

TEST REPORT



CTK Co., Ltd.

5, Dongbu-ro 221beon-gil, Cheoin-gu, Yongin-shi
Gyeonggi-do KOREA, REPUBLIC OF
Tel: +82-31-339-9970
Fax: +82-31-624-9501

REPORT No.:
CTK-2022-01029
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1. Client

- Name: Hanwha Techwin Co., Ltd.
- Address.....: Hanwha Techwin R&D center, 6 Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13488 KOREA
- Date of Receipt: 2022-03-10

2. Manufacturer

- Name: Hanwha Techwin Co., Ltd

3. Use of Report: Quality control

4. Test sample / Model: NETWORK CAMERA / TNM-C4940TD

5. Date(s) of test: 2022-03-16 to 2022-03-17

6. Test Standard (Method) used ...: Specifications presented by the sponsor (reference NEMA TS 2.2.8)

7. Testing Environment.....: Temperature: (25.0 ± 1.0) °C, Humidity: (27.0 ± 1.0) %R.H.,



8. Results: Refer to each test result

9. Location of Test : Permanent Testing Lab On Site Testing

(Address : Dongbu-ro 142, Cheoin-gu, Yongin-shi Gyeonggi-do KOREA, REPUBLIC OF)

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

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Approval	Tested by:	Technical Manager:
	WonJae Hwang  (Signature)	WonHyeon Choi  (Signature)

2022-04-04



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1. Resonant search

1.1. Test equipment

Test equipment	Model	Manufacturer	Serial	Calibration date
Vibration testing system	GT1000M	FAMTECH	D1803072-1	Not applicable
Vibration VIEW	2017.1.2 Unicode 64-bit	Vibration Research Corp.	9526607B	Not applicable
Acceleration sensor	8703A250M5	KISTLER	5241941	2022-11-01
Acceleration sensor	8703A250M5	KISTLER	5241942	2022-11-01

1.2. Test condition

- 1) With the test unit securely fastened to the test table, set the test table for a double amplitude displacement of 0.015 inch.
- 2) Cycle the test table over a search range from 5 to 30 Hz and back within a period of 12.5 minutes.
- 3) Conduct the resonant frequency search in each of the three mutually perpendicular planes.
- 4) Note and record the resonant frequency determined from each plane.
 - a. In the event of more than one resonant frequency in a given plane, record the most severe resonance.
 - b. If resonant frequencies appear equally severe, record each resonant frequency.
 - c. If no resonant frequency occurs for a given plane within the prescribed range, 30 Hz shall be recorded.

1.3. Test Result

\	Resonance check	Recorded
X	Yes	12.63
Y	Yes	30 Hz
Z	None	30 Hz



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2. Endurance Test

2.1. Test equipment

Test equipment	Model	Manufacturer	Serial	Calibration date
Vibration testing system	GT1000M	FAMTECH	D1803072-1	Not applicable
Acceleration sensor	8703A250M5	KISTLER	5241941	2022-11-01
Acceleration sensor	8703A250M5	KISTLER	5241942	2022-11-01

2.2. Test condition

1. Vibrate the test unit in each plane at its resonant frequency for a period of 1 hour at an amplitude resulting in 0.5 g acceleration. (test profile)
2. When more than one resonant frequency has been recorded in accordance with Section 1.2 Item 4, the test period of 1 hour shall be divided equally between the resonant frequencies.
3. The total time of the endurance test shall be limited to 3 hours, 1 hour in each of three mutually perpendicular planes.

2.3. Check Item

- No mechanical damage.

2.4. Test Result

- **Pass**



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Manufacturer's name

Name and address of factory (ies)	<p>1) D-TECH CO.,LTD. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi-do, Korea (Suwon Industrial Complex)</p> <p>2) HANWHA TECHWIN SECURITY VIETNAM CO.,LTD Lot O-2, Que Vo Industrial Zone extended area, Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam</p>
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Model description

Basic Model	TNM-C4940TD
Series model	TNM-C4950TD, TNM-C4960TD
Model differences	Use of the same external shape and materials (case, finishing material, PCB, cable, etc.), differences in electronic parts inside the product.



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3. APPENDIX

3.1. Products

< Photo 1 > Product External view



< Photo 2 > Product External view



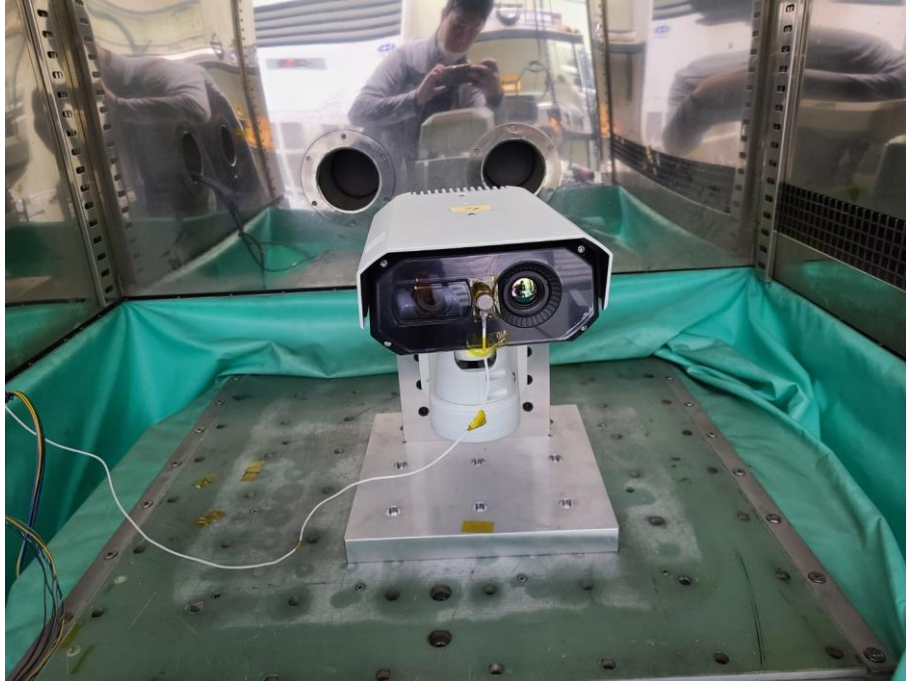


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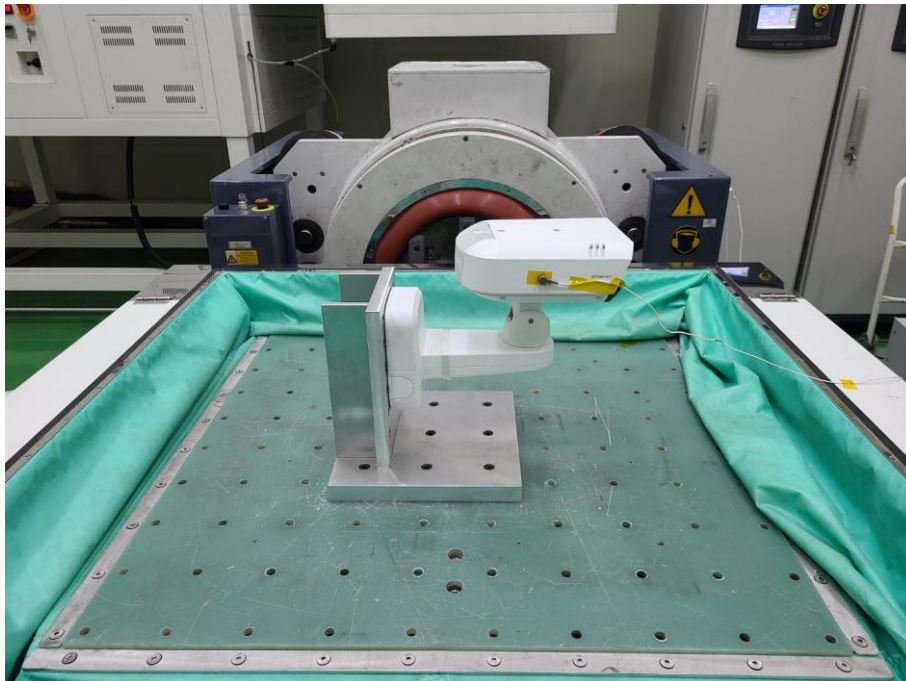
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3.2. Test photos

[X axis]



[Y axis]





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[Z axis]





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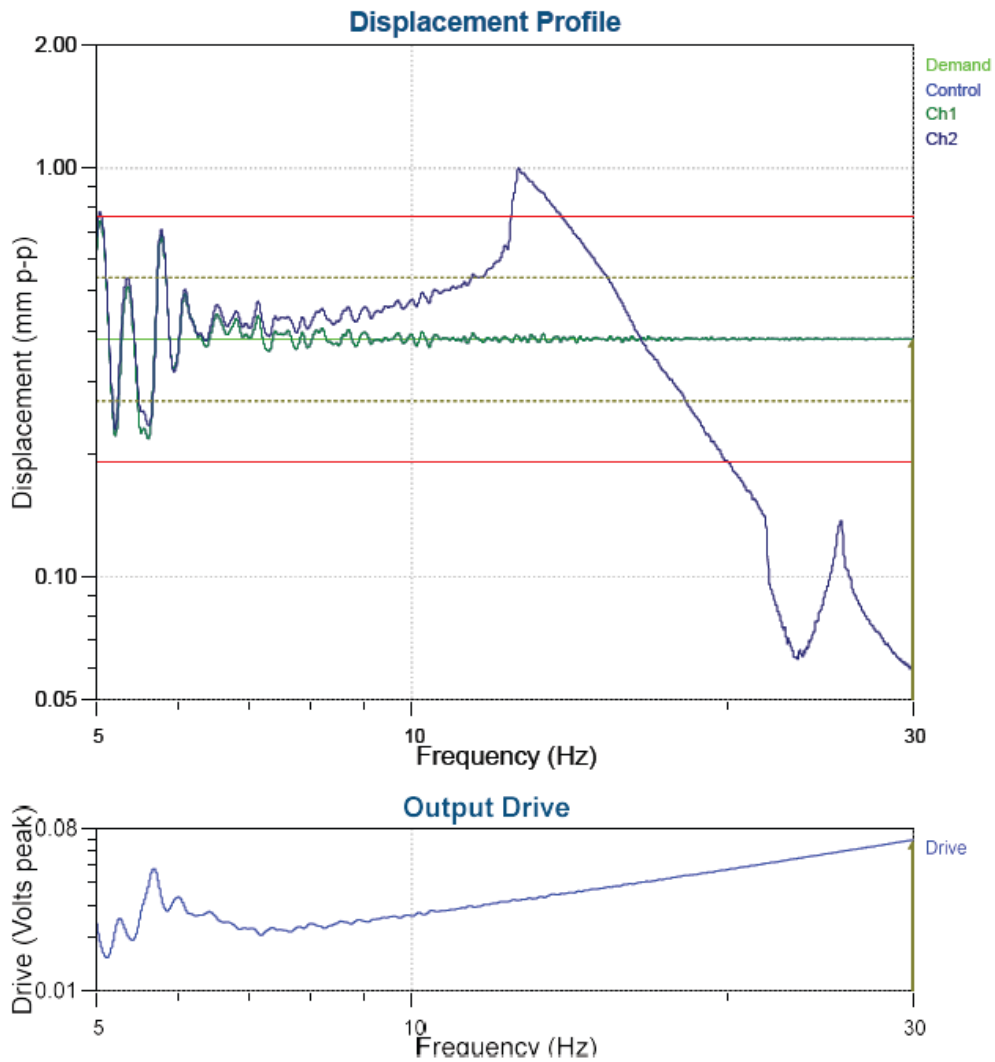
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3.3. Data

[Resonant search]



3/16, 2022 17:56:5 Level 1) 100%

Output: 0.06853 Volts peak 공진시

Demand: 0.6902 Level Time: 0:01:2

Frequency: 30 Hz

Control: 0.6935 Total Time: 0:01:3

End of Sweep Test

[X axis]



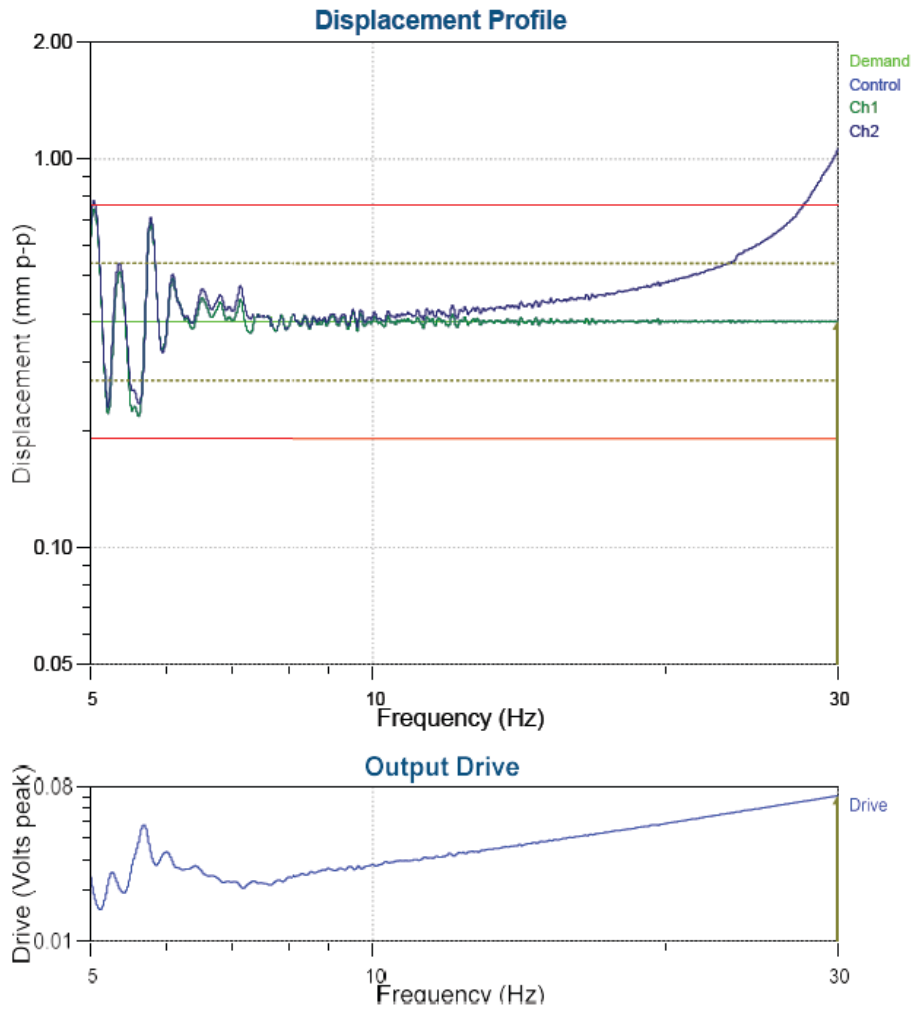
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[Resonant search]



3 17, 2022 09:43:1 Level 1) 100 ° Output: 0.07047 Volts peak 공진시

Demand: 0.6902 (Level Time: 0:01:2 Frequency: 30 Hz

Control: 0.6911 (Total Time: 0:01:3 End of Sweep Test

[Y axis]



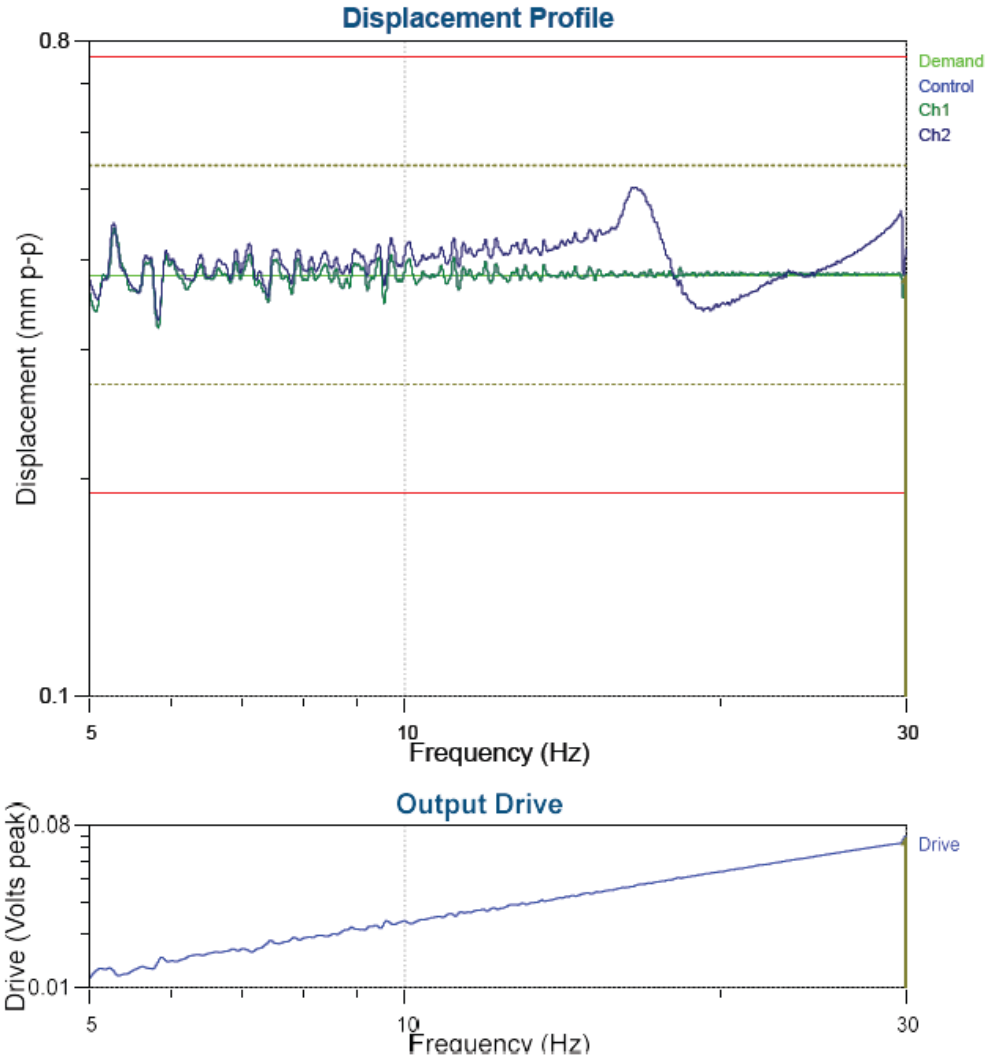
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[Resonant search]



3/17, 2022 14:25:1 Level 1) 100% Output: 0.06905 Volts peak 공진시

Demand: 0.6902 Level Time: 0:01:2 Frequency: 30 Hz

Control: 0.6915 Total Time: 0:01:3 End of Sweep Test

[Z axis]



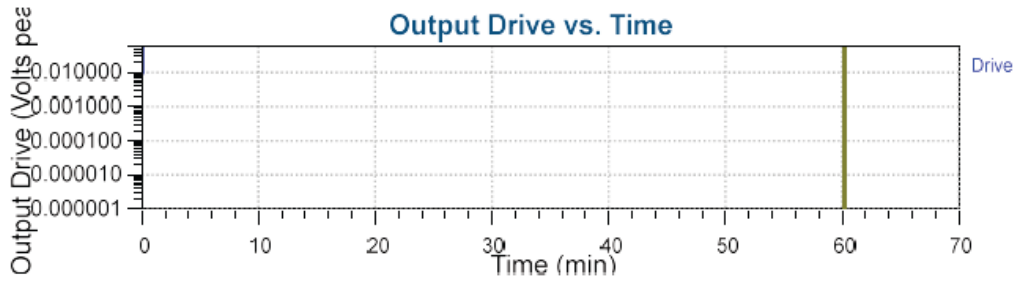
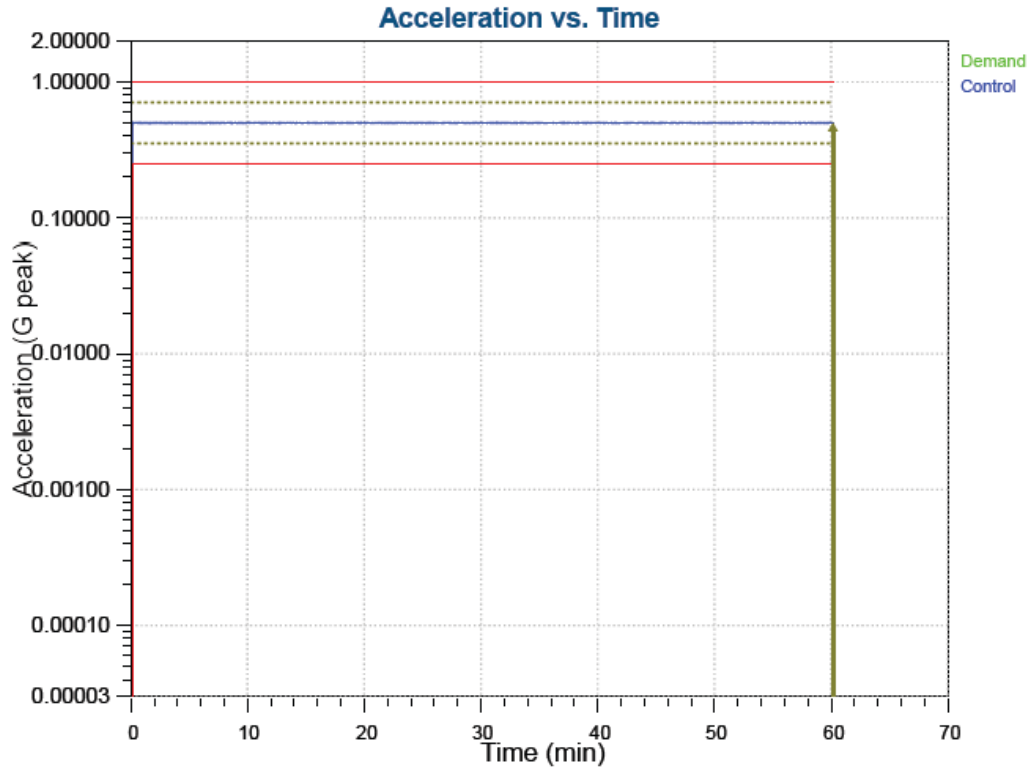
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[Endurance Test]



3 16, 2022 18:58:5 Level 1) 100 % at 12.63 Hz Output: 0.1181 Volts peak 공진내

Demand: 0.5 C Level Time: 1:00:C Frequency: 12.63 H

Control: 0.5006 C Total Time: 1:00:0 End of Timed Test

[X axis]



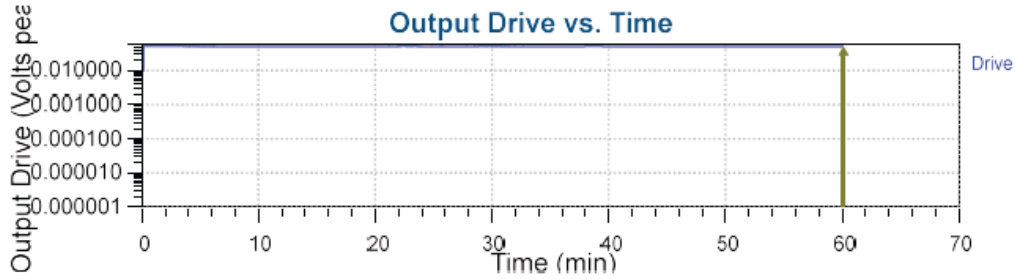
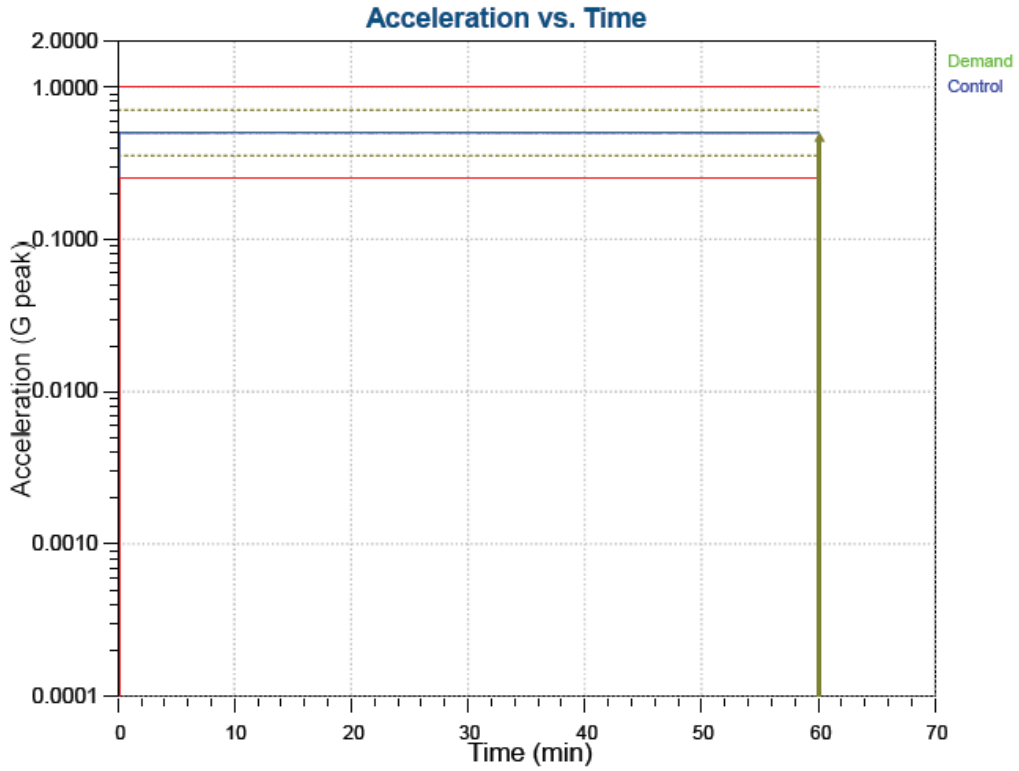
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[Endurance Test]



3/17, 2022 10:43:5 Level 1) 100 % at 30 Hz Output: 0.05007 Volts per Hz 공진내

Demand: 0.5 C Level Time: 1:00:C Frequency: 30 Hz

Control: 0.501 C Total Time: 1:00:0 End of Timed Test

[Y axis]



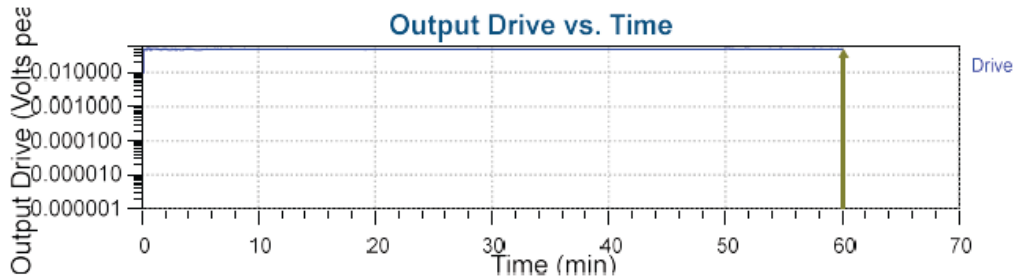
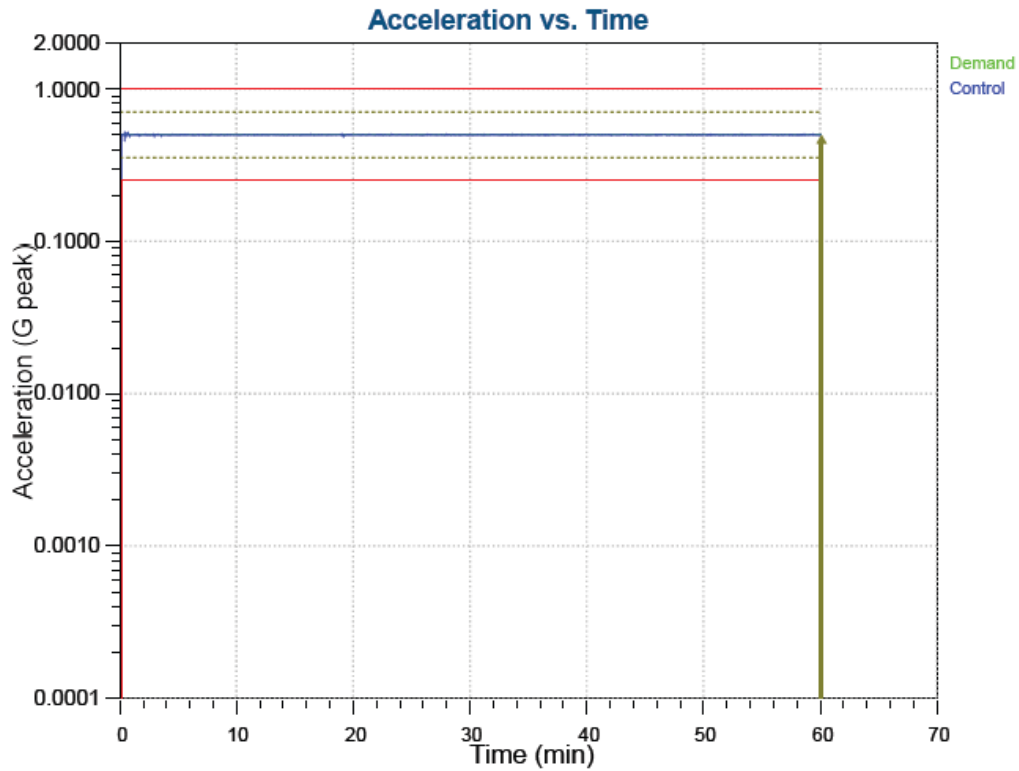
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[Endurance Test]



3/17, 2022 15:26:0 Level 1) 100 % at 30 Hz Output: 0.04843 Volts per Hz 공진내

Demand: 0.5 C Level Time: 1:00:C Frequency: 30 Hz

Control: 0.5002 C Total Time: 1:00:0 End of Timed Test

[Z axis]
- End -