D.E. Ridgley, 2MX
J.R. McBride, 4MX
K.A. Henrichsen, 4MX
R.E. Paulson, 3MX
(2) W.H. Burnham, 1ML
→ TVA

UTILITY AND PROCESS AUTOMATION
PRODUCTS DEPARTMENT
PRODUCT EVALUATION UNIT
ENGINEERING SUPPORT

Test Report 507
Revised 5/25/73

Date 4-3-73
Requested by D. E. Ridgley

N3 B-14

TVA JUN 4 1973
WATTS BAR
CONTRACT NO: 73C3-92784
TITLE:
CHECKED: 6/13/73

SEISMIC VIBRATION TESTS ON GE-MAC TYPE 555 D/P TRANSMITTERS AND TYPE 556 PRESSURE TRANSMITTERS

10

TRANSMITTERS TESTED

555, 850"H_2O Range, 10-50 MA output
555, 200 " " " " "
556, 800 PSIG " " " "
556, 300 PSIA " " " "

TEST PROCEDURE

Tests were conducted per TVA Spec. 1499 Appendix C for Sequoyah and Watts Bar Balance of Plant Contract 73C3-92784

1) Exploratory Test to find resonant frequencies:
   Sweep 1 to 35 to 1 to 35 to 1 Hz at Sweep Rate of 7 Hz/Min.
   Peak to peak displacement for 1-5Hz = 0.4"; G's for 5-35 Hz = 0.5.
2) Continuous Test: Horizontal & Longitudinal Acceleration = 5.5G
   Vertical Acceleration = 3.7G
   Duration of Test = 20-30 seconds.
3) Note output changes caused by vibration @ 16, 22, 28, 35 Hz. *
4) Note zero shift and gain change caused by vibration.

* Except if resonant points were found in Step 1

Significant Results

Satisfactory operation from all transmitters during and after vibration.
Negligible zero shift and gain change caused by the vibration conditions.
Noted some cyclic variation of the output at the vibration frequency, in the 1-5 Hz range.

CHANGED TO (A) "APPROVED BY LTR TO BAILEY OF 10/20/73

FOR INFORMATION ONLY
DATE JUN 27 1973

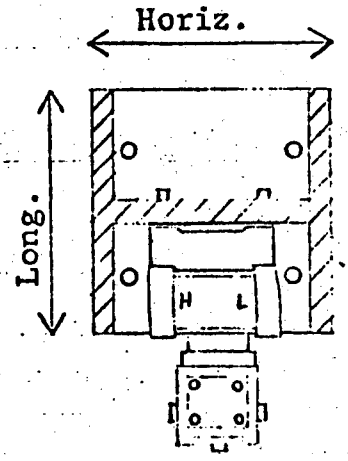
MECHANICAL
FILE

Tests made by J.J. Sadofski and W. H. Burnham

7908080597

MOUNTING

Heavy welded aluminum "H" fixture bolted to shaker plate with 4-3/8" studs. A standard mounting bracket was bolted to the fixture on the end opposite the driving exciter for longitudinal motion, and the fixture turned 90° for horizontal action.
In the vertical position the fixture was held directly to the exciter with studs through the bottom of the fixture.

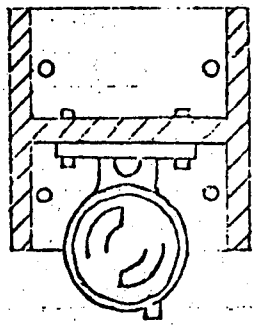


555

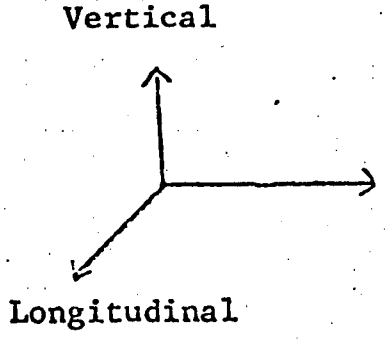
MEASUREMENT

Vibration was controlled automatically by a LING Model SCO-100 Sine Wave Control Center.
Vibration Equipment:
LING Model 390 Shaker
LING MODEL Field Power Supply
LING MODEL TP-850 Power Amplifier

Vibration influence was monitored with a CSC Null Balance Voltmeter reading the current flowing through an L & N standard 10-Ohm Resistor.



556



Seismic Tests on transmitters per TVA
Spec. 1499 Appendix C for Sequoyah
and Watts Bar Balance of Plant Contract 73C3-92784

Cat. No. 555111BDAA4ABA Range 850" H_2O Output 10-50 MA
Span 800" H_2O Input During Vibration 400" H_2O

Vibration Plane Horizontal

Calib. before VIB.:

Pres.	MA
0	10.030
FS	50.090

Exploratory Test: Sweep 1 to 35 to 1 to 35 to 1 Hz
at sweep rate of 7 Hz/Min.
P-P Disp. for 1-5 Hz = 0.4" ; G's for 5-35 Hz = 0.5G
Resonant Freq. noted None

Continuous Test: Horiz & Long. Accel. = 5.5G
Vertical " = 3.7G
Duration of test = 20-30 sec.

Freq. - Hz	Output Change Caused by Vibration		
1. 16	<.02 MA	<.05	Percent
2. 22	<.02	<.05	
3. 28	<.02	<.05	
4. 35	<.02	<.05	
Repeat			
1. 16	<.02	<.05	
2. 22	-.02	-.05	
3. 28	<.02	<.05	
4. 35	<.02	<.05	

Calib. after Vib.:

Pres.	MA
0	10.025
FS	50.082

Zero Shift <.02% Gain Change <.01 %

* Output variation at Vib. Freq. in 1-5 Hz range
1 Hz 2.0% P-P
2 " .8 "
3 " .3 "
4 " .2 "
5 " <.2 "

* Refer to Supplement for superseding data

W. Burnham
J. Sadofski

Tested by J. Sadofski Date 3-15-73

TVA WA Beasley
3/15/73

Seismic Tests on transmitters per TVA
Spec. 1499, Appendix C for Sequoyah
and Watts Bar Balance of Plant Contract 73C3-92784

Cat. No. 555111BDAA4ABA Range 850" H_2O Output 10-50 MA
Span 800" H_2O Input During Vibration 400" H_2O

Vibration Plane Longitudinal

Calib. before VIB.:

Pres.	MA
0	10.040
FS	50.093

Exploratory Test: Sweep 1 to 35 to 1 to 35 to 1 Hz
at sweep rate of 7 Hz/Min.
P-P Disp. for 1-5 Hz = 0.4" ; G's for 5-35 Hz = 0.5G
Resonant Freq. noted None

Continuous Test: Horiz & Long. Accel. = 5.5G
Vertical " = 3.7G
Duration of test = 20-30 sec.

Freq. - Hz	Output Change Caused by Vibration			
1. 16	<.02	MA	<.05	Percent
2. 22	<.02		<.05	
3. 28	<.02		<.05	
4. 35	-.02		-.05	
Repeat				
1. 16	<.02		<.05	
2. 22	<.02		<.05	
3. 28	<.02		<.05	
4. 35	-.03		-.08	

Calib. after Vib.:

Pres.	MA
0	10.034
FS	50.092

Zero Shift <.02 % Gain Change <.02 %

*Output variation at Vib. Freq. in 1-5 Hz range
1 Hz .8% P-P
2 " .1 "
3 " <.1 "
4 " <.1 "
5 " <.1 "

* Refer to Supplement for superseding data

TVA WC Inspector
3/15/73

W. Burnham
J. Sadofski

Tested by J. Sadofski Date 3-15-73

Seismic Tests on transmitters per TVA
Spec. 1499 Appendix C for Sequoyah
and Watts Bar Balance of Plant Contract 73C3-92784

Cat. No. 555111BDAA4ABA Range 850" H_2O Output 10-50 MA
Span 800" H_2O Input During Vibration 400" H_2O

Vibration Plane Vertical

Calib. before VIB.:

Pres.	MA
0	10.036
FS	50.090

Exploratory Test: Sweep 1 to 35 to 1 to 35 to 1 Hz
at sweep rate of 7 Hz/Min.
P-P Disp. for 1-5 Hz = 0.4" ; G's for 5-35 Hz = 0.5G
Resonant Freq. noted 24 Hz.

Continuous Test: Horiz & Long. Accel. = 5.5G
Vertical " = 3.7G
Duration of test = 20-30 sec.

Freq. - Hz	Output Change Caused by Vibration			
1. 16	-.08	MA	-.2	Percent
2. 24	-.02		-.05	
3. 29	-.02		-.05	
4. 35	-.02		-.05	
Repeat				
1. 16	-.02		-.05	
2. 24	-.02		-.05	
3. 29	-.08		-.20	
4. 35	<.02		<.05	

Calib. after Vib.:

Pres.	MA
0	10.037
FS	50.085

Zero Shift <.01 % Gain Change <.02 %

* Output variation at Vib. Freq. in 1-5 Hz range
1 Hz 2.0% P-P
2 " 1.0 "
3 " .5 "
4 " .2 "
5 " .1 "

* Refer to Supplement for superseding data

W. Burnham

Tested by J. Sadofski Date 3-15-73

TVA W.A. Beecher
3/15/73

Seismic Tests on transmitters per TVA
Spec. 1499 Appendix C for Sequoyah
and Watts Bar Balance of Plant Contract 73C3-92784

Cat. No. 555111BCAA4ABA Range 200" H_2O Output 10-50 MA
Span 200" H_2O Input During Vibration 100" H_2O

Vibration Plane Horizontal

Calib. before VIB.:

Pres.	MA
0	9.905
FS	49.960

Exploratory Test: Sweep 1 to 35 to 1 to 35 to 1 Hz
at sweep rate of 7 Hz/Min.
P-P Disp. for 1-5 Hz = 0.4" ; G's for 5-35 Hz = 0.5
Resonant Freq. noted NONE

Continuous Test: Horiz & Long. Accel. = 5.5G
Vertical " = 3.7G
Duration of test = 20-30 sec.

	Freq. - Hz	Output Change Caused by Vibration	
1.	16	-.10 MA	-.25%
2.	22	-.06	-.15%
3.	28	-.03	-.07%
4.	35	-.03	-.07%
	Repeat		
1.	16	-.10	-.25%
2.	22	-.06	-.15%
3.	28	-.03	-.08%
4.	35	-.03	-.08%

Calib. after Vib.:

Pres.	MA
0	9.890
FS	49.950

Zero Shift .04% Gain Change .01 %

* Output Variation at Vib. Freq. in 1-5 Hz Range
1 Hz 2.0% p-p
2 " .7 "
3 " .3 "
4 " .2 "
5 " .1 "

* Refer to Supplement for superseding data

3/4/73
W. Burnham

Tested by J. Sadorski Date 3-8-73

Reviewed
TVA Watts Bar
3/27/73

Seismic Tests on transmitters per TVA
Spec. 1499 Appendix C for Sequoyah
and Watts Bar Balance of Plant Contract 73C3-92784

Cat. No. 555111BCAA4ABA Range 200" H_2O Output 10-50 MA
Span 200" H_2O Input During Vibration 100" H_2O

Vibration Plane Longitudinal

Calib. before VIB.:

Pres.	MA
0	9.905
FS	49.970

Exploratory Test: Sweep 1 to 35 to 1 to 35 to 1 Hz
at sweep rate of 7 Hz/Min.
P-P Disp. for 1-5 Hz = 0.4" ; G's for 5-35 Hz = 0.5 G
Resonant Freq. noted NONE

Continuous Test: Horiz & Long. Accel. = 5.5G
Vertical " = 3.7G
Duration of test = 20-30 sec.

Freq. - Hz	Output Change Caused by Vibration	
1. 16	-.10 MA	-0.25%
2. 22	-.10	-0.25%
3. 28	-.06	-0.15%
4. 35	-.08	-0.20%
Repeat		
1. 16	-.10	-0.25%
2. 22	-.08	-0.20%
3. 28	-.04	-0.10%
4. 35	-.08	-0.20%

Calib. after Vib.:

Pres.	MA
0	9.870
FS	49.932

Zero Shift .09 % Gain Change .01 %

* Output Variation at Vib. Freq. in 1-5 Hz Range
1 Hz 2.0% P-P
2 " .6 "
3 " .3 "
4 " .2 "
5 " .1 "

* Refer to Supplement for superseding data

W. Burnham
J. Sadofski

Tested by J. Sadofski Date 3-8-73

Reviewed
TVA
3/7/73

Seismic Tests on transmitters per TVA
Spec. 1499 Appendix C for Sequoyah
and Watts Bar Balance of Plant Contract 73C3-92784

Cat. No. 555111BCAA4ABA Range 200" H_2O Output 10-50 MA
Span 200" H_2O Input During Vibration 100" H_2O

Vibration Plane Vertical

Calib. before VIB.:

Pres.	MA
0	9.873
FS	49.930

Exploratory Test: Sweep 1 to 35 to 1 to 35 to 1 Hz
at sweep rate of 7 Hz/Min.
P-P Disp. for 1-5 Hz = 0.4" ; G's for 5-35 Hz = 0.5G
Resonant Freq. noted 23 Hz

Continuous Test: Horiz & Long. Accel. = 5.5G
Vertical " = 3.7G
Duration of test = 20-30 sec.

	Freq. - Hz	Output Change Caused by Vibration		
1.	16	-.05	MA	-.13 Percent
2.	23	-.08		-.20
3.	28	-.05		-.13
4.	35	-.03		-.08
	Repeat			
1.	16	-.04		-.10
2.	23	-.06		-.15
3.	28	-.03		-.08
4.	35	< .02		< .05

Calib. after Vib.:

Pres.	MA
0	9.859
FS	49.907

Zero Shift .04 % Gain Change .03%

* Output Variation at Vib. Freq. in 1-5 Hz range
1 Hz 1.5% P-P
2 " .8 "
3 " .4 "
4 " .2 "
5 " .1 "

* Refer to Supplement for superseding data

W. Burnham

Tested by J. Sadofski Date 3-9-73

Reviewed
TVA
3/27/73

Seismic Tests on transmitters per TVA
Spec. 1499, Appendix C for Sequoyah
and Watts Bar Balance of Plant Contract 73C3-92784

Cat. No. 556120DAGA1 Range 0-800 psig Output 10-50 MA
Span 0-800 psig Input During Vibration 400 psig
Tag 1 PT2-223

Vibration Plane Horizontal

Calib. before VIB.:

Pres.	MA
0	10.005
FS	50.045

Exploratory Test: Sweep 1 to 35 to 1 to 35 to 1 Hz
at sweep rate of 7 Hz/Min.
P-P Disp. for 1-5 Hz = 0.4"; G's for 5-35 Hz = 0.5
Resonant Freq. noted None

Continuous Test: Horiz & Long. Accel. = 5.5G
Vertical " = 3.7G
Duration of test = 20-30 sec.

Freq. - Hz	Output Change Caused by Vibration		
1. 16	<.01 MA	<.03 Percent	
2. 22	<.01	<.03	
3. 28	-.01	-.03	
4. 35	<.01	<.03	
Repeat			
1. 16	<.01	<.03	
2. 22	<.01	<.03	
3. 28	-.01	-.03	
4. 35	<.01	<.03	

Calib. after Vib.:

Pres.	MA
0	10.004
FS	50.048

Zero Shift <.01 % Gain Change .01 %

W. Burnham

Tested by J. J. Sadofski Date 3-26-73

Reviewed
W. A. Fischer, TVA
3-28-73

Seismic Tests on transmitters per TVA
Spec. 1499 Appendix C for Sequoyah
and Watts Bar Balance of Plant Contract 73C3-92784

Cat. No. 556120DAGA1 Range 0-800 psig Output 10-50 MA
Span 0-800 psig Input During Vibration 400 psig

Vibration Plane Longitudinal

Calib. before VIB.:

Pres.	MA
0	10.020
FS	50.080

Exploratory Test: Sweep 1 to 35 to 1 to 35 to 1 Hz
at sweep rate of 7 Hz/Min.
P-P Disp. for 1-5 Hz = 0.4" ; G's for 5-35 Hz = 0.5
Resonant Freq. noted None

Continuous Test: Horiz & Long. Accel. = 5.5G
Vertical " = 3.7G
Duration of test = 20-30 sec.

Freq. - Hz	Output Change Caused by Vibration	
1. 16	<.01 MA	<.03 Percent
2. 22	<.01	<.03
3. 28	-.01	-.03
4. 35	-.02	-.05
Repeat		
1. 16	-.01	-.03
2. 22	-.01	-.03
3. 28	<.02	<.05
4. 35	-.02	-.05

Calib. after Vib.:

Pres.	MA
0	10.022
FS	50-065

Zero Shift <.01 % Gain Change .04 %

Reviewed
W. A. Fischer TVA
3-28-73

Tested by W. J. Burnham, D. B. Sadowski Date 3-27-73

Seismic Tests on transmitters per TVA
Spec. 1499 Appendix C for Sequoyah
and Watts Bar Balance of Plant Contract 73C3-92784

Cat. No. 556120DAGA1 Range 0-800 psig Output 10-50 MA
Span 0-800 psig Input During Vibration 400 psig

Vibration Plane Vertical

Calib. before VIB.:

Pres.	MA
0	10.008
FS	50.055

Exploratory Test: Sweep 1 to 35 to 1 to 35 to 1 Hz
at sweep rate of 7 Hz/Min.
P-P Disp. for 1-5 Hz = 0.4" ; G's for 5-35 Hz = 0.5
Resonant Freq. noted None

Continuous Test: Horiz & Long. Accel. = 5.5G
Vertical " = 3.7G
Duration of test = 20-30 sec.

	Freq. - Hz	Output Change Caused by Vibration		
1.	16	-.10 MA	-.25	Percent
2.	22	-.04	-.10	
3.	28	-.06	-.15	
4.	35	-.06	-.15	
	Repeat			
1.	16	-.10	-.25	
2.	22	-.05	-.13	
3.	28	-.07	-.18	
4.	35	-.08	-.20	

Calib. after Vib.:

Pres.	MA
0	10.047
FS	50.085

Zero Shift .1 % Gain Change .03 %

Tested by W. Burnham J.J. Sadofski Date 3-28-73

Witnessed
W. A. Fischer, TVA
3/28/73

Seismic Tests on transmitters per TVA
Spec. 1499 Appendix C for Sequoyah
and Watts Bar Balance of Plant Contract 73C3-92784

Cat. No. 556220CAGA1 Range 0-300 psia Output 10-50 MA
Span 0-300 psia Input During Vibration 150 psia
Tag 1 PT5-27

Vibration Plane Horizontal

Calib. before VIB.:

Pres.	MA
0	9.995
FS	50.061

Exploratory Test: Sweep 1 to 35 to 1 to 35 to 1 Hz
at sweep rate of 7 Hz/Min.
P-P Disp. for 1-5 Hz = 0.4" ; G's for 5-35 Hz = 0.5
Resonant Freq. noted None

Continuous Test: Horiz & Long. Accel. = 5.5G
Vertical " = 3.7G
Duration of test = 20-30 sec.

Freq. - Hz	Output Change Caused by Vibration	
1. 16	+.01 MA	+.03 Percent
2. 22	+.01	+.03
3. 28	< .01	< .03
4. 35	-.01	-.03
Repeat		
1. 16	±.01	±.03
2. 22	< .01	< .03
3. 28	< .01	< .03
4. 35	-.01	-.03

Calib. after Vib.:

Pres.	MA
0	9.995
FS	50.058

Zero Shift 0 % Gain Change < .01 %

W. Burnham
Tested by J. J. Sadofski Date 3-27-73

Witnessed
W. A. Fischer, TVA
3-28-73

Seismic Tests on transmitters per TVA
Spec. 1499 Appendix C for Sequoyah
and Watts Bar Balance of Plant Contract 73C3-92784

Cat. No. 556220CAGA1 Range 0-300 psia Output 10-50 MA
Span 0-300 psia Input During Vibration 150 psia

Vibration Plane Longitudinal

Calib. before VIB.:

Pres.	MA
0	10.015
FS	50.067

Exploratory Test: Sweep 1 to 35 to 1 to 35 to 1 Hz
at sweep rate of 7 Hz/Min.
P-P Disp. for 1-5 Hz = 0.4" ; G's for 5-35 Hz = 0.5
Resonant Freq. noted None

Continuous Test: Horiz & Long. Accel. = 5.5G
Vertical " = 3.7G
Duration of test = 20-30 sec.

Freq. - Hz	Output Change Caused by Vibration	
1. 16	-.04 MA	-.10 Percent
2. 22	-.02	-.05
3. 23	-.03	-.08
4. 35	-.03	-.08
Repeat		
1. 16	-.03	-.08
2. 22	-.02	-.05
3. 28	-.02	-.05
4. 35	-.03	-.08

Calib. after Vib.:

Pres.	MA
0	9.990
FS	50.047

Zero Shift .06 % Gain Change .01 %

W. Burnham

Witnessed
W.A. Fischer, TVA
3-28-73

Tested by D.J. Sadofski Date 3-27-73

Seismic Tests on transmitters per TVA
Spec. 1499. Appendix C for Sequoyah
and Watts Bar Balance of Plant Contract 73C3-92784

Cat. No. 556220CAGA1 Range 0-300 psia Output 10-50 MA
Span 0-300 psia Input During Vibration 150 psia

Vibration Plane Vertical

Calib. before VIB.:

Pres.	MA
0	10.027
FS	50.104

Exploratory Test: Sweep 1 to 35 to 1 to 35 to 1 Hz
at sweep rate of 7 Hz/Min.
P-P Disp. for 1-5 Hz = 0.4" ; G's for 5-35 Hz = 0.5
Resonant Freq. noted None

Continuous Test: Horiz & Long. Accel. = 5.5G
Vertical " = 3.7G
Duration of test = 20-30 sec.

Freq. - Hz	Output Change Caused by Vibration Ave	Max	% Max
1. 16	-.10 MA	-.10 MA	-.25
2. 22	-.07	-.12	-.30
3. 28	-.06	-.10	-.25
4. 35	-.06	-.10	-.25
Repeat			
1. 16	-.10	-.10	-.25
2. 22	-.08	-.12	-.30
3. 28	-.06	-.10	-.25
4. 35	-.06	-.10	-.25

Calib. after Vib.:

Pres.	MA
0	10.030
FS	50.097

Zero Shift <.01 % Gain Change .03 %

Output Variation at Vib. Freq. in 1-5 Hz Range
1 Hz .5% P-P
2 " .6 "
3 " .2 "
4 " .1 "
5 " <.1 "

W. Burnham

Witnessed
W.A. Fischer TVA
3-28-73

Tested by J. J. Sadofski Date 3-28-73

SUPPLEMENT TO TEST REPORT - 507

This supplement documents results of additional seismic vibration tests made on the same two 555 D/P transmitters. These tests were made at frequencies from 0.38 to 2.3 Hz with G levels from 0.1 to 1G to determine if a resonant condition exists in this low frequency range, and to measure the output variation at higher G values than can be obtained on the Ling vibration equipment.

$g = 0.0511\ g\text{-}p\ f^2$ @ 0.4 g-p and f = 2.3Hz

$g = 0.108$ - SAY OK FOR DETERMINING RESONANCE.

MOUNTING

The same welded aluminum "H" fixture used in the original tests was bolted to the front end of the ram of a Cincinnati 16 inch Heavy Duty Shaper. A standard mounting bracket was bolted to the fixture for horizontal motion, and the mounting bracket turned 90° for vertical action. In the longitudinal position the mounting bracket was held directly to the front end of the ram. Note that the originally defined vertical motion is now accomplished by back-and-forth strokes, rather than up-and-down motion, since a heavy duty shaper has only one direction of motion. The capability of this Cincinnati shaper is; stroke length up to 16 inches and frequency from .38 to 2.3 Hz in 6 steps by shifting gears.

OK

FPO

MEASUREMENT

Vibration was controlled by setting the frequency and length of stroke on the Cincinnati Shaper.

The vibration influence was monitored with a CSC Null Balance Voltmeter reading the current flowing through an L&N standard 10-ohm Resistor, and a Tektronic Type 503 oscilloscope monitoring the voltage across a 300-ohm resistor in the current loop.

SIGNIFICANT RESULTS

Satisfactory operation during and after vibration.

No measurable calibration shift caused by vibration.

The resonant frequency was below the lowest frequency tested (0.38 Hz). See curves attached.

These results are considered to be fundamentally more representative of the transmitter performance in this low frequency range than were the original tests which were made at the very limit of the Ling capability. The shaper is gear driven by a 3-phase 5 H.P. motor, so this test was a negligible load on this machine.

SEISMIC TESTS ON TRANSMITTERS PER TVA
SPEC. 1499 APPENDIX C FOR SEQUOYAH
AND WATTS BAR BALANCE OF PLANT CONTRACT 73C3-92784

Cat. No. 555111BDAA4ABA Range 850" H_2O Output 10-50 MA
Span 800" H_2O Input during Vibration 400" H_2O

Frequency - Hz		2.3	1.67	1.13	0.78	0.52	0.38
				HORIZONTAL PLANE			
	(0.1	.5	.8	.9	1.3	1.3	1.3
	(0.2	1.3	1.4	1.5	1.8	2.8	
	(0.5	3.5	4.3	4.3	5.5		
	(1.0	8.8	10.0	13.0			
				LONGITUDINAL PLANE			
Output vari-	(0.1	.2	.3	.4	.4	.5	.5
ation P-P in	(0.2	.5	.6	.6	.75	1.0	
% of span for	(0.5	1.3	1.4	1.8	2.3		
G values of	(1.0	3.0	3.3	4.0			
				VERTICAL PLANE			
	(0.1	<.1 ----------					→
	(0.2	<.1 ----------				→	
	(0.5	<.1 ----------			→		
	(1.0	<.1	<.1	.1			

ASSUME I & C WILL EVALUATE THESE OUTPUT VARIATIONS FOR SUITABILITY AND CONFORMANCE WITH SPECS.

ALSO NOTE THAT

There was no measurable change in zero or span after vibration.

The resonant frequency is below the lowest frequency used in the test.

RANGE	OUTPUT	SPAN	INPUT DURING TEST	TEST DIRE
0 → 800psig	10-50ma	0 → 800	400psig	H, L, & V
0 → 300psig	10-50ma	0 → 300psig	150psig	H, L, & V

WERE NOT INCLUDE IN THIS SOPPLEMENT

I Don't Believe I&C Can Live with Output Variation more than 4%,

W. Burnham

FPO 9.77

Tested by D. Ihle - Date 5-23-73

SEISMIC TESTS ON TRANSMITTERS PER TVA
SPEC. 1499 APPENDIX C for SEQUOYAH
AND WATTS BAR BALANCE OF PLANT CONTRACT 73C3-92784

Cat. No. 555111BCAA4ABA Range 200" H_2O Output 10-50 MA
Span 200" H_2O Input during Vibration 100" H_2O

Frequency Hz		2.3	1.67	1.13	0.78	0.52	0.38
				HORIZONTAL PLANE			
	(0.1	.4	.4	.4	.4	.4	.5
	(0.2	.6	.8	.8	.9	1.3	
	(0.5	2.0	2.0	2.3	2.8		
	(1.0	4.0	4.5	5.0			
				LONGITUDINAL PLANE			
Output Variation P-P in % of Span for G values of	(0.1	.4	.4	.4	.4	.5	.6
	(0.2	.75	.8	.75	.75	1.0	
	(0.5	2.3	2.1	2.3	2.8		
	(1.0	3.5	3.5	5.0			
				VERTICAL PLANE			
	(0.1	<.1	→ see last page				
	(0.2	<.1	→				
	(0.5	<.1	→				
	(1.0	<.1	→				

FPD

There was no measurable change in zero or span after vibration.

The resonant frequency is below the lowest frequency used in the test.

W. Burnham

Tested by D. Ihle - Date 5-23-73

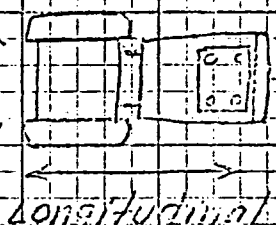
Test Report 507

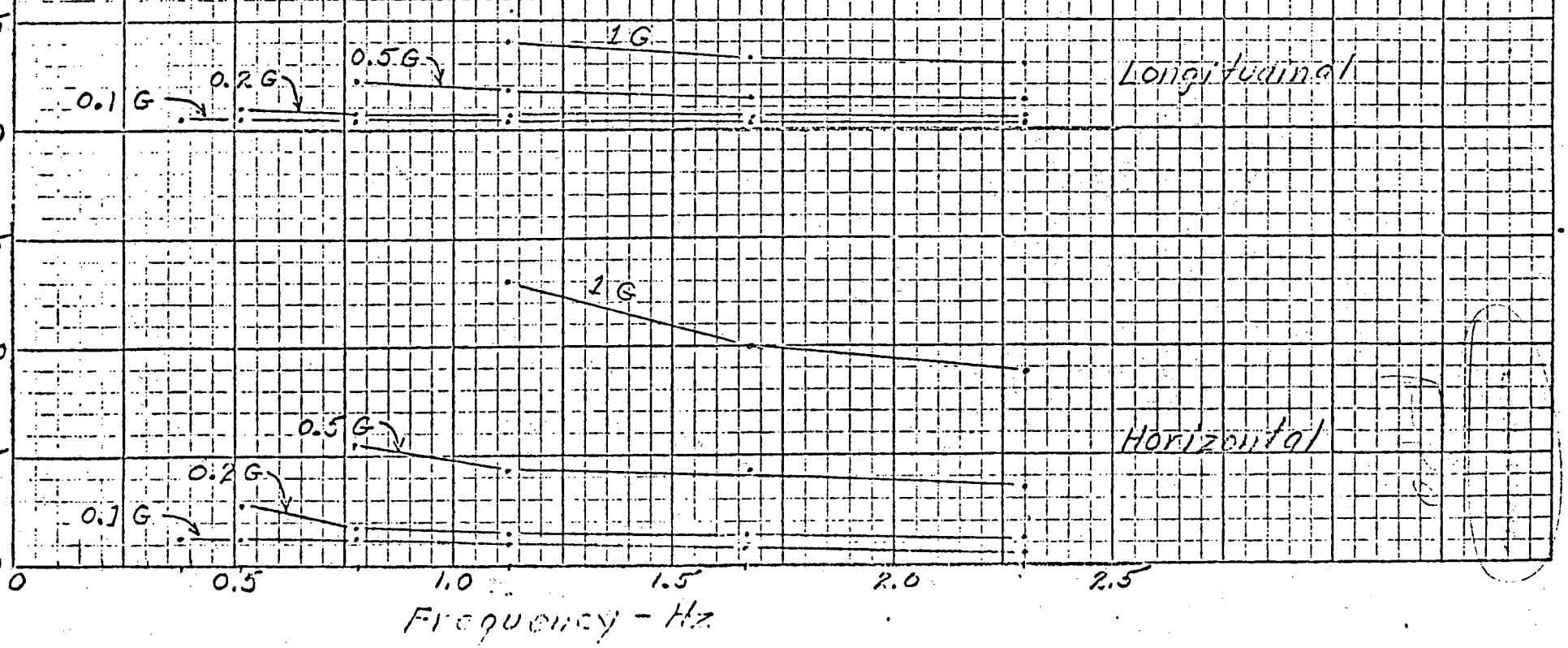
Low Frequency Seismic Performance of Type 555 Transmitter

850" H2O Range

800" " Span

400" " Input during tests





Test Report 347

Low Frequency Seismic Performance of Type 353 Transmitter

200" H2O Range

200" " Span

100" " Input during tests