HRi RANGE EZi RANGE BBi RANGE

HARWiN

Test Report Summary

HT08302

Current vs Temperature Rise
Hardware Terminals and Lugs

1. Introduction

1.1. Description and Purpose

The following tests were carried out to determine the current carrying capacity of various PCB terminals and lugs from the Hardware range.

1.2. Conclusion

The following data has been collated from Harwin test report 934. The terminals and lugs do not currently have a specific current rating. These results indicate how the solid brass components are affected by the current through them, with the resultant temperature rise. The lowest current recorded at 30°C temperature rise was measured at around 11.7A on the H3108-01 terminal which is the thinnest terminal at Ø0.5mm.

It should be noted that these tests were carried out under laboratory conditions, with space and airflow around the contact under test. Results may differ in real-world scenarios, with less space for cooling effects.

2. Test Method and Requirements

2.1. Specification Parameters

Tests were carried out in general accordance with the EIA-364-70A: 1998 standard.

2.2. Test Methodology

2 samples of each terminal/lug were tested. The terminal/lug was soldered with a 250mm length of 18AWG wire (TFE insulated) to the top of the contact, and an identical piece of wire soldered to the bottom. A thermocouple was attached to a convenient location on the terminal/lug. Current was increased in increments to create a 5-10°C temperature rise, until a total rise of 30°C was reached (or exceeded). A minimum of 4 readings were taken for each test.

2.3. List of Samples

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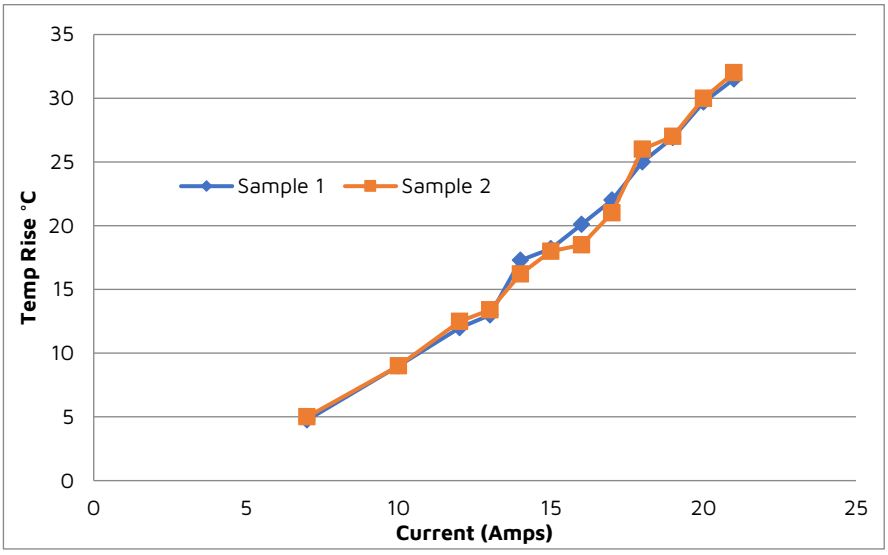
3. Test Results

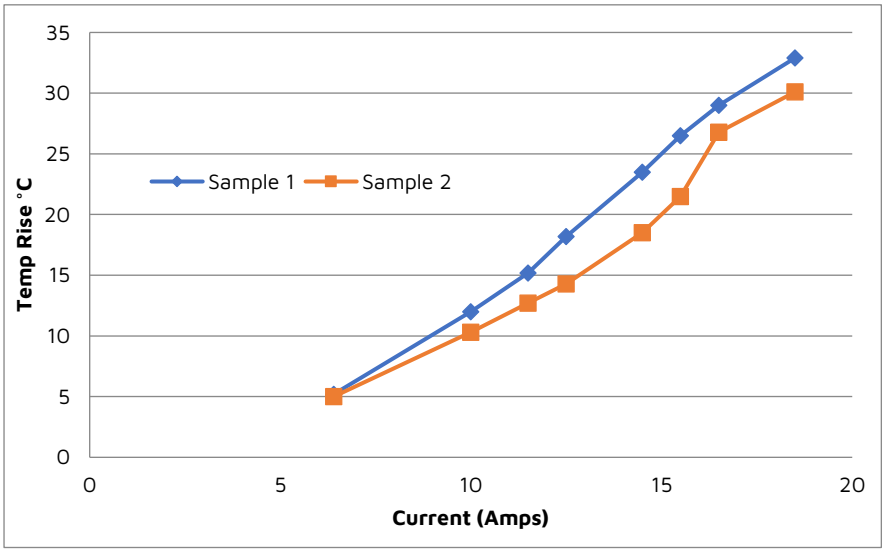
3.1. H2039-01

Current (Amps)	Temp. Rise (°C)	
	Sample 1	Sample 2
7	4.75	5.00
10	9.00	9.00
12	12.00	12.50
13	13.00	13.40
14	17.30	16.20
15	18.20	18.00
16	20.10	18.50
17	22.00	21.00
18	25.00	26.00
19	26.90	27.00
20	29.70	30.00
21	31.50	32.00



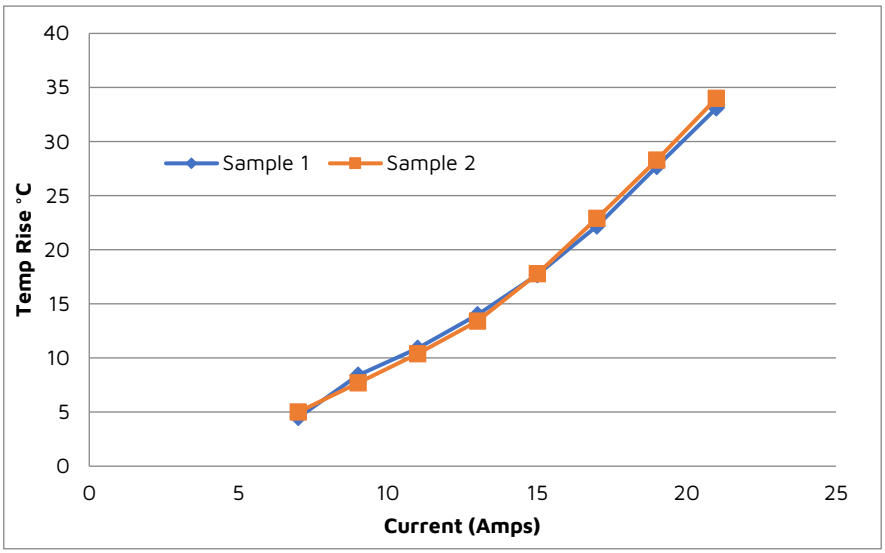
3.2. H2051-01

Current (Amps)	Temp. Rise (°C)	
	Sample 1	Sample 2
6.4	5.20	5.00
10.0	12.00	10.30
11.5	15.20	12.70
12.5	18.20	14.30
14.5	23.50	18.50
15.5	26.50	21.50
16.5	29.00	26.80
18.5	32.90	30.10



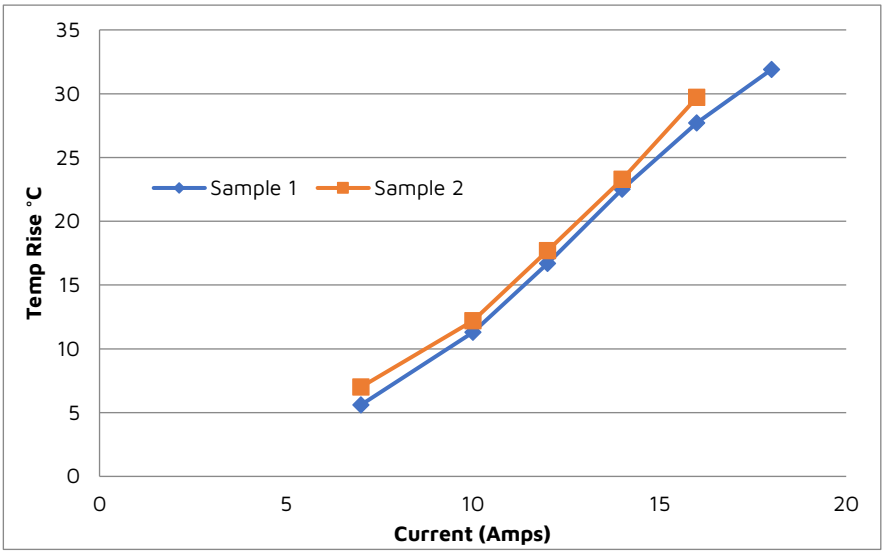
3.3. H2055-01

Current (Amps)	Temp. Rise (°C)	
	Sample 1	Sample 2
7	4.50	5.00
9	8.40	7.70
11	10.90	10.40
13	14.00	13.40
15	17.70	17.80
17	22.20	22.90
19	27.70	28.30
21	33.10	34.00



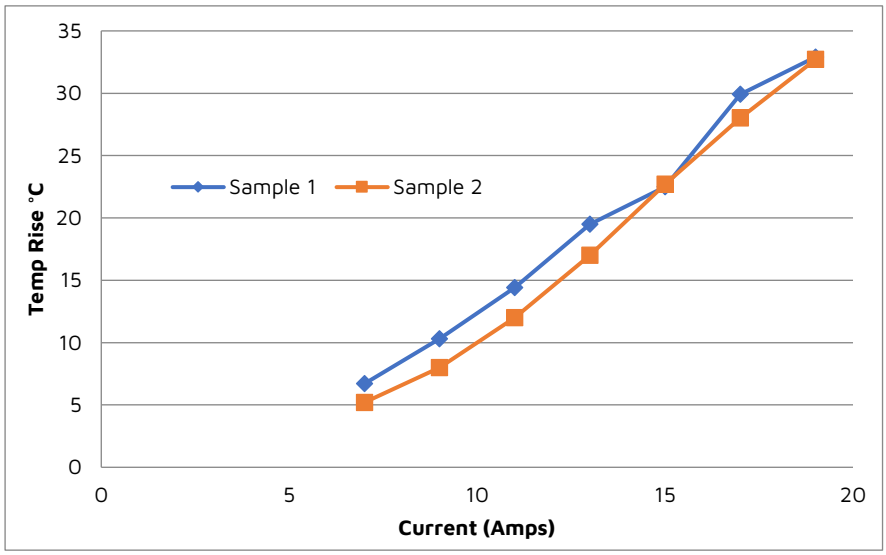
3.4. H2071Z01

Current (Amps)	Temp. Rise (°C)	
	Sample 1	Sample 2
7	5.60	7.00
10	11.30	12.20
12	16.70	17.70
14	22.50	23.30
16	27.70	29.70
18	31.90	



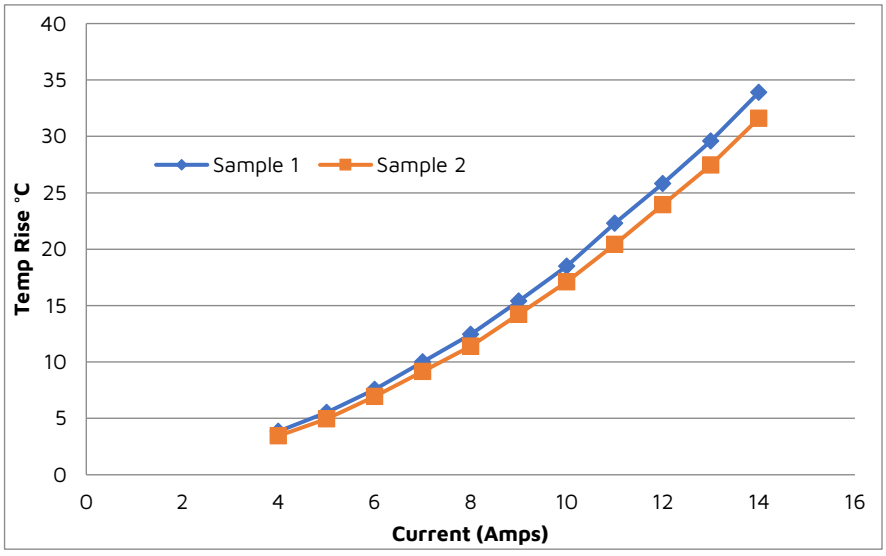
3.5. H2072-01

Current (Amps)	Temp. Rise (°C)	
	Sample 1	Sample 2
7	6.70	5.20
9	10.30	8.00
11	14.40	12.00
13	19.50	17.00
15	22.50	22.70
17	29.90	28.00
19	32.90	32.70



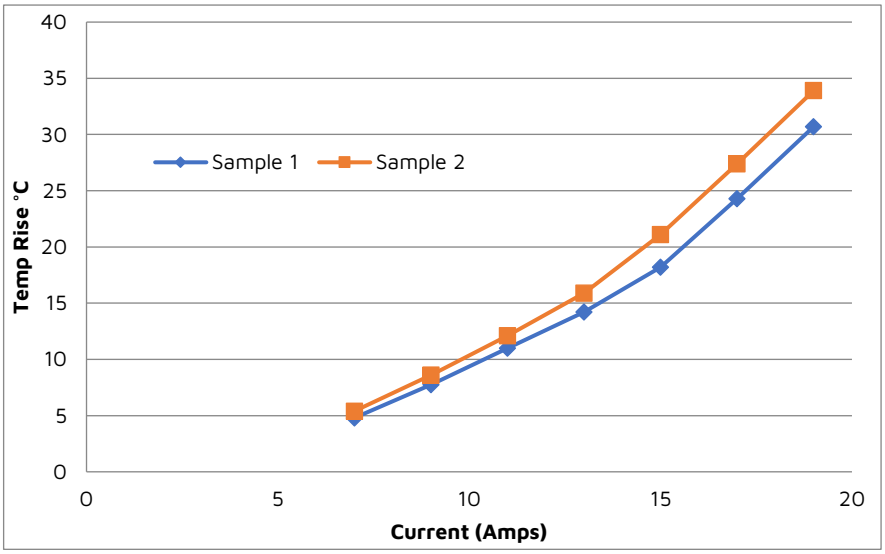
3.6. H2072Z01

Current (Amps)	Temp. Rise (°C)	
	Sample 1	Sample 2
4	3.85	3.45
5	5.52	4.95
6	7.56	6.95
7	10.00	9.15
8	12.45	11.40
9	15.40	14.23
10	18.50	17.10
11	22.28	20.42
12	25.80	23.95
13	29.58	27.45
14	33.90	31.60



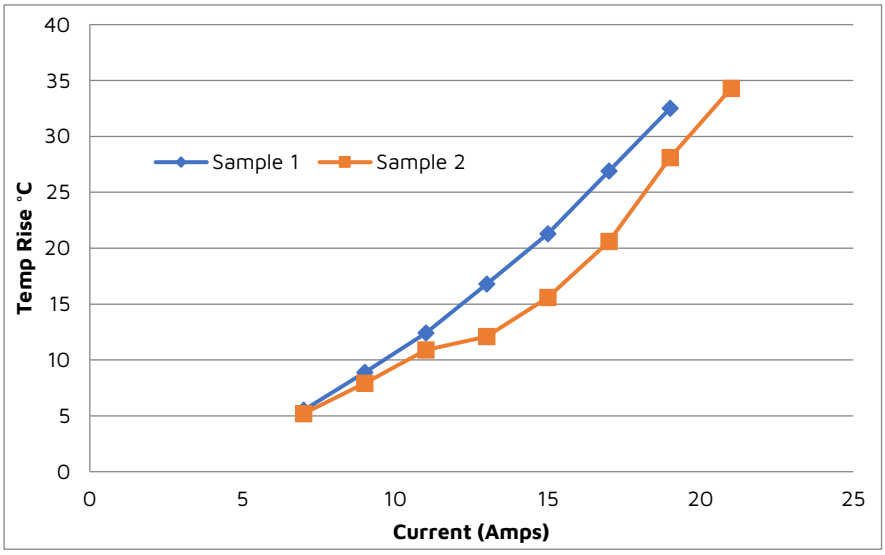
3.7. H2072ZL1

Current (Amps)	Temp. Rise (°C)	
	Sample 1	Sample 2
7	4.80	5.40
9	7.75	8.60
11	11.00	12.10
13	14.20	15.90
15	18.20	21.10
17	24.30	27.40
19	30.70	33.90



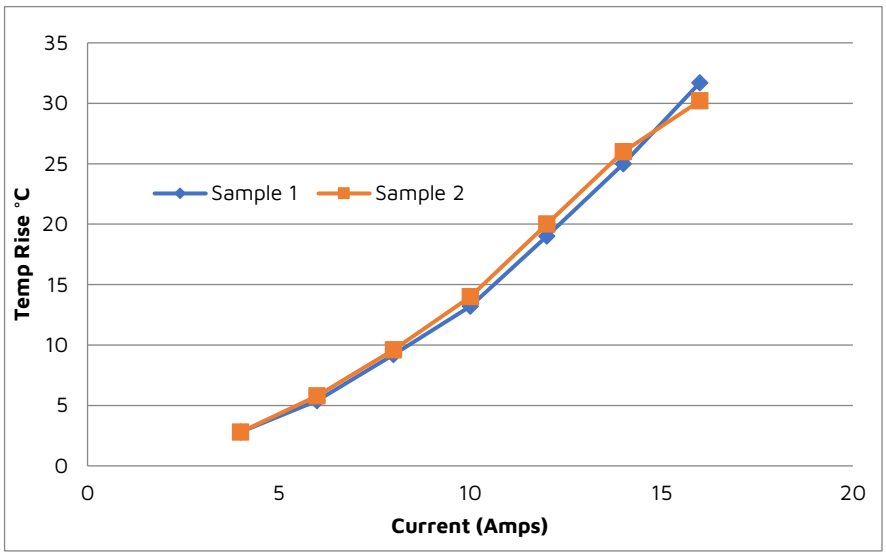
3.8. H2073Z01

Current (Amps)	Temp. Rise (°C)	
	Sample 1	Sample 2
7	5.50	5.20
9	8.90	7.90
11	12.40	10.90
13	16.80	12.10
15	21.30	15.60
17	26.90	20.60
19	32.50	28.10
21		34.30



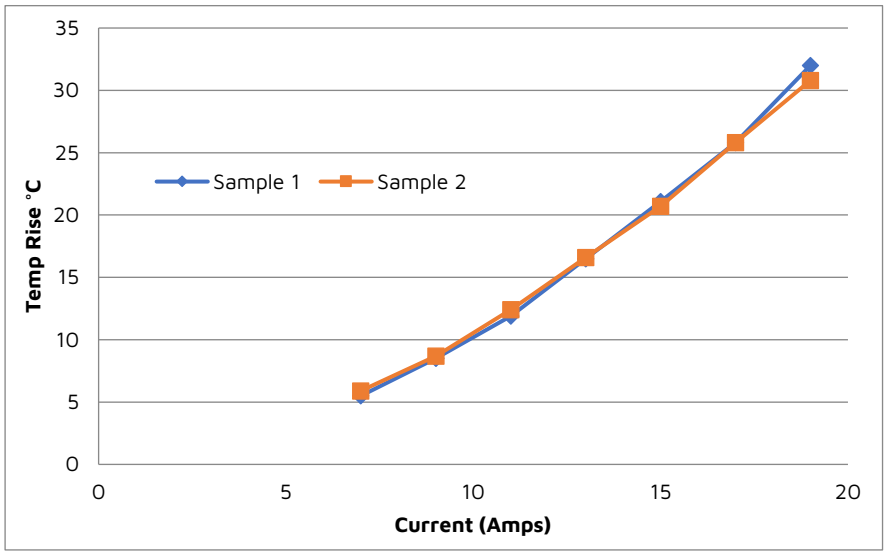
3.9. H2074-01

Current (Amps)	Temp. Rise (°C)	
	Sample 1	Sample 2
4	2.80	2.80
6	5.40	5.80
8	9.20	9.60
10	13.20	14.00
12	19.00	20.00
14	25.00	26.00
16	31.70	30.20



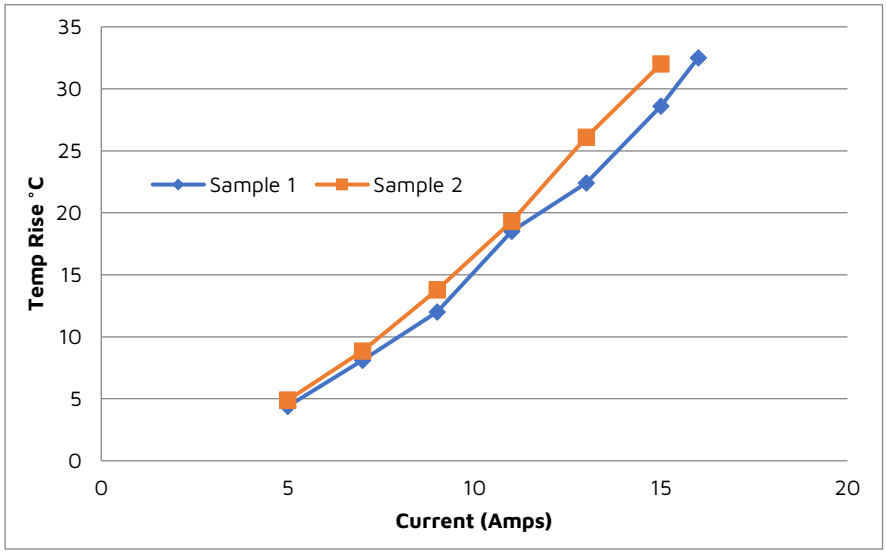
3.10. H2074Z01

Current (Amps)	Temp. Rise (°C)	
	Sample 1	Sample 2
7	5.50	5.90
9	8.50	8.70
11	11.90	12.40
13	16.50	16.60
15	21.10	20.70
17	25.80	25.80
19	32.00	30.80



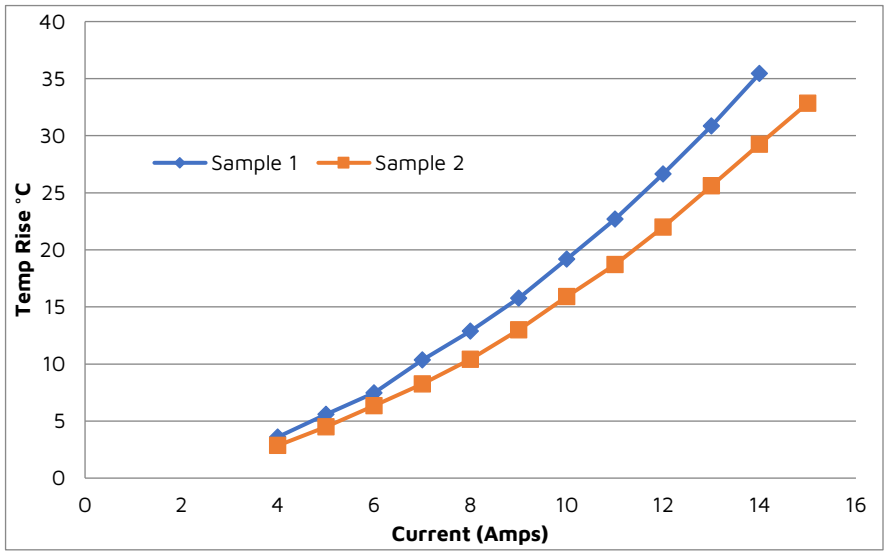
3.11. H2105-01

Current (Amps)	Temp. Rise (°C)	
	Sample 1	Sample 2
5	4.40	4.90
7	8.10	8.85
9	12.00	13.80
11	18.50	19.30
13	22.40	26.10
15	28.60	32.00
16	32.50	



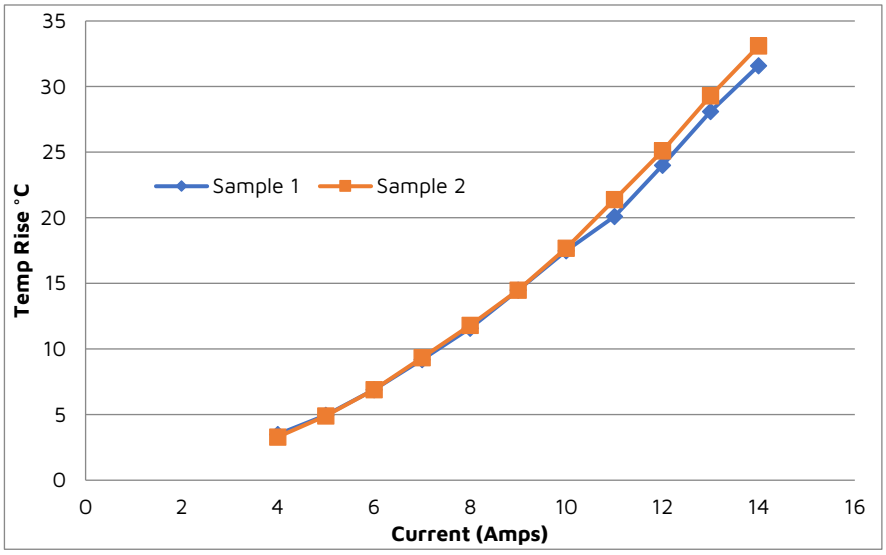
3.12. H2121-01

Current (Amps)	Temp. Rise (°C)	
	Sample 1	Sample 2
4	3.60	2.85
5	5.57	4.50
6	7.47	6.35
7	10.35	8.25
8	12.88	10.40
9	15.77	13.00
10	19.19	15.90
11	22.70	18.70
12	26.64	22.00
13	30.85	25.60
14	35.44	29.25
15		32.85



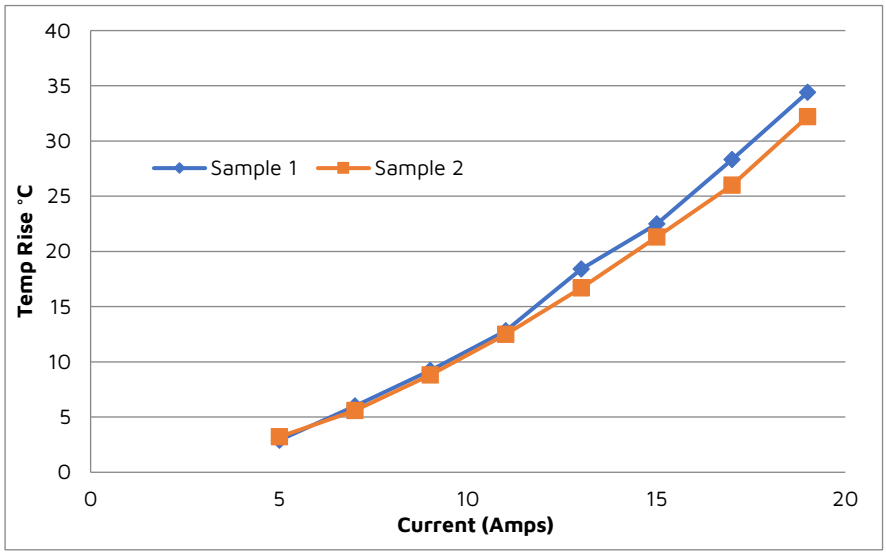
3.13. H2173-01

Current (Amps)	Temp. Rise (°C)	
	Sample 1	Sample 2
4	3.50	3.30
5	4.95	4.90
6	6.90	6.90
7	9.20	9.35
8	11.60	11.80
9	14.50	14.50
10	17.50	17.70
11	20.10	21.40
12	24.00	25.10
13	28.10	29.30
14	31.60	33.10



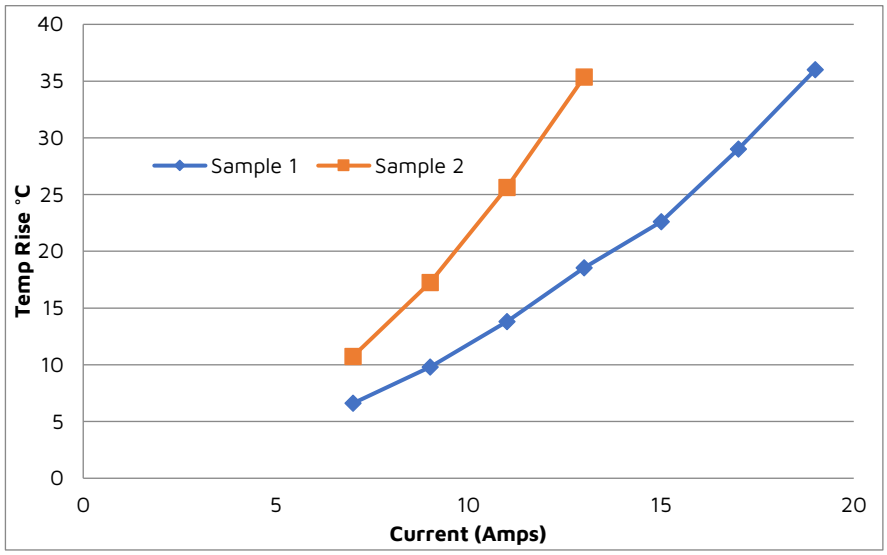
3.14. H2175-01

Current (Amps)	Temp. Rise (°C)	
	Sample 1	Sample 2
5	2.90	3.20
7	6.00	5.60
9	9.20	8.80
11	12.80	12.50
13	18.40	16.70
15	22.50	21.30
17	28.30	26.00
19	34.40	32.20



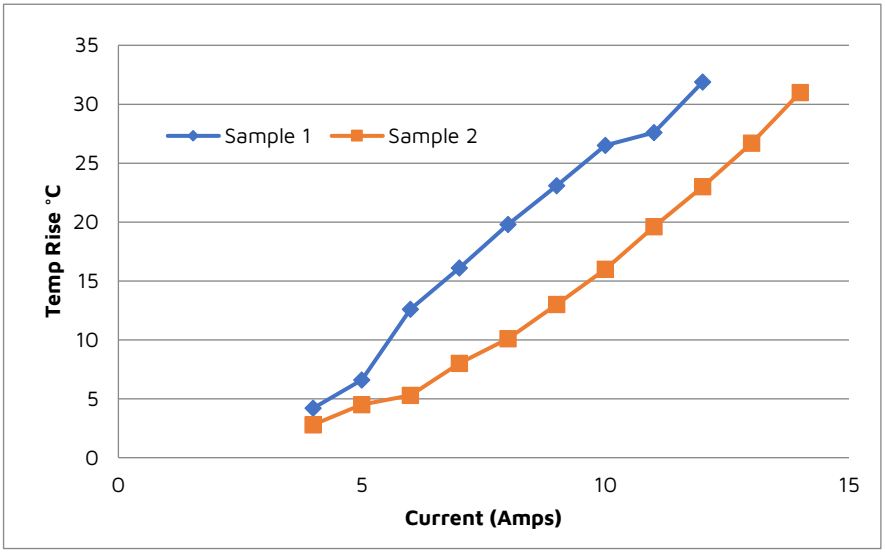
3.15. H2176-01

Current (Amps)	Temp. Rise (°C)	
	Sample 1	Sample 2
7	6.60	10.74
9	9.80	17.25
11	13.80	25.63
13	18.55	35.35
15	22.60	
17	29.00	
19	36.00	



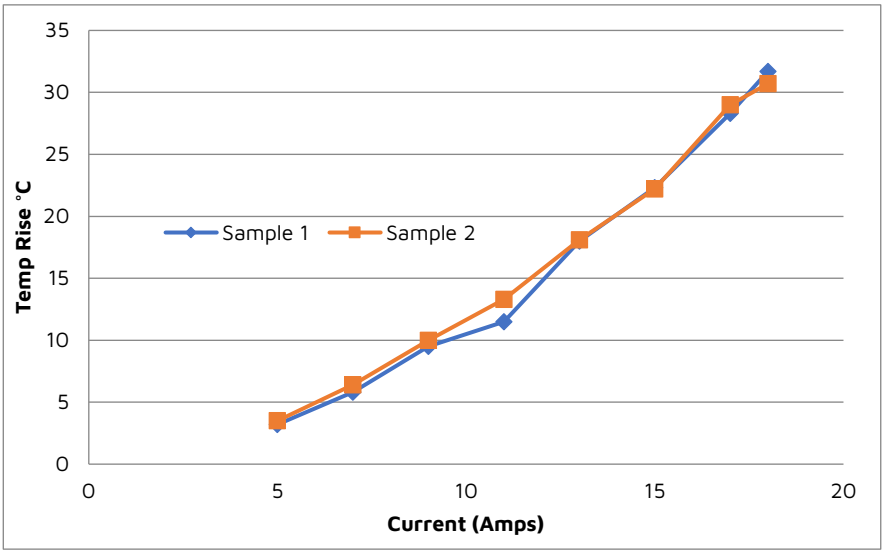
3.16. H3108-01

Current (Amps)	Temp. Rise (°C)	
	Sample 1	Sample 2
4	4.20	2.80
5	6.60	4.50
6	12.60	5.30
7	16.10	8.00
8	19.80	10.10
9	23.10	13.00
10	26.50	16.00
11	27.60	19.60
12	31.90	23.00
13		26.70
14		31.00



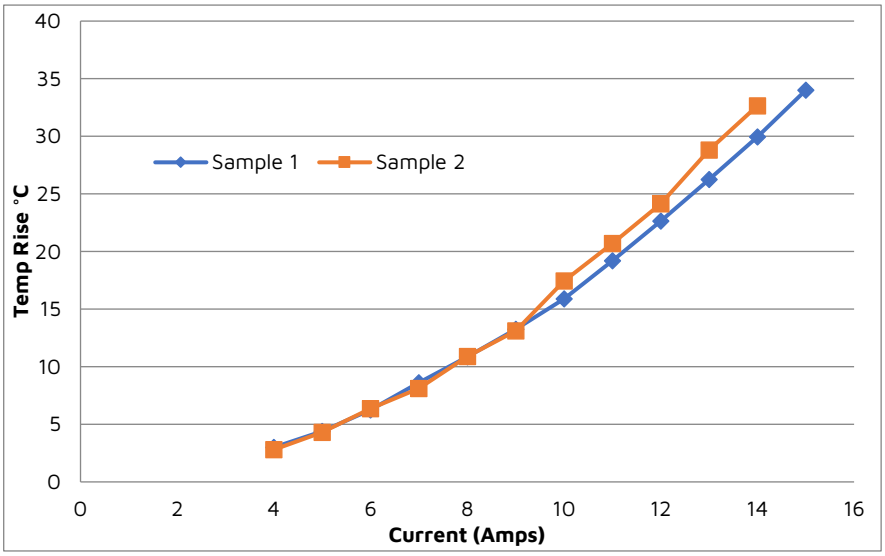
3.17. H9020-01

Current (Amps)	Temp. Rise (°C)	
	Sample 1	Sample 2
5	3.20	3.50
7	5.80	6.40
9	9.50	10.00
11	11.50	13.30
13	18.00	18.10
15	22.30	22.20
17	28.30	29.00
18	31.70	30.70



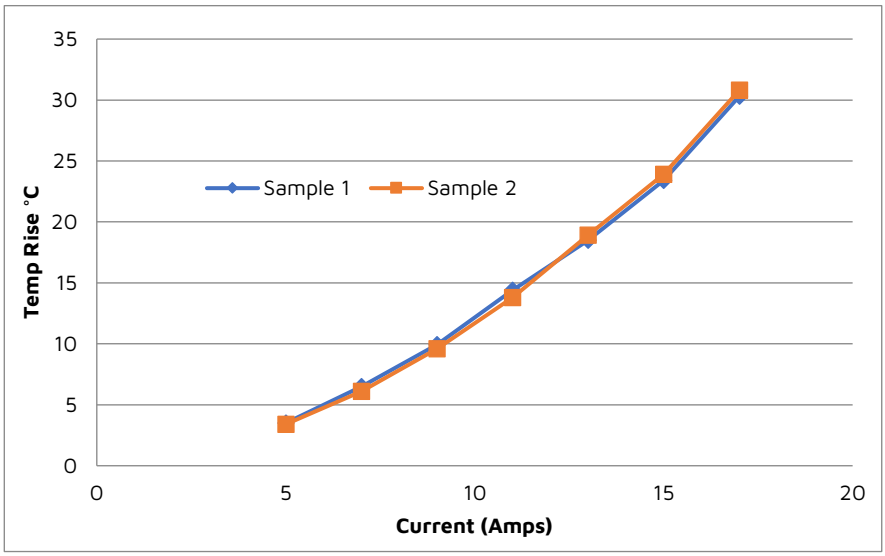
3.18. H9021-01

Current (Amps)	Temp. Rise (°C)	
	Sample 1	Sample 2
4	3.00	2.80
5	4.40	4.30
6	6.25	6.35
7	8.60	8.10
8	10.85	10.90
9	13.25	13.10
10	15.90	17.45
11	19.20	20.70
12	22.65	24.15
13	26.25	28.80
14	29.95	32.65
15	34.00	



3.19. H9023-01

Current (Amps)	Temp. Rise (°C)	
	Sample 1	Sample 2
5	3.50	3.40
7	6.50	6.10
9	9.92	9.60
11	14.40	13.80
13	18.50	18.90
15	23.40	23.90
17	30.30	30.80



3.20. H9026-01

Current (Amps)	Temp. Rise (°C)	
	Sample 1	Sample 2
7	6.00	5.80
9	9.50	12.80
11	13.50	14.50
13	16.90	18.80
15	21.70	23.80
17	27.90	28.80
19	34.50	35.30