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Test Report for:

EZ CONNECTOR, INC.
Attn: Mr. Dean LaFleur

**VIBRATION/MECHANICAL SHOCK, DROP,
SUBMERSION, AND SALT SPRAY TEST**
**Twenty Three (23) EZ Connector Universal 7-Pin
Heavy Duty Plugs**

Client PO No.: 39

Don Hartwick
Project Manager

Richard March
Project Manager

April 30, 2008
Report No.: DET3146557-001

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Attn: Mr. Dean LaFleur
EZ Connector, Inc.
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Phone: (559)686-5889
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DATE RECEIVED: 03/28/2007

DATES TESTED: 03/31/2007 through 04/22/2007

WORK REQUESTED / APPLICABLE DOCUMENTS:

Per the client's request in accordance with our quotation number 500071217, dated 02/24/2008; perform Vibration/Mechanical Shock, Drop Test, and Submersion Test per SAE J2223-2 and Salt Spray Test per ASTM B117.

DESCRIPTION OF TEST SAMPLES:

Twenty-three (23) Universal 7-Pin Heavy Duty Plugs:

Ten (10) Vibration/Mechanical Shock Samples – 115, 200, 215, 313, 414, 515, 616, 717, 818, 919

Ten (10) Submersion and Salt Spray Test Samples – 61, 62, 63, 64, 65, 66, 67, 68, 69, 70

Three (3) Drop Test Samples – D1, D2, D3

Condition of Test Samples: PV

VIBRATION/MECHANICAL SHOCK PER SAE J2223-2

Date Received: 03/28/2008

Date(s) Tested: 03/31/2008 through 04/07/2008

Description of Samples:

Ten (10) Universal 7-Pin Heavy Duty Plugs Samples, 115, 200, 215, 313, 414, 515, 616, 717, 818, and 919.

Equipment List:

Asset	Description	Manufacturer	Model	Serial
162316	MILLIOHMETER	AGILENT	4338B	MY41100846
160042	CURRENT SHUNT, RH/TEMP	SIMPSON	6713	none
160647	MULTISCOPE	EXTECH	381270	3244
160434	MULTIMETER	JOHN FLUKE MFG. CO.	77 SERIER II	68811849
161002	VIBRATION SHAKER	UNHOLTZ-DICKIE	T1000W	170
161086	ACCELEROMETER, 5 - 10,000 Hz	PCB	352C65	44540
161132	VIBRATION CONTROLLER	VIBRATION RESEARCH	8500	0a0382

Test Procedure:

Ten sample connectors were terminal prepared as called out in section 5.1.6 of the SAE and connector cycling was performed per 5.1.7. Conformance was then verified on each sample connector to the acceptance criteria subjecting the samples to the Dry Circuit Resistance test, section 5.3.1.4 of the SAE. The ten sample connectors were mounted onto a vibration fixture in their design intent and per section 5.1.9 of the SAE and subjected to 10 half-sine shock pulses in each direction (negative / positive) for duration of 10 milliseconds at 35 G force amplitude in each of the three mutually perpendicular axes. Following the shock impulses the samples were subjected to a random vibration for 8 hours in the X, Y, and Z axes. Vibration profile ranged in frequency from 5 – 1000Hz at Grms equaling 1.8 as outlined in Fig. 15 of the SAE. At the completion of the shock and vibration the sample connectors were aged for a period of 48 hours at ambient conditions. Conformance was then verified on each sample connector to the acceptance criteria subjecting the samples to the Dry Circuit Resistance test and Voltage Drop test, section 5.3.2 of the SAE.

Frequency (hz)	Power Spectral Density (g ² /hz)
5.0	0.00200
12.5	0.24800
77.5	0.00320
145.0	0.00200
200.0	0.01180
230.0	0.00032
1000.0	0.00002

Gms = 1.81

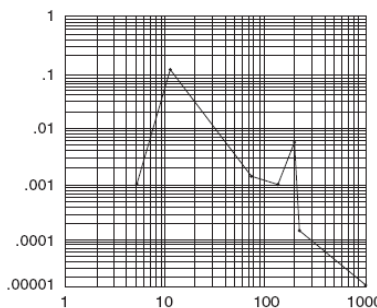


FIGURE 15—FOR COMPONENTS NOT COUPLED TO ENGINE

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VIBRATION/MECHANICAL SHOCK PER SAE J2223-2 - continued

Acceptance Criteria:

At the conclusion of the test, each connector assembly conforms to the Acceptance Criteria of section 5.1.9.4 (Continuity Monitoring as outlined in Fig. 4) and to the following tests:

1. Terminals must meet the Acceptance Criteria of the Dry Circuit Resistance test of section 5.3.1.4; the resistance between T1 and T2 on Fig. 7 must not exceed 20 m Ω .
2. Terminals must meet the Acceptance Criteria of the Voltage Drop test of section 5.3.2; the resistance between T1 and T2 on Fig. 7 must not exceed 20 m Ω .
3. Terminals and connector assembly must not show, under 10X magnification, any evidence of deterioration, cracks, deformities, etc. that could effect its functionality or severely degrade its appearance.

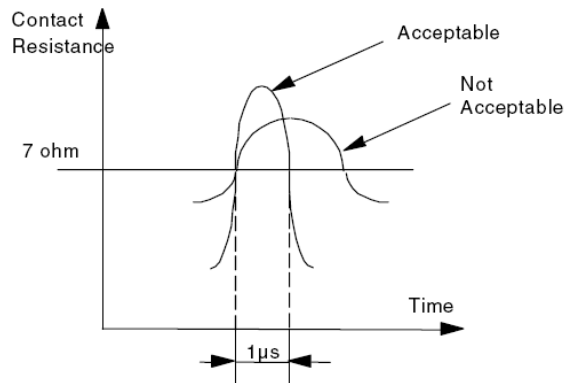


FIGURE 4—INTERMITTENCY MEASUREMENT

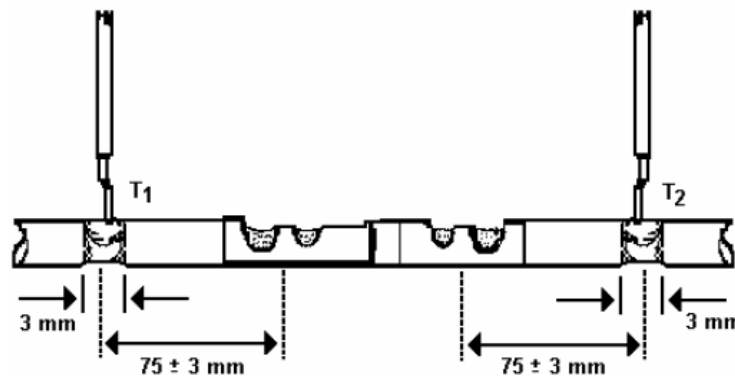


FIGURE 7—CONNECTION RESISTANCE MILLIVOLT LEAD LOCATIONS

VIBRATION/MECHANICAL SHOCK PER SAE J2223-2 - continued

Results:

Serial number 414 did not meet the requirements of Section 5.1.9.4 Continuity Monitoring during shock testing in the fore/aft and vertical directions and the fore-aft direction during vibration

Serial number 717 did not meet the requirements of Section 5.1.9.4 Continuity Monitoring during shock testing in the fore/aft direction.

The remaining test samples meet the requirements of Section 5.1.9.4 Continuity Monitoring.

All of the test samples met the Dry Circuit Resistance requirements of section 5.3.1.4; t and the Voltage Drop requirements of section 5.3.2.

Note:

The vibration/shock test samples are required to be subjected to circuit continuity monitoring during vibration / mechanical shock as called out in Section 5.1.9 of SAE J2223-2, Section 5.1.9. Terminology used for this monitoring can be construed with the use of "continuity" which could lead to solely interpret this as an electrical open circuit. The Continuity Tester (CT) used in the testing will detect this electrical state, the CT detection is provided through simple continuity loops where resistive changes exceeding a selected threshold are recorded as an event. Event detection can be caused by loss of continuity in the circuit under test, but to include such causes as stress-induced cracking, micro-motion, thermal effects and other effects generally studied through stress testing are not be excluded.

Appendix:

- Appendix A – Vibration/Mechanical Shock Photographs
- Appendix B – Shock Plots
- Appendix C – Vibration Plots
- Appendix D – Dry Circuit Resistance Measurements
- Appendix E – Voltage Drop Measurement

Disposition of Test Samples:

At the completion of testing the test samples were returned to the client for evaluation via UPS, delivery date 04/25/2008.

DROP TEST PER SAE J2223-2

Date Received: 03/28/2008

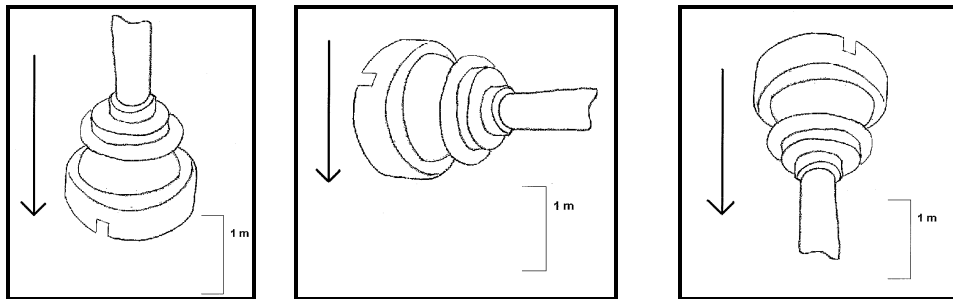
Date(s) Tested: 03/31/2008

Description of Samples:

Three (3) Universal 7-Pin Heavy Duty Plugs Samples, D1, D2, and D3.

Test Procedure:

Male test samples were assembled according to SAE J2223-2; all parts to be used in the intended application (CPA, TPA, PLR, etc.) were assembled. Leads and terminals were not inserted. The test sample was dropped onto a horizontal concrete surface from a height of one (1) meter, orienting the sample in one of the three drop orientations as specified by client each time. The test was conducted for the three drop orientations for a total three drops. The test was repeated on three samples and the results were recorded.



Acceptance Criteria:

At the conclusion of the test, the samples shall meet the Acceptance Criteria of section 5.1.8, Visual Inspection. Connector assemblies must not show, under 10X magnification, any deterioration, cracks, deformities, etc. that could affect their functionality or distort their appearance. Connector locking mechanisms must function without breakage, seals must remain serviceable, and the connector must be capable of being reassembled without rolling or tearing of seal.

Results:

Test samples conform to acceptance criteria. Test samples did sustain damage, but the damage that occurred did not affect the functionality of the sample or the ability of the mating ends to connect in their design intent

Appendix:

Appendix A – Drop Test Photographs

Disposition of Test Samples:

At the completion of testing the test samples were returned to the client for evaluation via UPS, delivery date 04/25/2008.

SUBMERSION TEST PER SAE J2223-2

Date Received: 03/28/2008

Date(s) Tested: 04/04/2008 through 04/16/2008

Description of Samples:

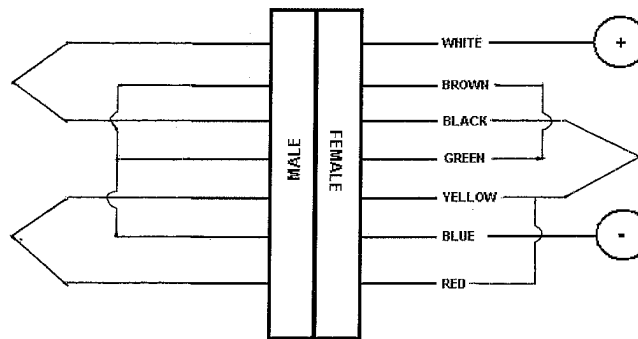
Ten (10) Universal 7-Pin Heavy Duty Plugs Samples, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70.

Equipment List:

Asset	Description	Manufacturer	Model	Serial
161163	CONTROLLER	WATLOW	F4	009306
161163P	ENVIRONMENTAL CHAMBER	THERMOTRON	M64-CHM-705-810CS	21-8551
162364	HiPOT TESTER	QUADTECH	SENTRY 30 PLUS	6210391

Test Procedure:

Prior to testing, a salt water solution consisting of tap water, table salt, liquid dish soap, and ultraviolet dye was prepared with a depth of 30cm to 40cm. Ten sample connectors were terminal prepared as called out in section 5.1.6 of the SAE and connector cycling was performed per 5.1.7. Conformance was then verified on each sample connector to the acceptance criteria subjecting the samples to the Isolation Resistance test, section 5.5.1.4 of the SAE and assembled in accordance with the following diagram. Samples were then placed into an environmental test chamber and soaked for two (2) hours at 85°C. Within 30 seconds, the samples were submerged in solution for 30 minutes. Following submersion, conformance was then verified on each sample to the acceptance criteria subjecting the samples to the Isolation Resistance test. The test was repeated four times and conformance of each sample to the Acceptance Criteria of section 5.6.5.4 was verified.



Isolation Resistance Connection

Acceptance Criteria:

At the conclusion of the test, there should be no trace of fluid ingress in any connector and samples shall meet the Acceptance Criteria of the Isolation Resistance test of section 5.5.1.4, the resistance between adjacent terminals must exceed 20MΩ at 500VDC.

SUBMERSION TEST PER SAE J2223-2 - continued

Results:

Test samples conform to acceptance criteria; the resistance between adjacent terminals exceeded 20MΩ and there was no trace of fluid ingress in any connector.

Isolation Resistance: Pre-Test	
Sample	Resistance
70	59.43 GΩ
69	>59.99 GΩ
68	54.22 GΩ
67	>59.99 GΩ
66	>59.99 GΩ
65	58.31 GΩ
64	52.38 GΩ
63	54 GΩ
62	53.07 GΩ
61	53.29 GΩ

Isolation Resistance: Run 1	
Sample	Resistance
70	18.51 GΩ
69	17.97 GΩ
68	20.74 GΩ
67	19.68 GΩ
66	20.88 GΩ
65	1.113 GΩ
64	6.719 GΩ
63	18.40 GΩ
62	20.88 GΩ
61	641.8 MΩ

Isolation Resistance: Run 2	
Sample	Resistance
70	18.62 GΩ
69	17.07 GΩ
68	20.07 GΩ
67	22.08 GΩ
66	21.38 GΩ
65	21.08 GΩ
64	21.02 GΩ
63	22.23 GΩ
62	20.25 GΩ
61	18.73 GΩ

Isolation Resistance: Run 3	
Sample	Resistance
70	18.84 GΩ
69	17.79 GΩ
68	17.76 GΩ
67	18.51 GΩ
66	17.86 GΩ
65	18.84 GΩ
64	16.98 GΩ
63	17.07 GΩ
62	17.46 GΩ
61	17.46 GΩ

Isolation Resistance: Run 4	
Sample	Resistance
70	30.60 GΩ
69	27.35 GΩ
68	29.43 GΩ
67	29.72 GΩ
66	26.64 GΩ
65	30.30 GΩ
64	27.11 GΩ
63	23.59 GΩ
62	28.88 GΩ
61	26.64 GΩ

Disposition of Test Samples:

At the completion of testing the test samples were returned to the client for evaluation via UPS, delivery date 04/25/2008.

SALT SPRAY TEST PER ASTM B117

Date Received: 03/28/2007
 Date(s) Tested: 04/17/2007 through 04/22/2008

Description of Samples:

Ten (10) Universal 7-Pin Heavy Duty Plugs Samples, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70.

Equipment List:

Asset	Description	Manufacturer	Model	Serial
161179	SALT SPRAY CABINET	ATLAS	130 CU FT/3680 LITRE	19341
161179.1	RTD FOR SALT SPRAY	ATLAS	none	none
161179.3	PRESSURE GAGE FOR SALT SPRAY	LENZ	AFC-30-25	N/A
160739	pH/TEMP/mV/ISE METER WITH PROBE, 0 - 14pH, 0 - 100 deg C, +/- 1600 mV, 0 - 19,900 CONCENTRATION	VWR SCIENTIFIC PRODU	9200	1025
160994c	CULINOX 999	MORTON THIOKOL INC	CULINOX 999	none
161146c	BUFFER SOLUTION	THERMO ELECTRON CORP	PH 7.00 BUFFER SOLUT	none
162364	HiPOT TESTER	QUADTECH	SENTRY 30 PLUS	6210391
160777	HYDROMETER, 1.000 - 1.070 SG	ICL CALIBRATION LABO	CHASE-USA	912011

Test Procedure:

Following Submersion test, the samples were exposed to salt spray test conditions in accordance with ASTM B117 for 96 hours. Conformance was then verified on each sample to the acceptance criteria subjecting the samples to the Isolation Resistance test in section 5.5.1.4 of the SAE.

Acceptance Criteria:

At the conclusion of the test, samples shall meet the Acceptance Criteria of the Isolation Resistance test of section 5.5.1.4, the resistance between adjacent terminals must exceed 20MΩ at 500VDC.

Results:

Test samples conform to acceptance criteria; the resistance between adjacent terminals exceeded 20MΩ.

Isolation Resistance: Post Salt Spray	
Sample	Resistance
70	14.37 GΩ
69	14.65 GΩ
68	13.98 GΩ
67	13.18 GΩ
66	15.08 GΩ
65	14.73 GΩ
64	11.89 GΩ
63	13.44 GΩ
62	13.56 GΩ
61	9.48 GΩ

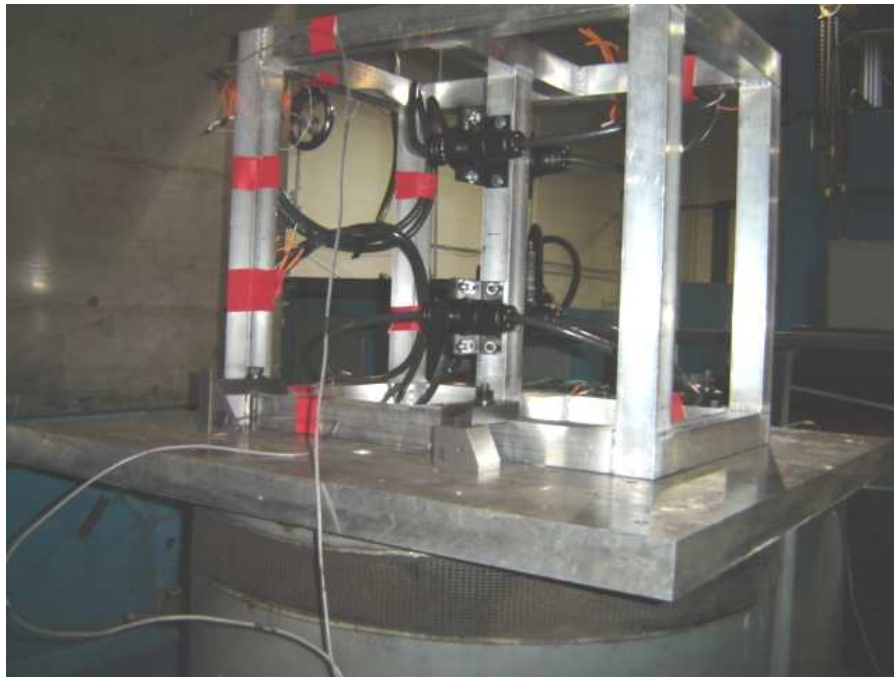
Disposition of Test Samples:

At the completion of testing the test samples were returned to the client for evaluation via UPS, delivery date 04/25/2008.

APPENDIX A – VIBRATION / MECHANICAL SHOCK PHOTOGRAPHS



Photograph 1: Fore-Aft Axis Test Set-up



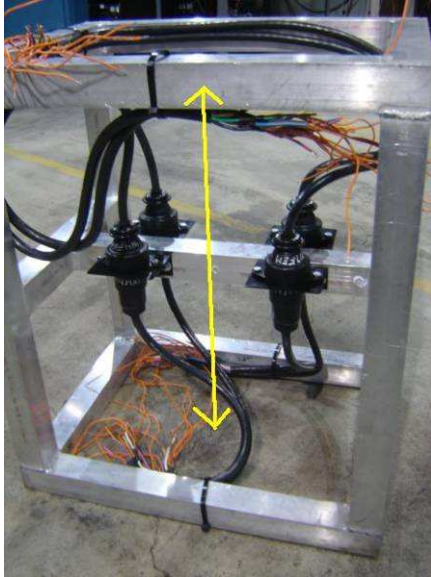
Photograph 2: Lateral Axis Test Set-up

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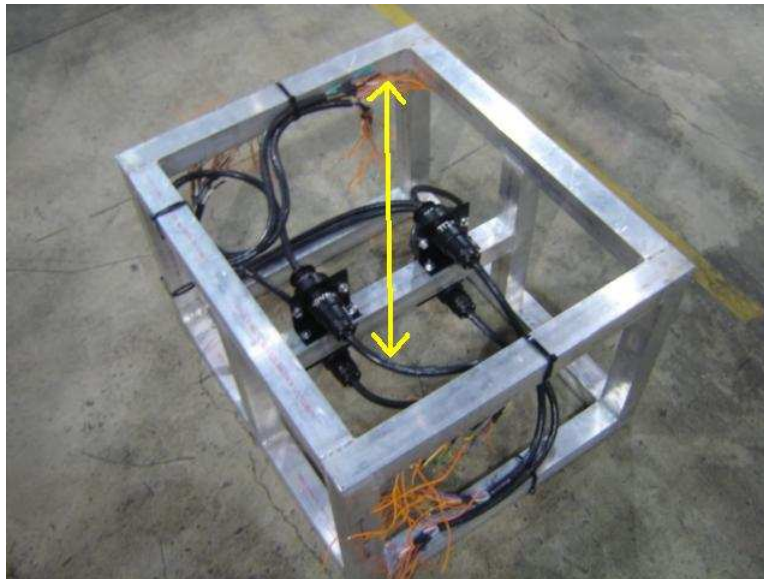
APPENDIX A - VIBRATION / MECHANICAL SHOCK PHOTOGRAPHS - continued



Photograph 3: X - Axis Test Set-up



Photograph 4: Y - Axis Test Set-up



Photograph 5: Z - Axis Test Set-up

APPENDIX A – DROP TEST PHOTOGRAPHS



Photograph 6: D1 Pre-test



Photograph 7: D1 Pre-test



Photograph 8: D1 Post-test



Photograph 9: D1 Post-test



Photograph 10: D2 Pre-test



Photograph 11: D2 Pre-test

APPENDIX A – DROP TEST PHOTOGRAPHS - continued



Photograph 12: D2 Post-test



Photograph 13: D2 Post-test



Photograph 14: D3 Pre-test



Photograph 15: D3 Pre-test

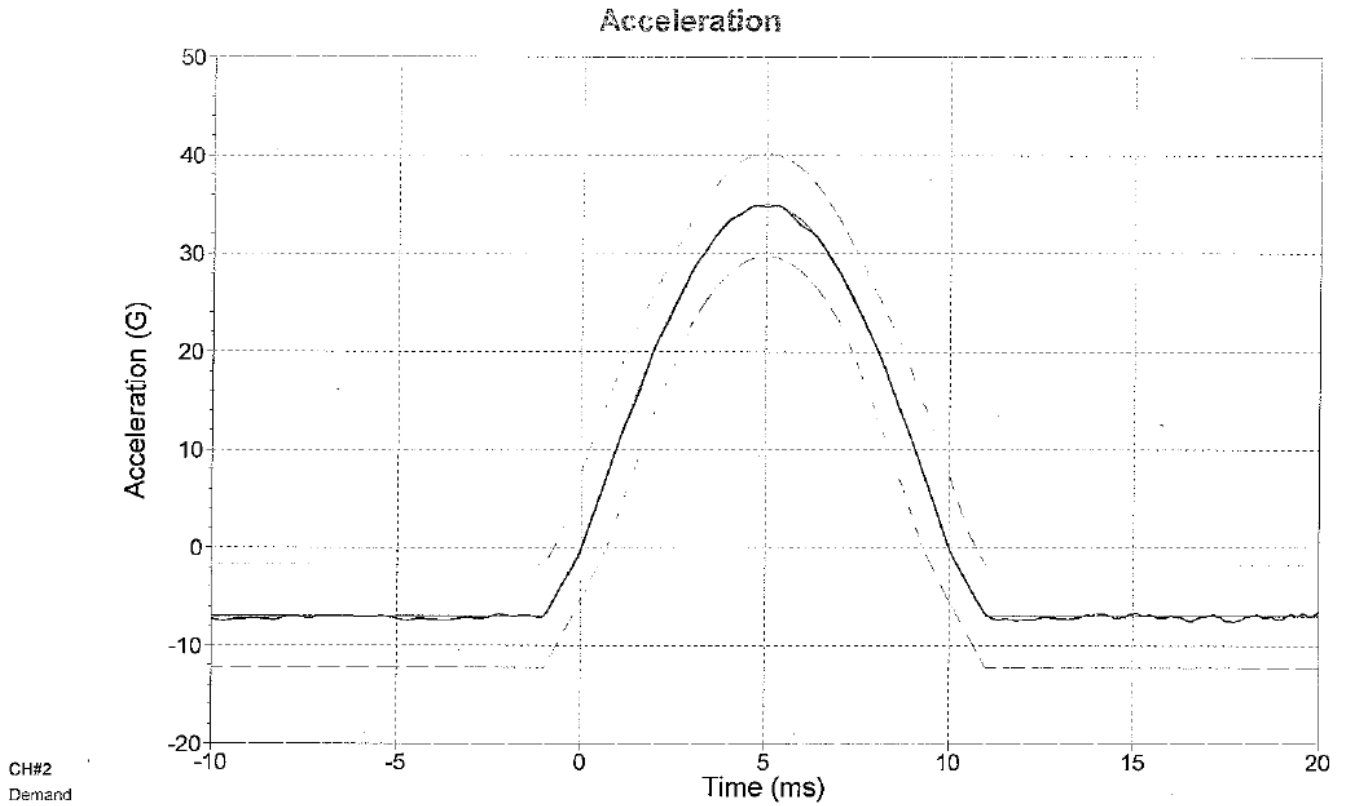


Photograph 16: D3 Post-test



Photograph 17: D3 Post-test

APPENDIX B – SHOCK PLOT



Mar 28, 2008 17:30:12	Level 1) 100 %	Output: 6.33 Volts peak	EZ-CONNECTOR
Demand: 35 G			SHOCK F/A
Control: 34.93 G	Pulse: 10 of 10	End of Test	115, 717, 818, 919

Figure 1 – Shock Pulse in Longitudinal / Positive Direction

APPENDIX C – VIBRATION PLOTS
Lateral Direction

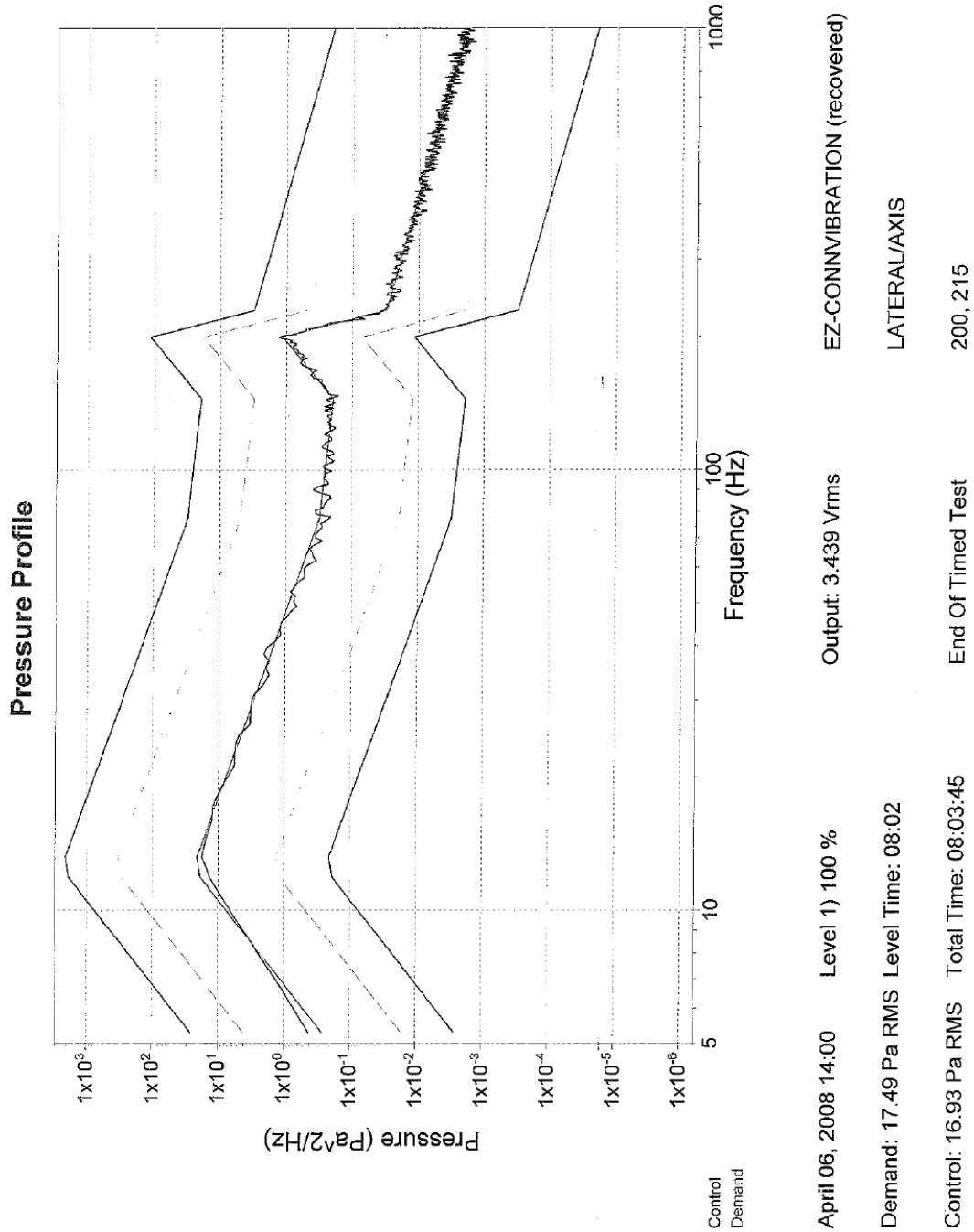


Figure 2 – Vibration Plot in the Lateral Direction

APPENDIX C – VIBRATION PLOTS – continued
Longitudinal Direction

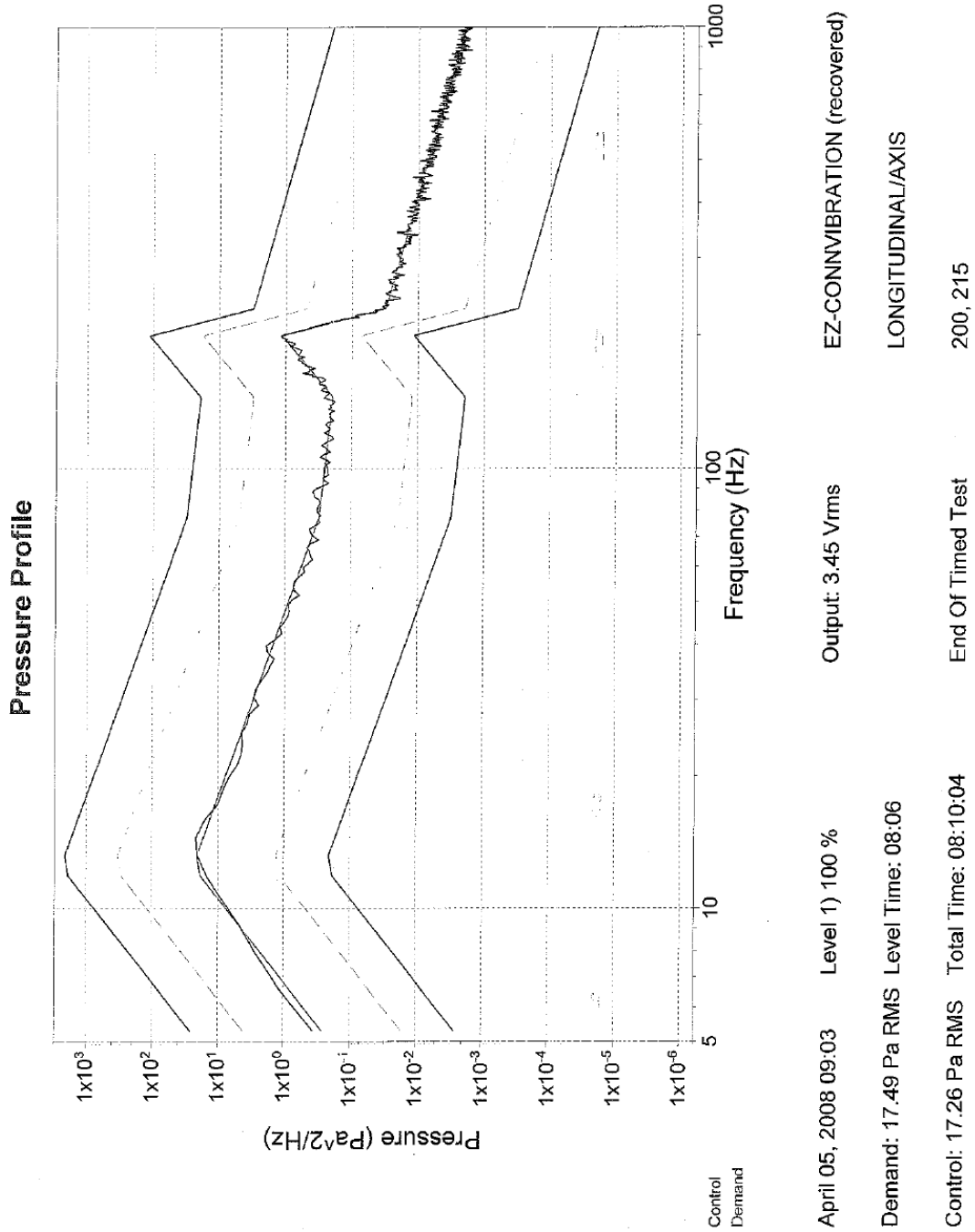


Figure 3 – Vibration Plot in the Longitudinal Direction

APPENDIX C – VIBRATION PLOTS
Vertical Direction

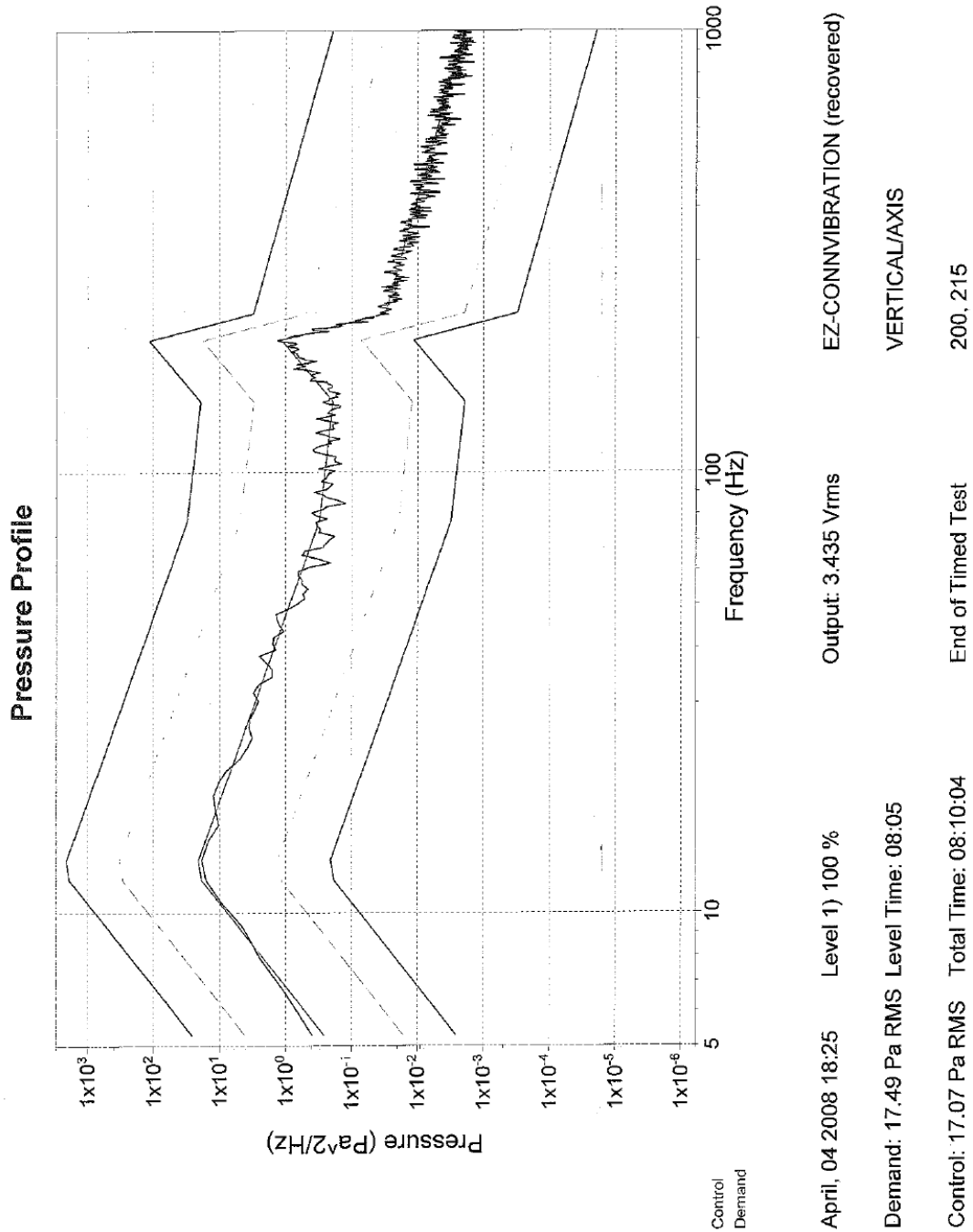


Figure 4 – Vibration Plot in the Vertical Direction

APPENDIX D – DRY CIRCUIT RESISTANCE MEASUREMENTS

SERIAL NUMBER 313			SERIAL NUMBER 414		
DRY CIRCUIT	PRETEST	POST TEST	DRY CIRCUIT	PRETEST	POST TEST
GROUND	1.19	5.30	GROUND	1.33	2.22
RIGHT TURN	5.22	2.95	RIGHT TURN	0.20	2.82
AUX POWER	0.57	2.21	AUX POWER	0.86	1.40
RUN LIGHT	0.39	6.10	RUN LIGHT	1.12	3.06
BACKUP LIGHT	1.07	3.36	BACKUP LIGHT	0.83	4.44
BRAKE	0.03	1.18	BRAKE	0.72	2.30
LEFT TURN	0.97	3.02	LEFT TURN	2.19	4.43
SERIAL NUMBER 515			SERIAL NUMBER 616		
DRY CIRCUIT	PRETEST	POST TEST	DRY CIRCUIT	PRETEST	POST TEST
GROUND	0.97	1.22	GROUND	0.95	1.84
RIGHT TURN	0.79	3.97	RIGHT TURN	1.12	3.54
AUX POWER	0.93	1.66	AUX POWER	0.52	0.52
RUN LIGHT	0.24	5.14	RUN LIGHT	1.31	3.60
BACKUP LIGHT	0.07	5.05	BACKUP LIGHT	1.30	6.49
BRAKE	0.76	1.99	BRAKE	0.86	2.82
LEFT TURN	0.34	6.90	LEFT TURN	1.12	2.52
SERIAL NUMBER 717			SERIAL NUMBER 818		
DRY CIRCUIT	PRETEST	POST TEST	DRY CIRCUIT	PRETEST	POST TEST
GROUND	0.71	0.91	GROUND	1.20	1.79
RIGHT TURN	2.49	5.36	RIGHT TURN	5.07	3.81
AUX POWER	0.87	1.62	AUX POWER	1.14	1.21
RUN LIGHT	2.09	3.43	RUN LIGHT	2.18	17.09
BACKUP LIGHT	3.41	4.39	BACKUP LIGHT	4.90	3.99
BRAKE	0.60	1.85	BRAKE	3.66	0.81
LEFT TURN	1.06	2.21	LEFT TURN	0.15	1.67
SERIAL NUMBER 919			SERIAL NUMBER 200		
DRY CIRCUIT	PRETEST	POST TEST	DRY CIRCUIT	PRETEST	POST TEST
GROUND	2.23	0.75	GROUND	0.73	0.66
RIGHT TURN	0.35	4.59	RIGHT TURN	0.93	3.27
AUX POWER	1.67	0.79	AUX POWER	0.94	2.47
RUN LIGHT	0.55	5.35	RUN LIGHT	3.79	1.58
BACKUP LIGHT	0.85	3.04	BACKUP LIGHT	1.43	4.07
BRAKE	1.12	1.79	BRAKE	0.68	0.80
LEFT TURN	1.52	0.09	LEFT TURN	1.09	2.18
SERIAL NUMBER 215			SERIAL NUMBER 115		
DRY CIRCUIT	PRETEST	POST TEST	DRY CIRCUIT	PRETEST	POST TEST
GROUND	1.04	1.75	GROUND	1.27	2.51
RIGHT TURN	0.57	0.44	RIGHT TURN	0.05	5.16
AUX POWER	0.78	0.69	AUX POWER	0.39	0.54
RUN LIGHT	0.03	1.74	RUN LIGHT	0.07	4.23
BACKUP LIGHT	0.95	0.53	BACKUP LIGHT	0.06	8.41
BRAKE	1.19	1.33	BRAKE	1.73	0.58
LEFT TURN	0.64	0.79	LEFT TURN	0.19	2.09

APPENDIX E – VOLTAGE DROP MEASUREMENTS

Sample 313

Pre-Test	Post
0.752 mV/A	0.840 mV/A
0.824 mV/A	0.961 mV/A
0.743 mV/A	0.788 mV/A
0.788 mV/A	0.972 mV/A
0.772 mV/A	0.899 mV/A
0.791 mV/A	0.873 mV/A
0.760 mV/A	0.907 mV/A

Sample 515

Pre-Test	Post
0.759 mV/A	0.785 mV/A
0.840 mV/A	0.923 mV/A
0.742 mV/A	0.814 mV/A
0.819 mV/A	0.951 mV/A
0.769 mV/A	0.919 mV/A
0.771 mV/A	0.833 mV/A
0.844 mV/A	0.963 mV/A

Sample 717

Pre-Test	Post
0.730 mV/A	0.815 mV/A
0.839 mV/A	0.937 mV/A
0.764 mV/A	0.852 mV/A
0.861 mV/A	0.965 mV/A
0.815 mV/A	0.891 mV/A
0.817 mV/A	0.879 mV/A
0.787 mV/A	0.885 mV/A

Sample 818

Pre-Test	Post
0.768 mV/A	0.842 mV/A
0.838 mV/A	0.900 mV/A
0.729 mV/A	0.781 mV/A
0.878 mV/A	0.955 mV/A
0.769 mV/A	0.866 mV/A
0.731 mV/A	0.741 mV/A
0.772 mV/A	0.873 mV/A

APPENDIX E – VOLTAGE DROP MEASUREMENTS – continued

Sample 919

Pre-Test	Post
0.775 mV/A	0.777 mV/A
0.801 mV/A	0.917 mV/A
0.758 mV/A	0.844 mV/A
0.810 mV/A	0.976 mV/A
0.791 mV/A	0.888 mV/A
0.804 mV/A	0.882 mV/A
0.867 mV/A	0.935 mV/A

Sample 115

Pre-Test	Post
0.725 mV/A	0.771 mV/A
0.820 mV/A	0.944 mV/A
0.754 mV/A	0.795 mV/A
0.817 mV/A	0.935 mV/A
0.812 mV/A	0.888 mV/A
0.730 mV/A	0.795 mV/A
0.782 mV/A	0.878 mV/A

Sample 200

Pre-Test	Post
0.773 mV/A	0.788 mV/A
0.862 mV/A	0.958 mV/A
0.801 mV/A	0.836 mV/A
0.857 mV/A	0.944 mV/A
0.767 mV/A	0.857 mV/A
0.759 mV/A	0.799 mV/A
0.801 mV/A	0.901 mV/A

Sample 616

Pre-Test	Post
0.762 mV/A	0.845 mV/A
0.795 mV/A	0.927 mV/A
0.744 mV/A	0.817 mV/A
0.825 mV/A	0.927 mV/A
0.792 mV/A	0.930 mV/A
0.792 mV/A	0.881 mV/A
0.810 mV/A	0.924 mV/A

APPENDIX E – VOLTAGE DROP MEASUREMENTS – continued

Sample 215

Pre-Test	Post
0.777 mV/A	0.821 mV/A
0.783 mV/A	0.798 mV/A
0.778 mV/A	0.798 mV/A
0.797 mV/A	0.748 mV/A
0.763 mV/A	0.778 mV/A
0.780 mV/A	0.797 mV/A
0.827 mV/A	0.846 mV/A

Sample 414

Pre-Test	Post
0.768 mV/A	0.859 mV/A
0.798 mV/A	0.900 mV/A
0.714 mV/A	0.780 mV/A
0.828 mV/A	0.941 mV/A
0.773 mV/A	0.908 mV/A
0.758 mV/A	0.846 mV/A
0.819 mV/A	0.921 mV/A

TERMS AND CONDITIONS

1.0 INTRODUCTION

These Terms and Conditions are incorporated into the Intertek proposal made and submitted to you. The party executing this document ("Client") indicates acceptance of this proposal and that it is agreed that a resulting contract exists between Client and Intertek which governs the performance of the stated services and the rights and obligations of the parties and that Intertek may proceed with the work.

2.0 PROPOSAL TERM

Unless otherwise stated in the proposal, this offer shall remain valid until accepted, but in no event for a period longer than thirty days from the date of the proposal.

3.0 CLIENT INFORMATION

Client represents that the information supplied by it or its agents to Intertek is accurate and complete and samples are representative, and Client has informed Intertek concerning any dangerous or potentially dangerous characteristics of such samples which could cause injury during the performance of the work or in the transporting of such samples and Client also acknowledges that Intertek is relying upon such information and samples or data in the preparation of this proposal without further verification by Intertek as to its accuracy or completeness. The Client agrees to hold Intertek harmless and indemnify Intertek from any liability of whatever kind or nature, including but not limited to court costs and reasonable attorneys fees if information provided by the Client is inaccurate or incomplete or samples are not representative. Intertek agrees that information received from the Client shall remain the property of the Client and will be returned to the Client upon demand, except for that which is necessary as a basis for the Intertek Reports. Client may designate in writing any information provided by Client to Intertek as confidential and proprietary. If Client has done so, Intertek will not release to third parties any such information without the prior written consent of the Client or only in response to a proper court order or process. As to that information, Intertek may make and retain copies. Client shall designate in writing to Intertek if it does not wish to have Intertek transmit any information, including test data and Reports, via fax or electronic means.

4.0 PROPOSAL, PRICE AND SCHEDULE

Intertek will work diligently to provide the services according to the costs and schedule stated in the referenced proposal. Client recognizes and agrees that the proposal is a good faith estimate of the costs for the services to be provided and times of completion, but such estimate is not a guarantee of the total costs or time that may be involved in completing the proposal. Intertek will not exceed the authorized estimate of costs without written authorization of Client. Samples will be shipped by Client to Intertek prepaid and will be returned collect or disposed of at Client's expense within thirty (30) days after testing is completed, unless alternative arrangements are made by Client. Additional fees will be charged for unanticipated assembly or preparation of samples. Test services will not be initiated until satisfactory credit has been established with Intertek's accounting department.

5.0 INVOICING

Invoices will generally be issued upon project completion. In certain instances, interim invoices may be issued. Invoices are due and payable to Intertek at its offices, within thirty (30) calendar days after receipt of invoice, and client agrees to pay reasonable collection costs if necessary in the event of non-payment.

6.0 INSURANCE

Intertek declares that it maintains workers' compensation and employer's liability insurance on Intertek employees in a form and amount as required by applicable laws. This insurance does not cover any employees of Client or third parties who may be involved with the work to be performed, whether on property of Intertek, Client or third parties.

7.0 REPORTS

The Client agrees to waive any claim against Intertek and defend, indemnify, and hold Intertek harmless from any and all causes of action, lawsuit, proceedings or claims, including legal fees and expenses incurred by Intertek, allegedly arising as a result of unauthorized use of Intertek's Reports. The Reports include all reports, laboratory test data, calculations, estimates, notes and other documents prepared by Intertek in the course of providing services to the Client. Reports will be made utilizing Intertek's standard format unless otherwise agreed to in writing. The Client agrees to indemnify Intertek for any breach by the Client arising out of clause 3.0 (Client Information) above requiring accurate and complete information and representative samples. Intertek retains any and all rights of ownership of Intertek's concepts, ideas, inventions, patents or copyrights used by Intertek in preparing Intertek's Reports and the provision of services to the Client. Only the client is authorized to copy or distribute this report and then only in its entirety, and the Client shall not use the Reports in a misleading manner. Client further agrees and understands that reliance upon the Reports is limited to the representations made therein. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. If Intertek becomes directly or indirectly involved in litigation as a result of misuse of its Reports, the Client agrees to compensate Intertek for its fees and expenses, including legal costs, in accordance with Intertek's prevailing fee schedule and expense reimbursement policy.

8.0 LIMITED WARRANTY

Intertek warrants that if any of its completed services fail to conform to professional standard, Intertek will, at its own expense, perform corrective services of the type originally performed as may be reasonably required to correct such defects, of which Intertek is notified in writing within six months of the completion of services. No other representation, express or implied, and no warranty or guarantee is included or intended in this Agreement, or in any report, opinion, document or otherwise.

9.0 LIMITS OF LIABILITY

Intertek's liability is limited as follows:

9.1 The Client agrees to limit Intertek's liability arising from Intertek's professional activity, errors, or omissions, such that the total aggregate liability of Intertek shall not exceed Intertek's total fee for the services rendered on the project in question, except in the case of a finding of gross negligence or willful misconduct on the part of Intertek by a court of competent jurisdiction.

9.2 Intertek shall be discharged from all liability to the Client for all claims for loss, damage or expense unless a claim is made within three (3) months of the date at which the damage, defect or alleged non-performance became apparent to the Client, and the process of law served no later than two (2) years from the provision of services by Intertek. -

9.3 Intertek shall not be liable to the Client for any consequential damages incurred by Client due to the fault of Intertek, regardless of the nature of this fault, whether it was committed by Intertek, its employees, agents or subcontractors. Consequential damages include, but are not limited to, loss of use and loss of profit.

9.4 The Client agrees to extend any and all limitations, indemnifications, and waivers provided by the Client to Intertek to those individuals and organizations Intertek retains for proper execution of the work. These shall be deemed to include but are not necessarily limited to Intertek's officers and employees and their heirs and assigns, as well as Intertek's agents, subcontractors and their officers, employees, heirs and assigns.

9.5 Client acknowledges that testing, including sample preparation and transportation, may damage or destroy Client's product. Client agrees to hold Intertek harmless from any and all responsibility for such alteration.

9.6 The Client agrees Intertek shall not be responsible for any injuries to the Client's representatives while attending to or observing testing at Intertek's facility. If testing takes place at the Client's facility, Client agrees that Intertek will not operate and shall not be responsible for any of Client's equipment and that although Intertek agrees to abide by Client's safety procedures, Intertek shall not be responsible for injury to any of Client's personnel.

10.0 GOVERNING LAW

This proposal, and any work performed pursuant to this proposal, shall be governed by the laws of the jurisdiction within which the Intertek facility making the proposal is located. Any action brought hereon shall be venued in said jurisdiction.

11.0 SEVERABILITY

Any provision of this proposal that may be held invalid, void or unenforceable for any reason, shall not affect any other term or condition of this proposal, and such term or condition shall be replaced or interpreted to accomplish the intent of the parties.

12.0 MODIFICATIONS

No modification, waiver or amendment of any of these terms and conditions shall be binding upon Intertek unless identified in writing as to modification, waiver or amendment of such terms and conditions, and such writing is signed by an agent of Intertek acknowledging the modification, waiver or amendment.

Intertek

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