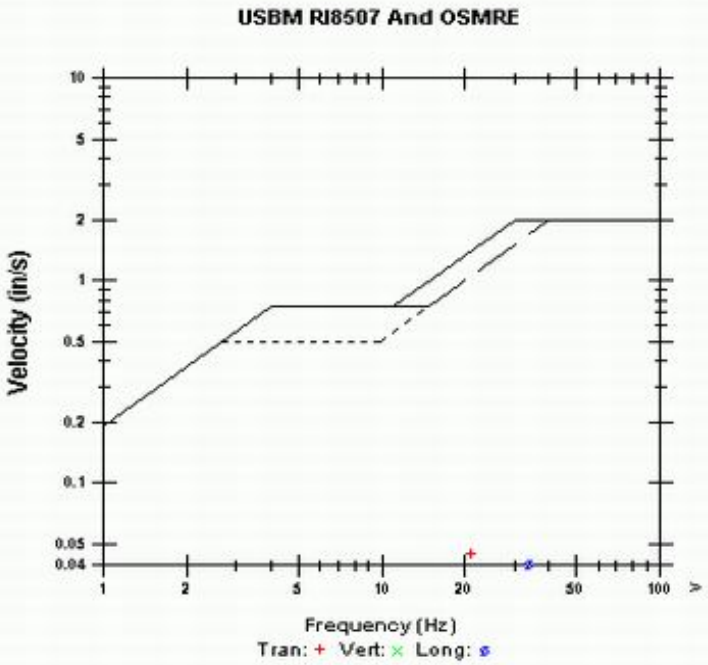
Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IZ4P.5WOH

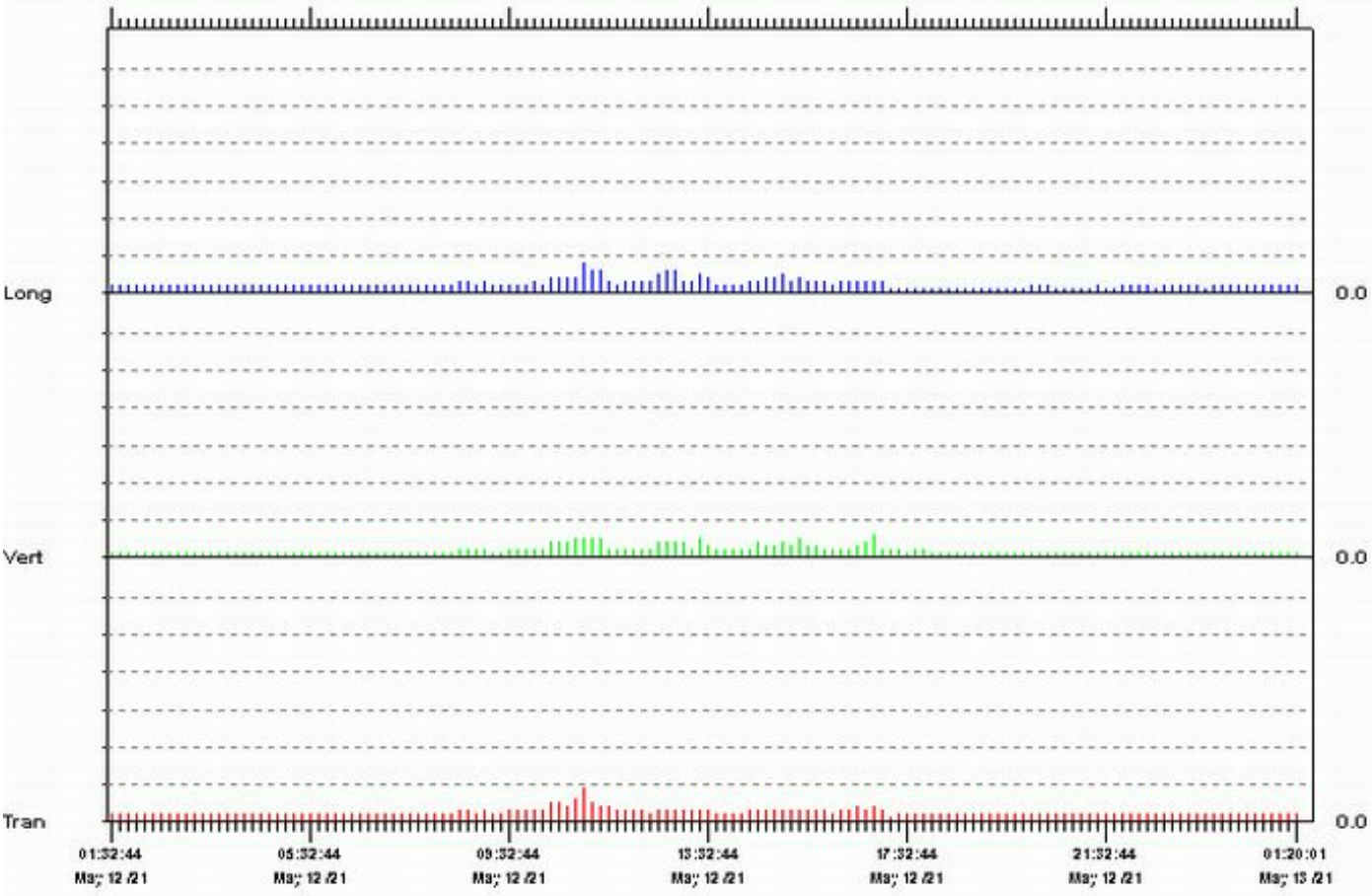
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0450	0.0300	0.0400	in/s
ZC Freq	21	37	34	Hz
Date	May 12 /21	May 12 /21	May 12 /21	
Time	10:59:59	16:43:59	11:00:59	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0492 in/s on May 12, 2021 At 10:59:59





Created: May 13, 2021 (V - 10.40)

Start	01:22:44 May 13, 2021
Finish	15:17:54 May 13, 2021
Intervals	3341.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

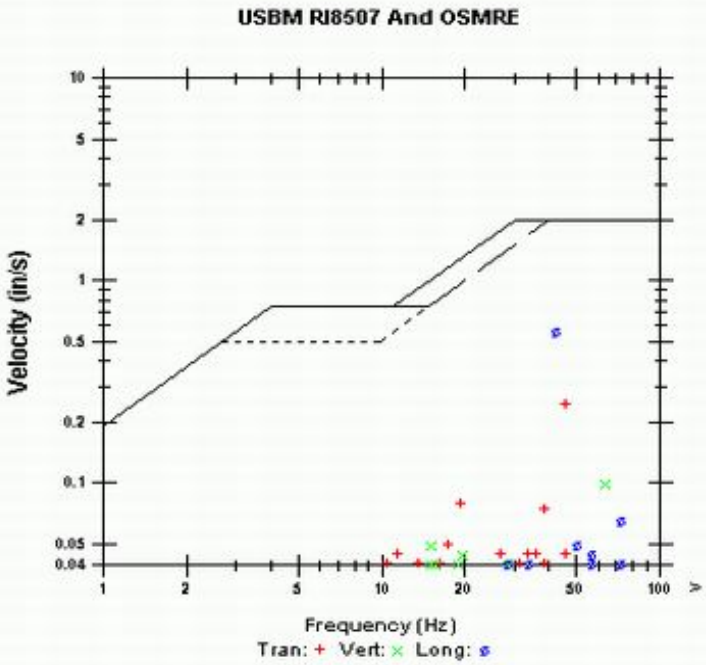
Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.6 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IZ6J.TWOH

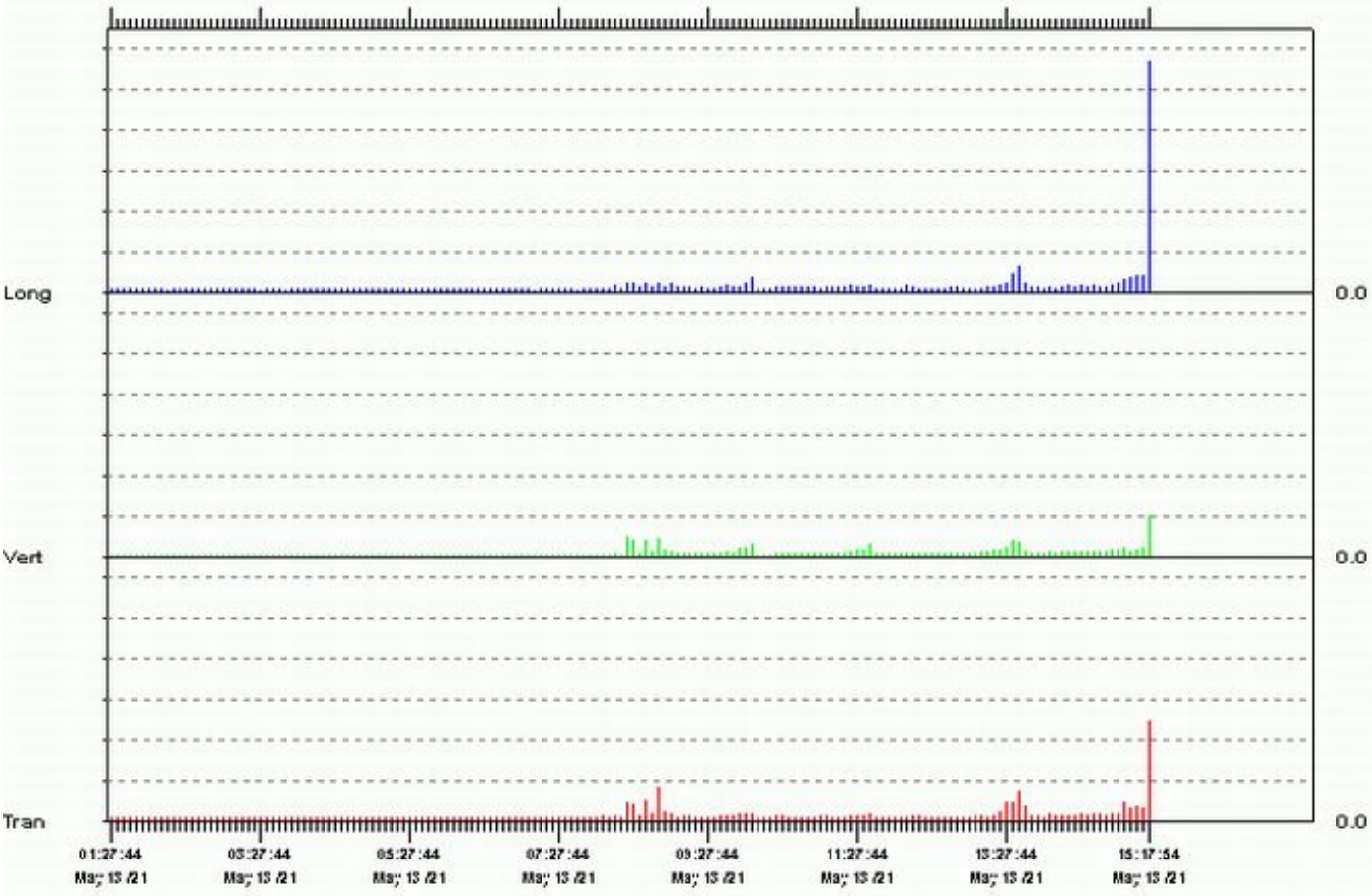
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.245	0.1000	0.570	in/s
ZC Freq	47	64	43	Hz
Date	May 13 /21	May 13 /21	May 13 /21	
Time	15:17:54	15:17:54	15:17:54	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.591 in/s on May 13, 2021 At 15:17:54





Created: May 13, 2021 (V - 10.40)

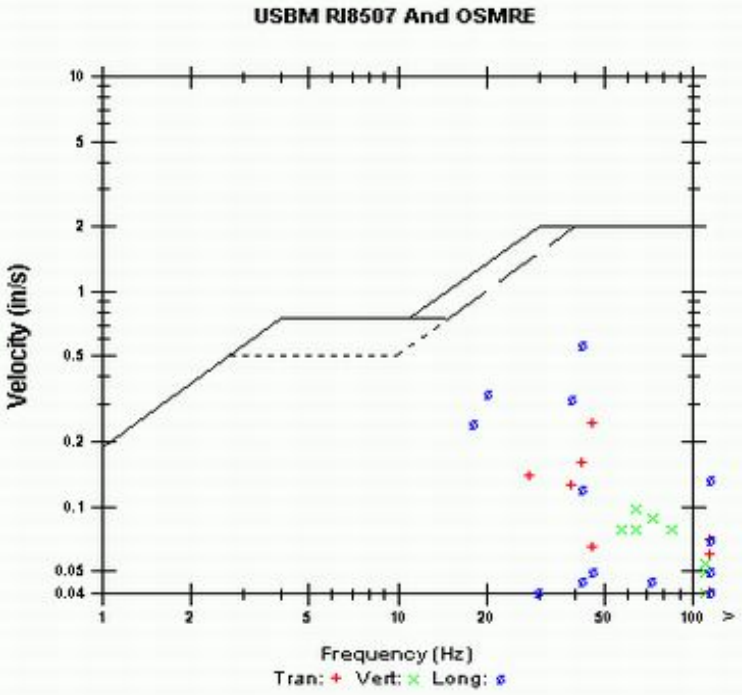
Date/Time	Long At 15:17:50 May 13, 2021
Trigger Source	Geo: 0.500 in/s
Range	Geo: 10.00 in/s
Sample Rate	4.0 sec. At 1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit LocationI:	Everett- M2

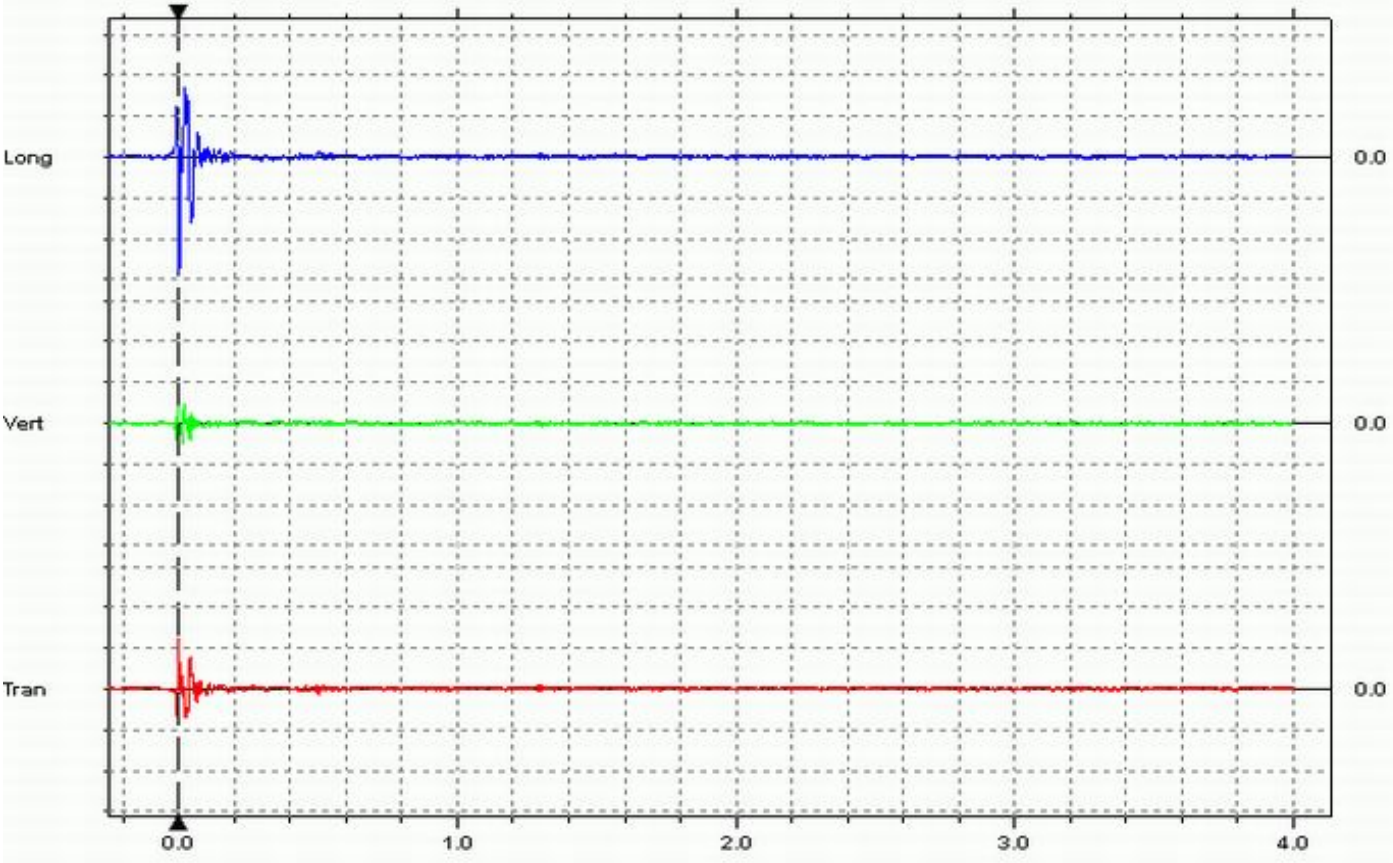
Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.7 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IZ7M.HQ0W
Post Event Notes	

Extended Notes
Combo Mode May 13, 2021 01:22:43

	Tran	Vert	Long	
PPV	0.245	0.1000	0.570	in/s
ZC Freq	47	64	43	Hz
Time (Rel. to Trig)	-0.001	0.012	0.002	sec
Peak Acceleration	0.225	0.119	0.371	g
Peak Displacement	0.00083	0.00023	0.00252	in
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.591 in/s At 0.002 sec.





Created: May 13, 2021 (V - 10.40)

Start	15:20:26 May 13, 2021
Finish	01:20:01 May 14, 2021
Intervals	2399.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

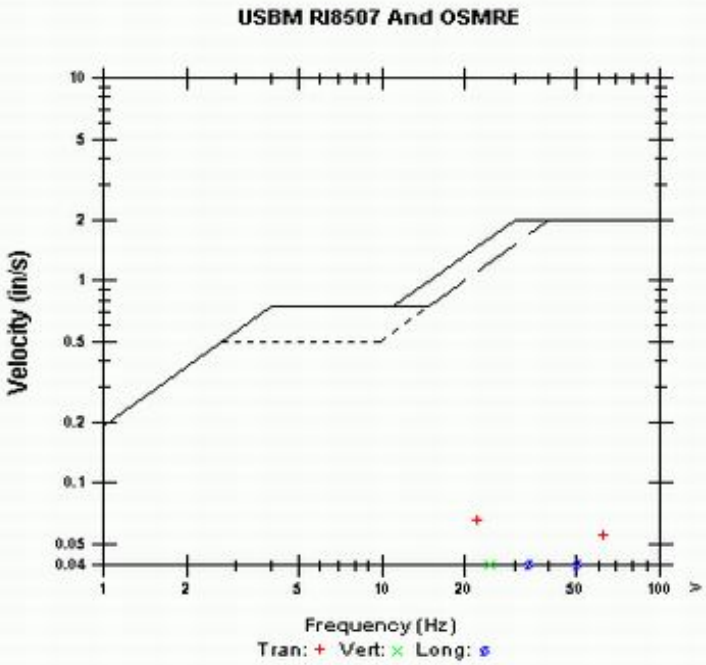
Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IZ7M.M20H

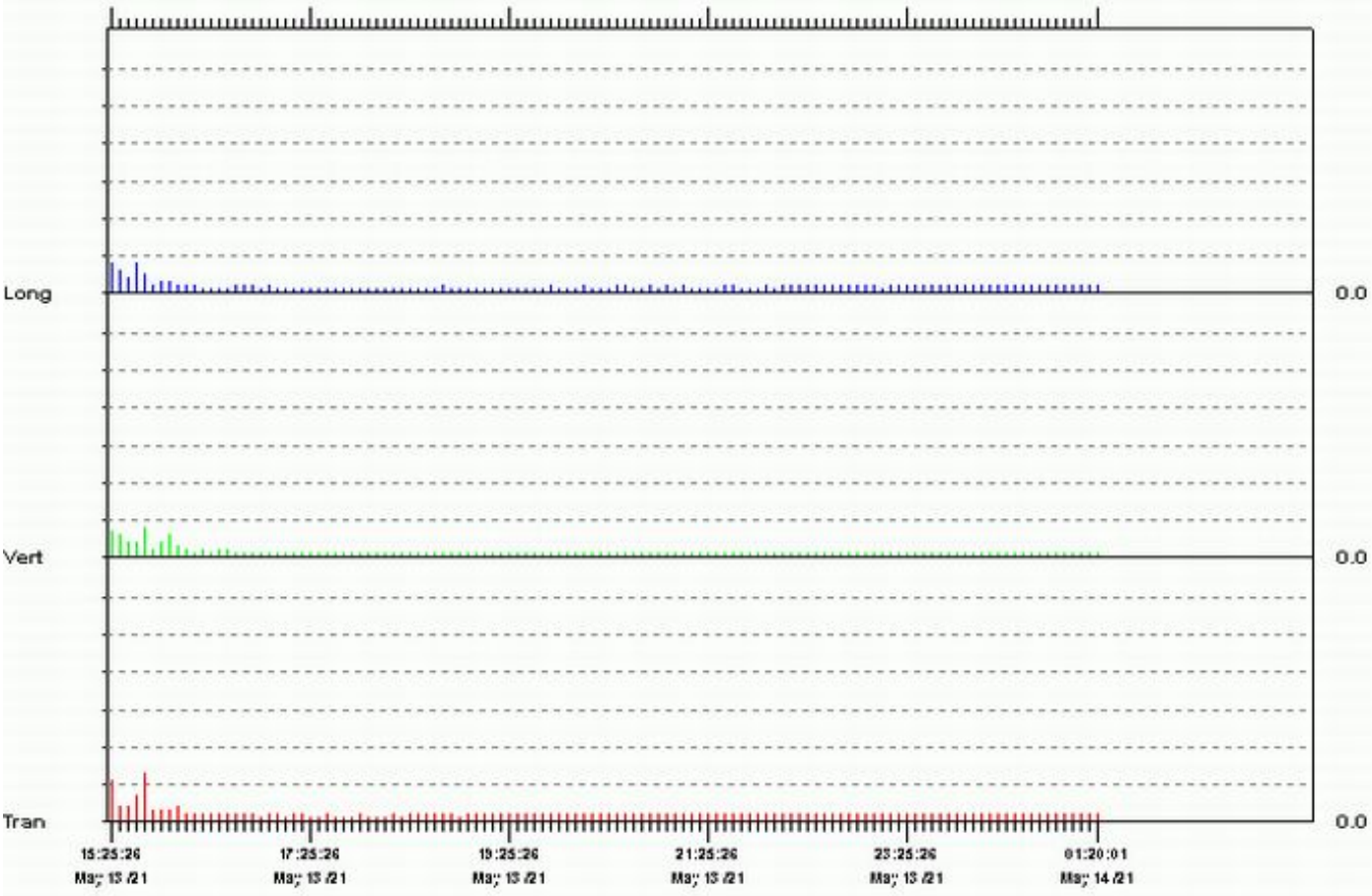
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0650	0.0400	0.0400	in/s
ZC Freq	22	24	51	Hz
Date	May 13 /21	May 13 /21	May 13 /21	
Time	15:41:11	15:41:11	15:21:26	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0712 in/s on May 13, 2021 At 15:41:11





Created: May 14, 2021 (V - 10.40)

Start	01:22:09 May 14, 2021
Finish	01:20:01 May 15, 2021
Intervals	5752.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

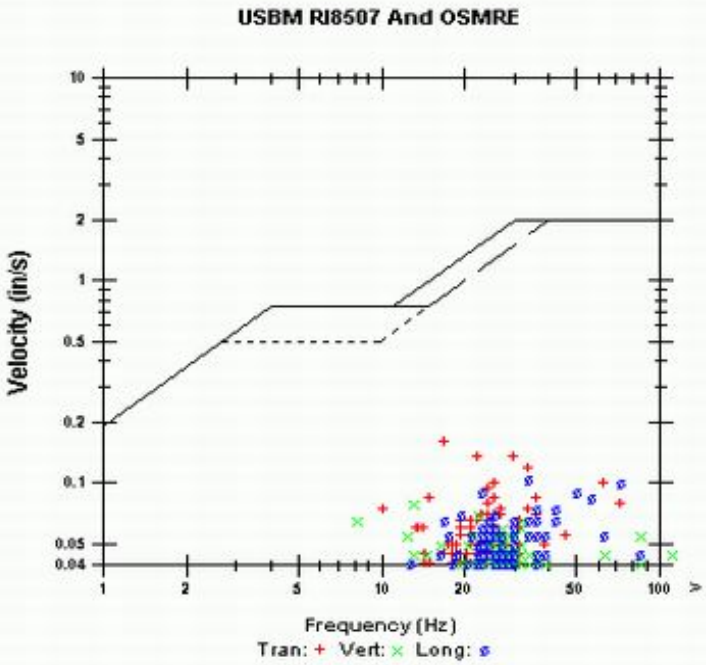
Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IZ8E.GX0H

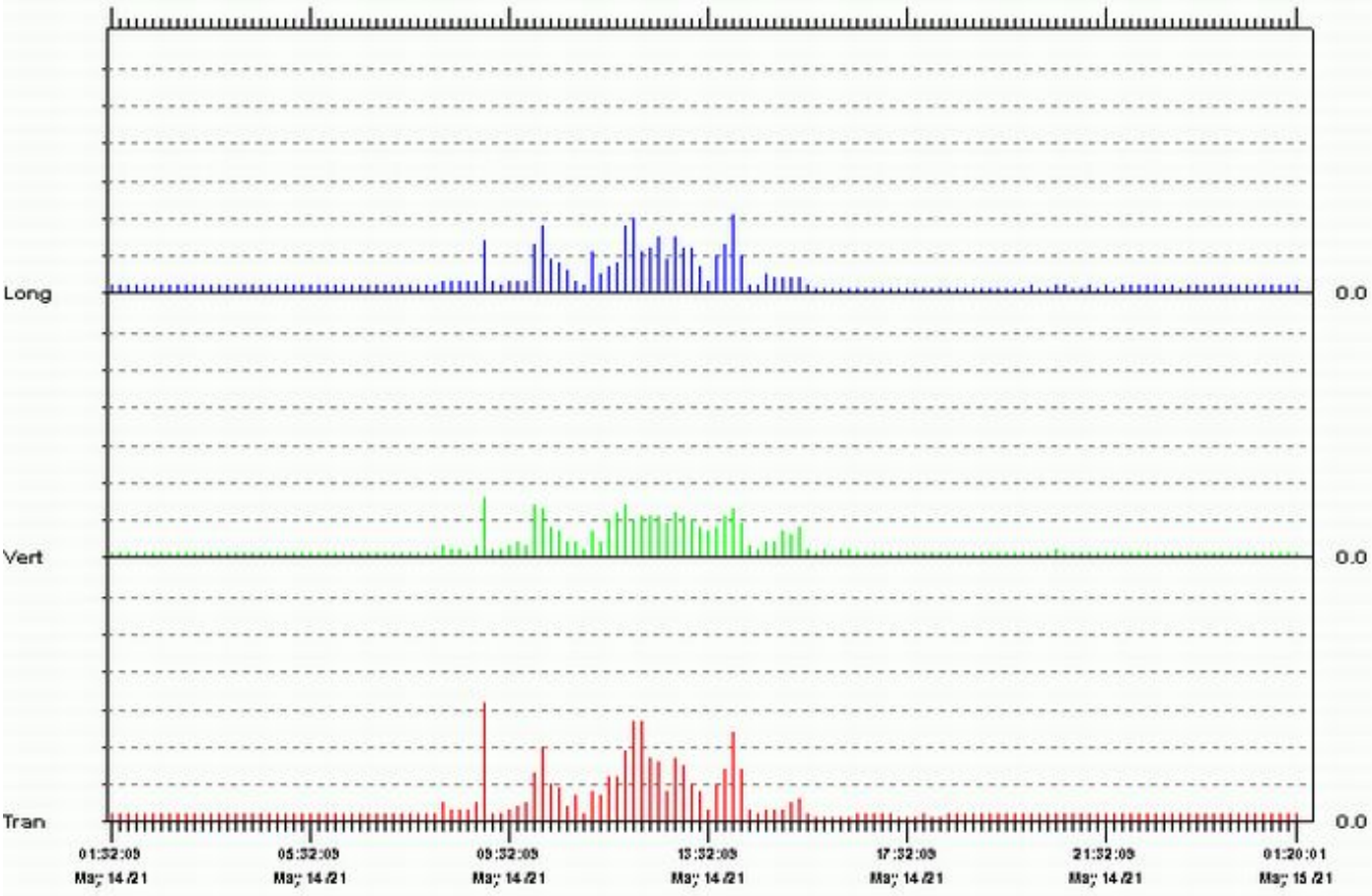
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.160	0.0800	0.105	in/s
ZC Freq	17	13	34	Hz
Date	May 14 /21	May 14 /21	May 14 /21	
Time	08:56:54	08:56:54	14:00:39	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.172 in/s on May 14, 2021 At 14:00:39





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 15, 2021 (V - 10.40)

Start	01:22:47 May 15, 2021
Finish	01:20:01 May 16, 2021
Intervals	5749.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

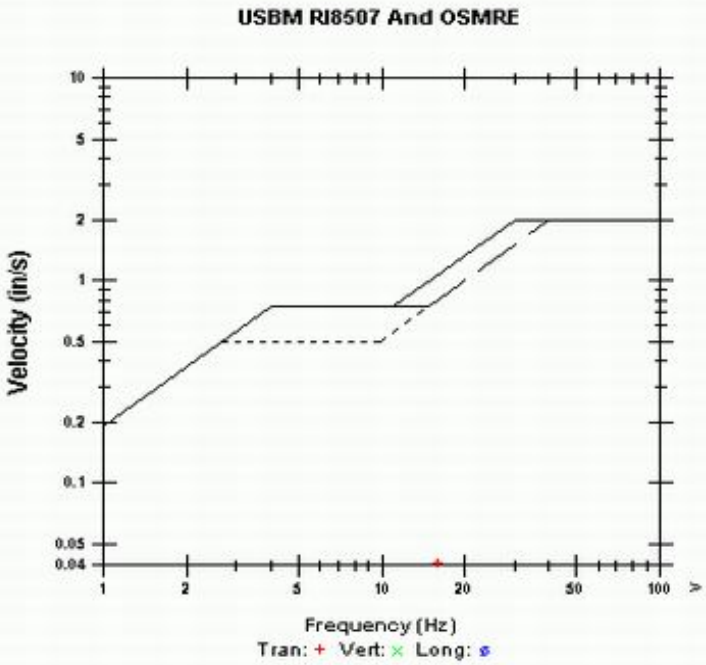
Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IZA9.5Z0H

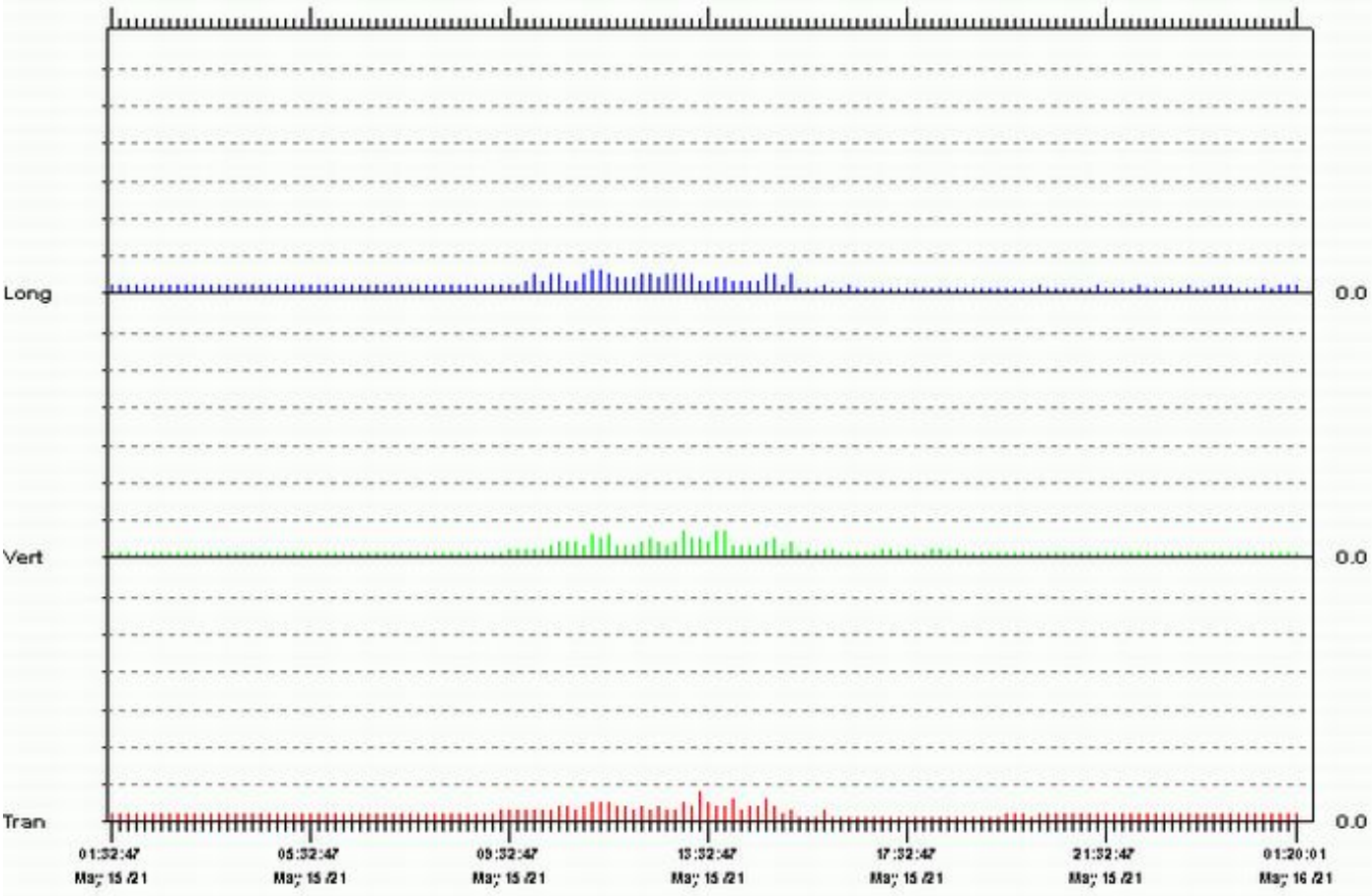
Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	0.0400	0.0350	0.0300	in/s
ZC Freq	16	39	43	Hz
Date	May 15 /21	May 15 /21	May 15 /21	
Time	13:18:02	12:59:47	11:08:02	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0430 in/s on May 15, 2021 At 13:18:02





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 16, 2021 (V - 10.40)

Start	01:23:48 May 16, 2021
Finish	01:20:01 May 17, 2021
Intervals	5745.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.9 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IZC3.V00H

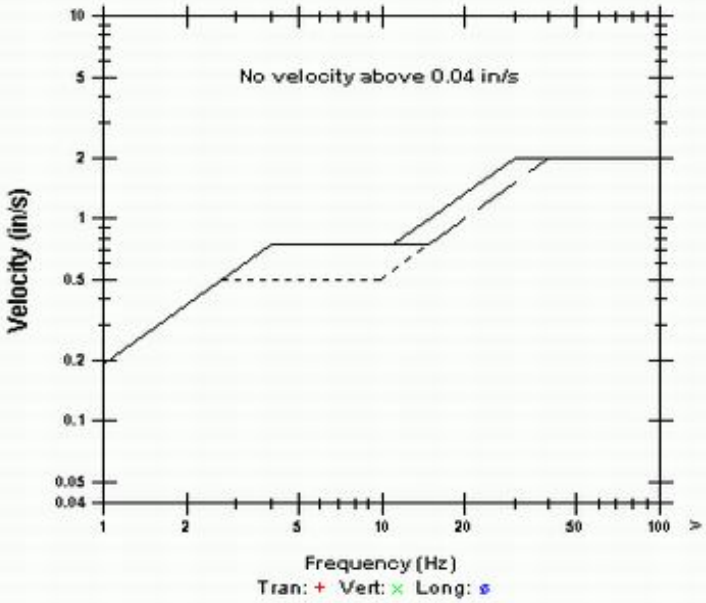
Post Event Notes

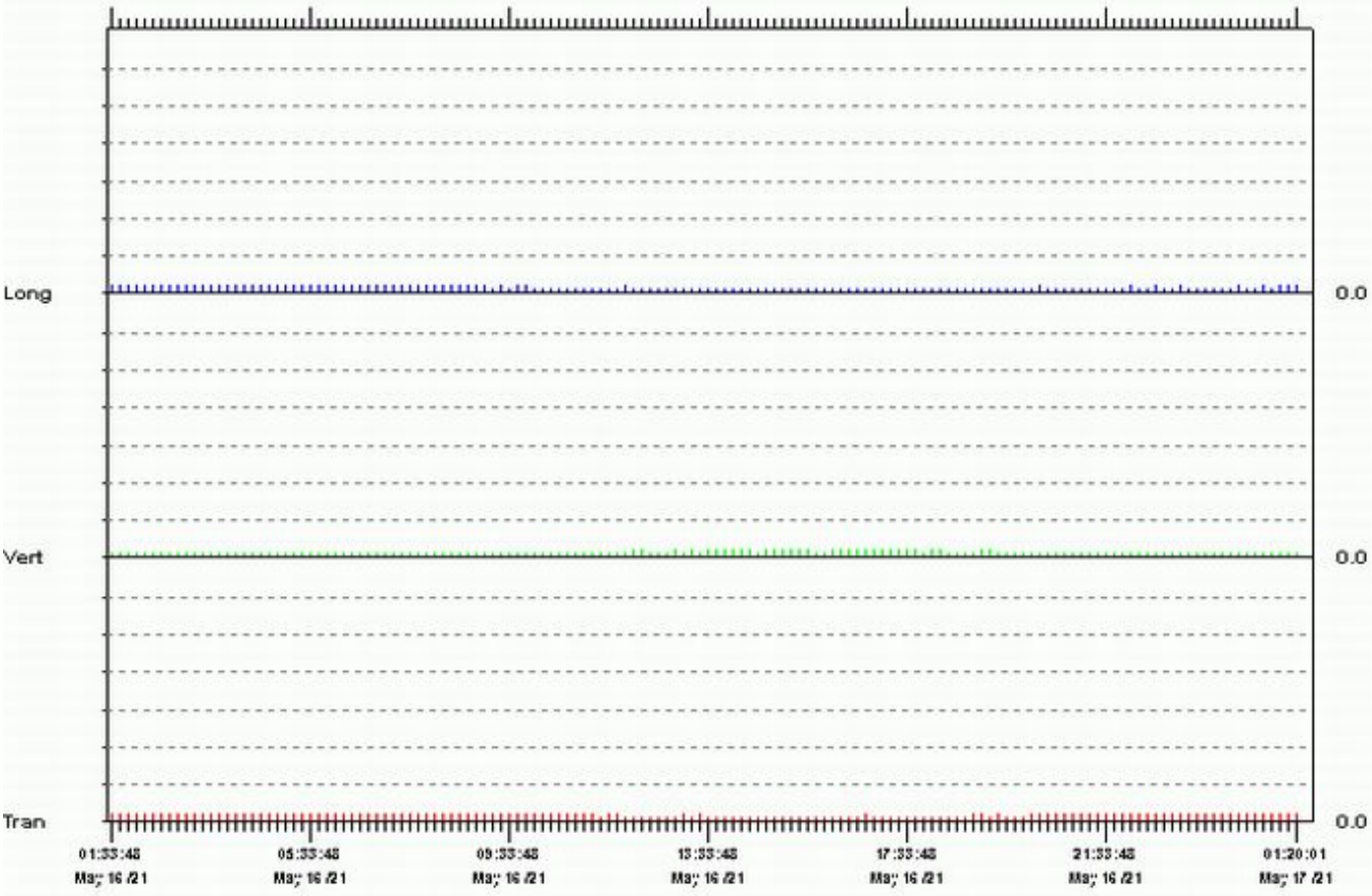
Extended Notes

	Tran	Vert	Long	
PPV	0.01000	0.01000	0.01000	in/s
ZC Freq	>100	>100	>100	Hz
Date	May 16 /21	May 16 /21	May 16 /21	
Time	01:24:03	12:00:03	01:32:33	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0122 in/s on May 16, 2021 At 01:24:03

USBM RI8507 And OSMRE





Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 17, 2021 (V - 10.40)

Start	01:22:45 May 17, 2021
Finish	14:17:48 May 17, 2021
Intervals	3100.00 At 15 seconds
Range	Geo 10.00 in/s
Sample Rate	1024 Sps
Notes	
Location:	Everett, WA
Client:	PACE Engineering
Monitored By:	SubTerra, Inc. 425-888-5425
Unit Location:	Everett- M2

Serial Number	BE11441 V 10.72-8.17 MiniMate Plus
Battery Level	6.8 Volts
Unit Calibration	January 27, 2021 by Instantel
File Name	M441IZDY.HX0H

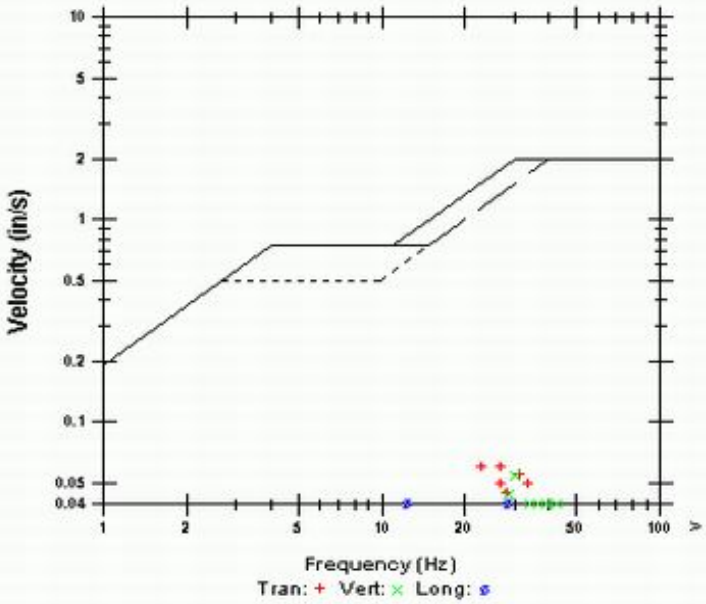
Post Event Notes

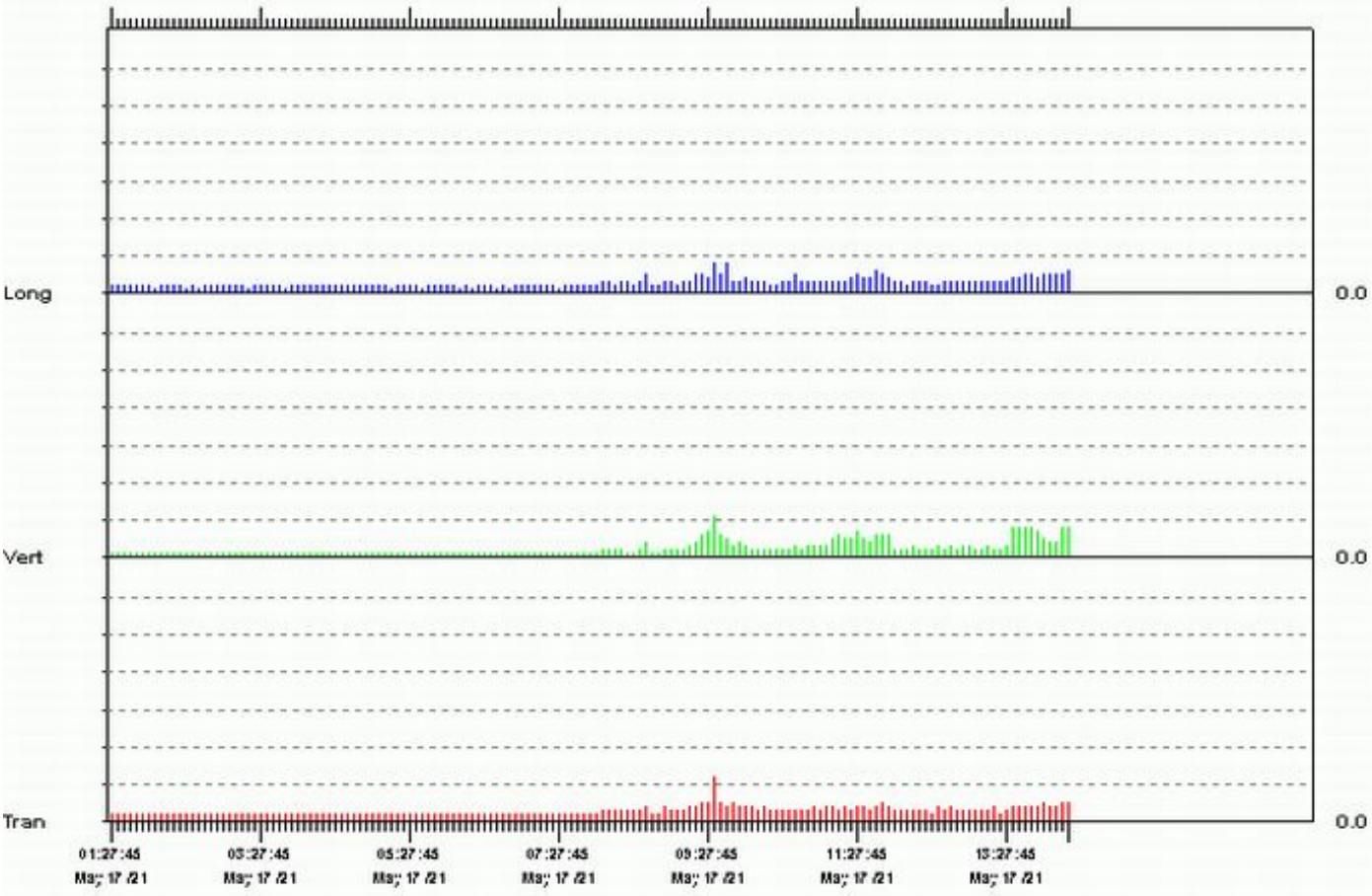
Extended Notes

	Tran	Vert	Long	
PPV	0.0600	0.0550	0.0400	in/s
ZC Freq	27	30	28	Hz
Date	May 17 /21	May 17 /21	May 17 /21	
Time	09:29:45	09:30:30	09:30:15	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum 0.0682 in/s on May 17, 2021 At 09:30:30

USBM RI8507 And OSMRE





Time(Seconds) 5 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 17, 2021 (V - 10.40)