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HARWIN

Test Report Summary

HT07605

Electrical, Mechanical & Environmental Testing
Kona

KONA

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1. Introduction

1.1. Description and Purpose

Kona is a high reliability connector range, based on a single row, 8.5mm pitch mating connector pair. These connectors are designed for higher power applications with a rugged or durable requirement. Each contact on both male and female connectors is individually shrouded and recessed (to prevent accidental touch). Polarization and contact 1 identification marks are also incorporated into the housing designs. Straight and right-angle options are available for both solder and crimp variants. The following tests were carried out to establish and confirm the operating parameters of the Kona connectors.

1.2. Conclusion

The following data has been summarized from Harwin test reports QA000526, QA000585, QA000593, QA000633, QA000648. The results were used to create Component Specification C052XX for the Kona range. The tests indicate that the Kona range performs as required, suitable for a wide range of applications calling for high power interconnects.

2. Test Method and Requirements

2.1. Specification Parameters

Product testing has been performed in accordance with, EIA-364: Electrical Connector Performance Test Standards.

Testing has been separated into the following groups, which follow a sequence where the same samples are subjected to each condition:

Group 1 Testing			
Testing Standard	**Description of Test**	**Section**	**Page No.**
EIA-364-06	Contact Resistance	3.1	5
EIA-364-27 (BS EN 60068-2-27:2009)	Mechanical Shock	3.2	5-6
EIA-364-28 (BS EN 60068-2-6:2008)	Mechanical Vibration	3.3	6-7
EIA-364-06	Contact Resistance	3.4	8

Group 2 Testing			
Testing Standard	**Description of Test**	**Section**	**Page No.**
EIA-364-13	Mating Force	4.1	9
EIA-364-06	Contact Resistance	4.2	9
EIA-364-13	Unmating Force	4.3	9
EIA-364-09	Durability	4.4	10-11
EIA-364-13	Mating and Unmating Force	4.5	11
EIA-364-06	Contact Resistance	4.6	11
EIA-364-32 (BS EN 60068-2-14:2023)	Thermal Shock	4.7	11
EIA-364-06	Contact Resistance	4.8	11
EIA-364-31 (BS EN 60068-2-78:2013)	Humidity	4.9	11
EIA-364-06	Contact Resistance	4.10	12

Group 3 Testing			
Testing Standard	**Description of Test**	**Section**	**Page No.**
EIA-364-20	Dielectric Withstand Voltage	5.1	13
EIA-364-21	Insulation Resistance	5.2	13
EIA-364-32 (BS EN 60068-2-14:2023)	Thermal Shock	5.3	13
EIA-364-31 (BS EN 60068-2-78:2013)	Humidity	5.4	14
EIA-364-21	Insulation Resistance	5.5	14
EIA-364-20	Dielectric Withstand Voltage	5.6	14

Group 4 Testing			
Testing Standard	**Description of Test**	**Section**	**Page No.**
EIA-364-06	Contact Resistance	6.1	15
EIA-364-26 (BS EN 60068-2-11:2001)	Salt Spray	6.2	15
EIA-364-06	Contact Resistance	6.3	15

Group 5 Testing			
Testing Standard	**Description of Test**	**Section**	**Page No.**
EIA-364-13	Mating Force	7.1	16
EIA-364-06	Contact Resistance	7.2	16
EIA-364-17	Temperature Life	7.3	16
EIA-364-06	Contact Resistance	7.4	16
EIA-364-13	Unmating Force	7.5	16

Group 6 Testing			
Testing Standard	**Description of Test**	**Section**	**Page No.**
EIA-364-70	Temperature Rise Versus Current	8.1	17-19
EIA-364-38	Cable Pullout	8.4	19

2.2. List of Test Samples

The following test setups are used throughout the testing:

Test Setups		
Test Setup	**Test Setup Description**	**Part Numbers**
M1A	Male Straight PC Tail	KA1-MV10405M1
		KA1-4240000
M2A	Male Right-Angle PC Tail	KA1-MH10405M3
		M80-4200000
M3A	Male Straight Cable Solder	KA1-3010498M1
		KA1-1410005
		KA1-4240000
M3D	Male Straight Cable Crimp	KA1-3010498M1
		KA1-1450005
		KA1-4240000
F1A	Female Right-Angle Cable Solder	KA1-2020498F1
		KA1-0500005
		KA1-5100498
F1D	Female Right-Angle Cable Crimp	KA1-2020498F1
		KA1-0550005
		KA1-5100498
F2A	Female Straight Cable Solder	KA1-2010498F1
		KA1-0400005
F2D	Female Straight Cable Crimp	KA1-2010498F1
		KA1-0450005

3. Group 1 Testing

3.1. Contact Resistance: EIA-364-06C: 1999

Methodology: Power contacts on each connector were measured using a precision milli/micro-ohmmeter for resistance both before and after to any electrical, mechanical, or environmental testing. Mated samples were then submitted to individual environmental conditions and each contact pair was measured for contact resistance.

Specification:

- 2mΩ Max per contact (Pre-Conditioning)
- 10mΩ Max per contact (Post-Conditioning)

Results: The initial values are detailed in the Table 1. Results after each conditioning test are given in the applicable section.

3.2. Mechanical Shock: EIA-364-27B Condition C (BS EN 60068-2-27:2009 Test Ea)

Methodology: Shock Test Sequence was carried out on all samples. During the test, the samples were monitored continuously for discontinuities of 1 microsecond or longer.

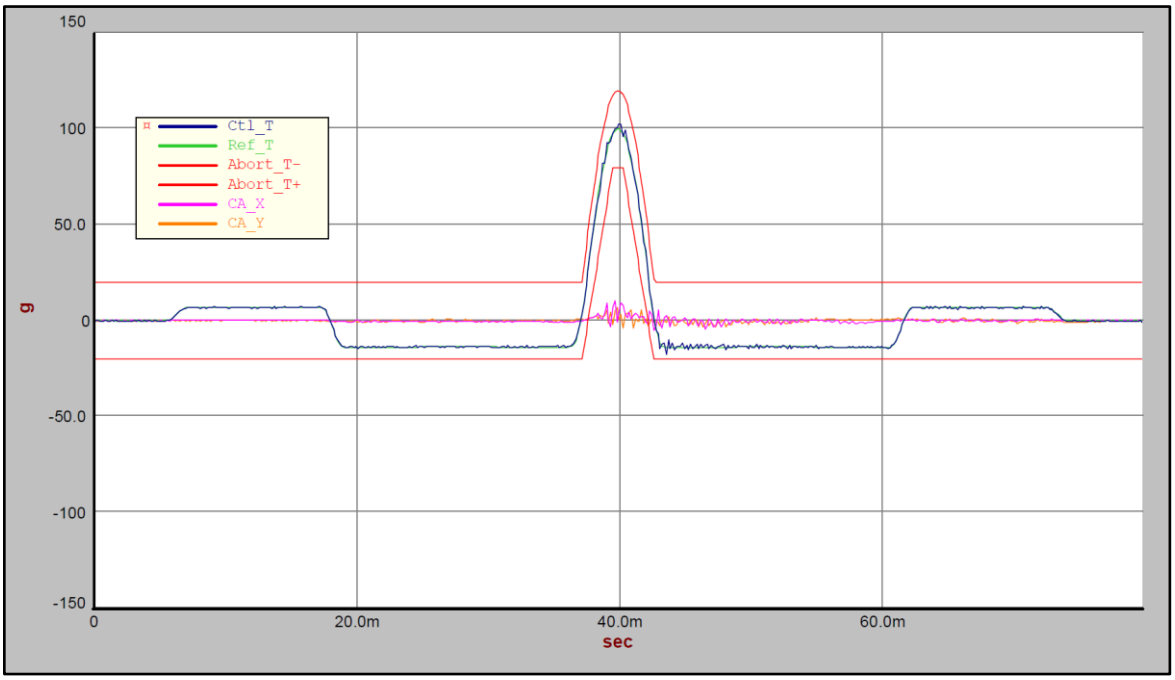
Specification 1:

- Acceleration = 100g
- Shock Duration = 6ms
- Shock Shape = Half Sine Pulse, 3 shocks in each axis

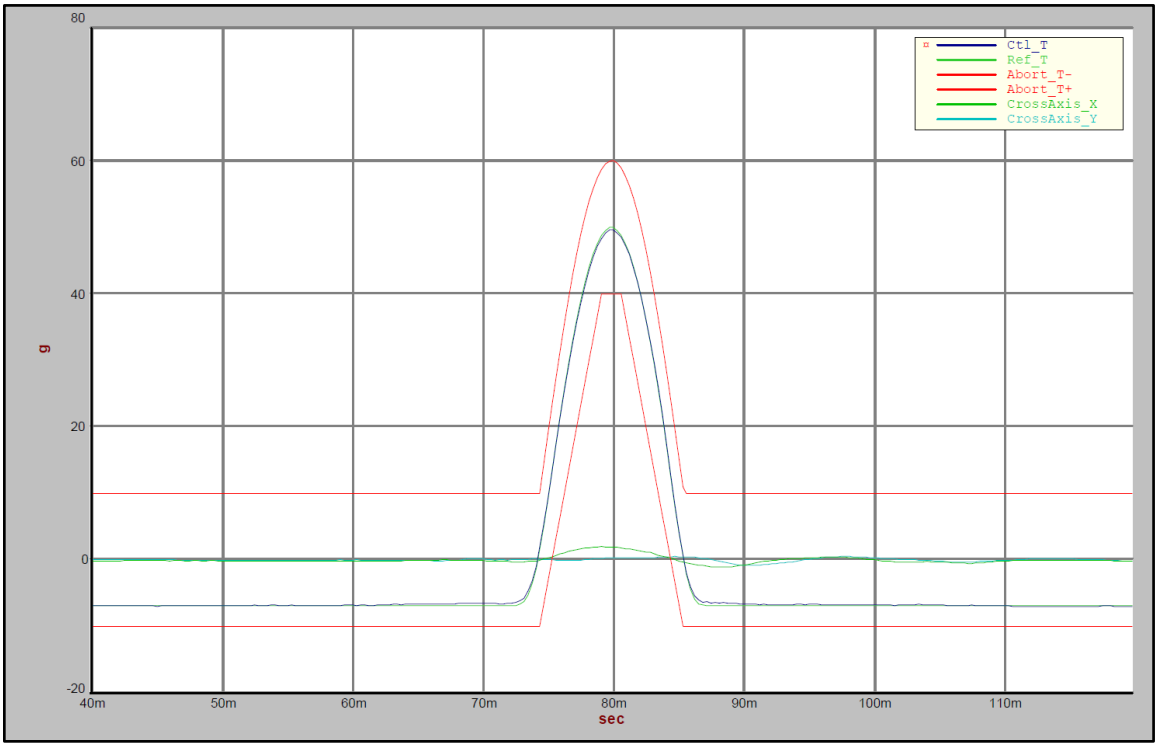
Specification 2:

- Acceleration = 50g
- Shock Duration = 11ms
- Shock Shape = Half Sine Pulse, 3 shocks in each axis

Results: No triggers were noted on any sample during the test process. Upon completion of testing the samples were visually inspected; no obvious changes to the samples were noted.



Graph 1: Typical 100g Shock Reponse in the Vertical Axis.



Graph 2: Typical 50g Shock Reponse in the Vertical Axis.

3.3. Mechanical Vibration: EIA-364-28D Condition 4 (BS EN 60068-2-6:2008 Test Fc)

Methodology: The samples were subjected to a Swept Sine Test, with continuous monitoring for discontinuities of 1 microsecond or longer.

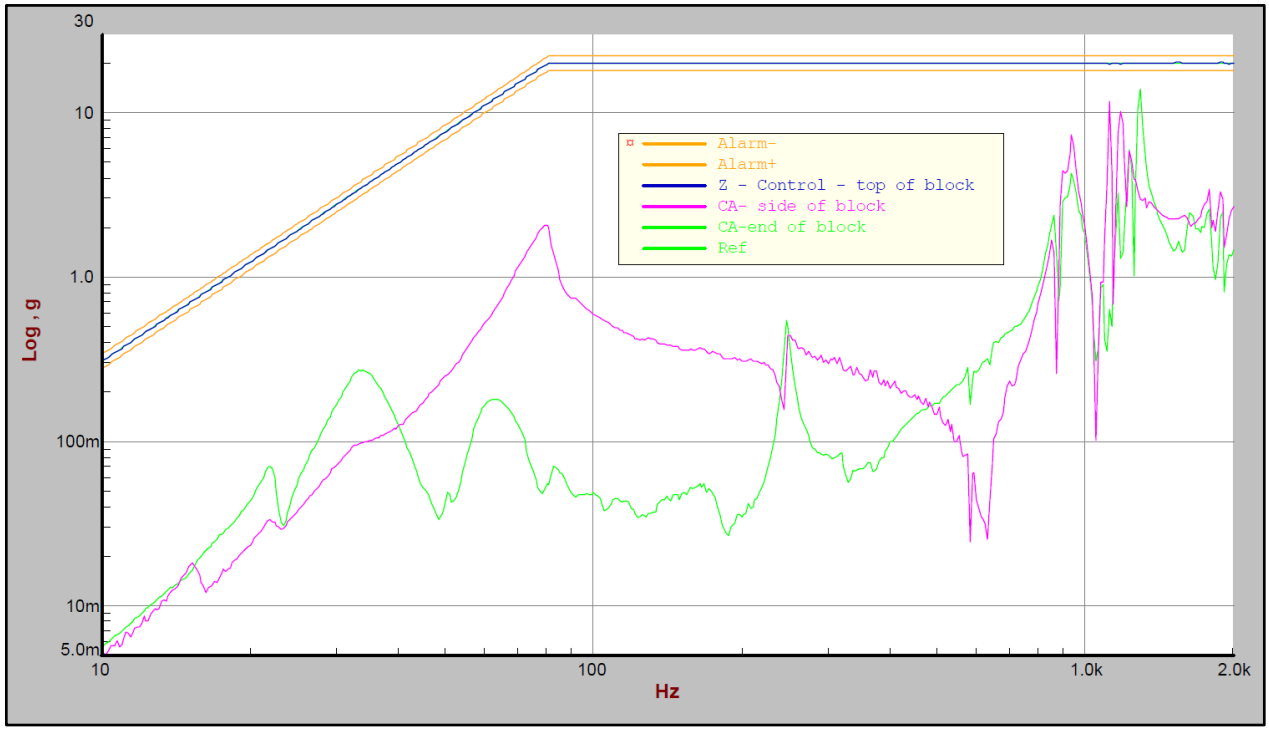
Specification 1:

- Sine Vibration Profile:
  - 10Hz at 1.52mm peak-to-peak displacement.
  - 81Hz at 20gn peak.
  - 2000Hz at 20gn peak.
- Sweep cycle from 10Hz to 2000Hz to 10Hz (traversed in 20 minutes).
- 12 cycles per axis (X/Y/Z), 20 minutes per cycle.
- Cables restrained above 200mm from connectors.

Specification 2:

- Sine vibration profile:
  - 10Hz at 1.52mm peak-to-peak displacement.
  - 57Hz at 10gn peak.
  - 500Hz at 10gn peak.
- Sweep cycle from 10Hz to 500Hz to 10Hz (traversed in 15 minutes).
- 12 cycles per axis (X/Y/Z), 20 minutes per cycle.
- Cables restrained above 200mm from connectors.

Results: No triggers were noted on any sample during the test process. Upon completion of testing the samples were visually inspected; no obvious changes to the samples were noted.



Graph 3: Typical 20g Vibration Reponse in the Vertical Axis.

Graph 4: Typical 10g Vibration Reponse in the Vertical Axis.

3.4. Contact Resistance: EIA-364-06C: 1999

Methodology & Specification: See section 3.1

Results: See Table 1

3.5. Test Results

Table 1: Group 1 Test Results – Pre- & Post-Vibration and Shock Contact Resistance								
Test Setup	Setup Description	Pre-Conditioning (mΩ)			Post-Conditioning (mΩ)		
		Max	Min	Average	Max	Min	Average
M1A/F1A	Male Straight PC Tail / Female Right-Angle Cable Solder	0.37	0.34	0.36	0.89	0.12	0.54
M1A/F1D	Male Straight PC Tail / Female Right-Angle Cable Crimp	Pre-Conditioning not tested. Results expected to be in line with M1A/F1A.			0.84	0.06	0.40
M2A/F2D	Male Right-Angle PC Tail / Female Straight Cable Crimp	0.48	0.42	0.45	0.43	0.16	0.26
M3A/F2A	Male Straight Cable Solder / Female Straight Cable Solder	0.58	0.48	0.54	0.84	0.36	0.66

4. Group 2 Testing

4.1. Mating Force: EIA-364-13 Method A

Methodology: Connectors were mated using an automatic force gauge at a speed of 25.4mm/min until both connector halves were fully assembled. Initial total mating force readings were then measured on the 4-contact assemblies.

Specification: Insertion Force (Per Contact):

- Initial (Pre-Conditioning) = 35N max per contact.
- Post-Conditioning = 40N max per contact.

Results: See Table 2

4.2. Contact Resistance: EIA-364-06C: 1999

Methodology & Specification: See section 3.1

Results: See Table 5

4.3. Unmating Force: EIA-364-13 Method A

Methodology & Specification: Connectors were un-mated using an automatic force gauge at a speed of 25.4mm/min until both connector halves were fully separated. Initial total un-mating force readings were then measured on the 4-contact assemblies.

Specification: Withdrawal Force (Per Contact):

- 2N min.

Results: See Table 2

Table 2: Group 2 Test Results – Mating & Unmating Forces

Test Setup	Test Setup Description	Pre-Conditioned					
		First Mating Force (N)			First Unmating Force (N)		
		Max	Min	Avg.	Max	Min	Avg.
M1A/F1A	Male Straight PC Tail Female Right-Angle Cable Solder	66.45	56.50	62.38	57.43	44.56	51.50
M1A/F2A	Male Straight PC Tail Female Straight Cable Solder	89.15	71.40	79.24	66.74	55.74	59.84
M2A/F1A	Male Right-Angle PC Tail Female Right-Angle Cable Solder	57.95	42.70	49.11	41.73	32.48	37.71
M2A/F2A	Male Right-Angle PC Tail Female Straight Cable Solder	64.35	53.25	59.99	54.85	39.02	49.21
M3A/F1A	Male Straight Cable Solder Female Right-Angle Cable Solder	41.35	35.75	38.51	34.17	29.03	31.64

4.4. Durability: EIA-364-09

Methodology: For this test, both individual power contacts and fully-assembled connector pairs were mated at a speed of 25mm/min for 300 cycles. The force required to mate and un-mate was recorded on every cycle. Contact resistance was also measured after the 300 cycles.

Specification:

- Durability = 250 mating cycles (operation) minimum
- Insertion Force = 35N max per contact (using mating contact); initial and during 300 mating cycles
- Insertion Force = 40N max per contact (using mating contact), after conditioning tests
- Withdrawal Force = 2N min per contact (using mating contact)

Results: Average forces are taken from multiple samples in each test setup. Inspection of the plating in the contact area was performed post-cycling, and little contact wear was observed. See Table X for results.

Table 3: Group 2 Test Results – Durability (Whole Connector)

Test Setup	Test Setup Description	Maximum Force (N)		Minimum Force (N)		Final Force (N)	
		Insertion	Withdrawal	Insertion	Withdrawal	Insertion	Withdrawal
M1A/F1A	Male Straight PC Tail Female Right-Angle Cable Solder	108.57	71.52	62.38	51.50	102.49	67.67
M1A/F2A	Male Straight PC Tail Female Straight Cable Solder	112.46	76.97	79.24	59.84	98.27	67.90
M2A/F1A	Male Right-Angle PC Tail Female Right-Angle Cable Solder	83.04	57.28	49.11	37.71	79.27	54.61
M2A/F2A	Male Right-Angle PC Tail Female Straight Cable Solder	83.95	58.79	59.99	49.21	78.99	56.54
M3A/F1A	Male Straight Cable Solder Female Right-Angle Cable Solder	58.24	42.91	38.51	31.64	53.65	37.09

Table 4: Group 2 Test Results – Durability (Interpreted For Single Contact)							
Test Setup	Test Setup Description	Maximum Force (N)		Minimum Force (N)		Final Force (N)	
		Insertion	Withdrawal	Insertion	Withdrawal	Insertion	Withdrawal
M1A/F1A	Male Straight PC Tail / Female Right-Angle Cable Solder	27.83	18.06	15.46	12.11	26.60	17.22
M1A/F2A	Male Straight PC Tail / Female Straight Cable Solder	29.01	19.78	19.40	15.35	25.29	17.49
M2A/F1A	Male Right-Angle PC Tail / Female Right-Angle Cable Solder	20.44	13.77	11.96	9.42	19.68	13.10
M2A/F2A	Male Right-Angle PC Tail / Female Straight Cable Solder	21.23	14.53	14.70	12.34	20.26	14.02
M3A/F1A	Male Straight Cable Solder / Female Right-Angle Cable Solder	14.88	10.84	9.84	8.04	13.80	9.01

4.5. Mating and Unmating Force: EIA-364-13 Method A

Methodology & Specification: See section 4.1 & 4.3.

Results: Mating and Un-mating force covered by the 'Final Force' in the durability results shown above (Table 3 & 4).

4.6. Contact Resistance: EIA-364-06C: 1999

Methodology & Specification: See section 3.1

Results: See Table 5

4.7. Thermal Shock: EIA-364-32 Test Condition VI

Methodology: This test was conducted using automated transfer every 30 minutes between climatic chambers at the two temperature extremes (-65°C to +200°C).

Specification: Operating temperature = -65°C to +150°C. Tested from -65°C to +200°C.

Results: There were no obvious visual changes. Contact Resistance results in Table 5.

4.8. Contact Resistance: EIA-364-06C: 1999

Methodology & Specification: See section 3.1

Results: See Table 5.

4.9. Humidity: EIA-364-31 Method II Condition A

Methodology: The samples were pre-conditioned for 24 hours at 50°C then suspended in a humidity chamber for 96 hours at 40°C with 90-95% relative humidity.

Specification: 90-95% Relative humidity at +40°C for 96 hours duration.

Results: There were no obvious visual changes. Contact Resistance results in Table 5.

4.10. Contact Resistance: EIA-364-06C: 1999

Methodology & Specification: See section 3.1

Results: See Table 5

4.11. Test Results

Table 5: Group 2 Test Results – Contact Resistance					
Test Setup	Test Setup Description	Contact Resistance (mΩ)			
		Pre-Conditioning	Durability	Thermal Shock	Humidity
M1A/F1A	Male Straight PC Tail Female Right-Angle Cable Solder	0.35	0.46	0.50	0.49
M1A/F2A	Male Straight PC Tail Female Straight Cable Solder	0.41	0.48	0.53	0.50
M2A/F1A	Male Right-Angle PC Tail Female Right-Angle Cable Solder	0.39	0.48	0.52	0.54
M2A/F2A	Male Right-Angle PC Tail Female Straight Cable Solder	0.43	0.52	0.64	0.59
M3A/F1A	Male Straight Cable Solder Female Right-Angle Cable Solder	0.46	0.52	0.61	0.58

5. Group 3 Testing

5.1. Dielectric Withstand Voltage: EIA-364-20 Method B Test Condition I & IV

Methodology: 3,000V was applied to connector pairs wired in two series circuits for 60 seconds to determine whether breakdown or flashover occurred. Samples were then put into a vacuum chamber at a reduced air pressure of 44mb to simulate 70,000ft, and 500V was applied to connector pairs wired in two series to determine whether breakdown or flashover occurred.

Current leakage was measured during the test as the indicator for breakdown or flashover occurrence. Pass values were applied for all values below 5mA.

Specification:

- Voltage Proof (sea level) = 3,000V DC/AC for 60 seconds
- Voltage Proof (70,000 feet) = 500V DC/AC for 60 seconds
- Current leakage = 5mA max

Results: Samples were visually inspected following the test, with no obvious changes to the connectors occurring. See Table 7 for results.

5.2. Insulation Resistance: EIA-364-21

Methodology: 1,000V was applied to connector pairs wired in two series for 2 minutes to determine whether the resistance satisfies the required specification values of 10GΩ minimum.

Specification: 10GΩ Min pre- and post-conditioning (excluding salt mist conditioning) at 1,000V

Results: Samples were visually inspected following the test, with no obvious changes to the connectors occurring. See Table 6 for results.

5.3. Thermal Shock: EIA-364-32 (BS EN 60068-2-14:2023) Test Condition VI

Methodology: This test was conducted using automated transfer every 30 minutes between climatic chambers at the two temperature extremes (-65°C to +200°C).

Specification: Operating temperature = -65°C to +150°C. Tested from -65°C to +200°C.

Results: There were no obvious visual changes. Dielectric Withstanding and Insulation Resistance results are in Tables 6 & 7.

5.4. Humidity: EIA-364-31 Method II Condition A

Methodology: The samples were pre-conditioned for 24 hours at 50°C then suspended in a humidity chamber for 96 hours at 40°C with 90-95% relative humidity. The connectors were measured for contact resistance, current, voltage breakdown, insulation resistance and durability, as well as visual inspection post-testing.

Specification: 90-95% Relative humidity at +40°C for 96 hours duration

Results: There were no obvious visual changes. Dielectric Withstanding and Insulation Resistance results found in Tables 6 & 7.

5.5. Insulation Resistance: EIA-364-21

Methodology: 1,000V was applied to connector pairs wired in two series for 2 minutes to determine whether the resistance satisfies the required specification values of 10GΩ minimum.

Specification: 10GΩ Min pre- and post-conditioning (excluding salt mist conditioning) at 1,000V

Results: Samples were visually inspected following the test, with no obvious changes to the connectors occurring. See Tables 6 for results.

Table 6: Group 3 Test Results – Insulation Resistance				
Test Setup	Test Setup Description	Measured Insulation Resistance (MΩ)		
		Pre-Conditioning	Post-Conditioning	
			Thermal Shock	Humidity
M1A/F1A	Male Straight PC Tail Female Right-Angle Cable Solder	>9,999	>9,999	>9,999
M2A/F2A	Male Right-Angle PC Tail Female Straight Cable Solder	>9,999	>9,999	>9,999
M3A/F2A	Male Straight Cable Solder Female Straight Cable Solder	>9,999	>9,999	>9,999

5.6. Dielectric Withstand Voltage: EIA-364-20 Method B Condition I & IV

Methodology & Specification: See section 5.1.

Results: Samples were visually inspected following the test, with no obvious changes to the connectors occurring. See table 7 for results.

Table 7: Group 3 Test Results – Dielectric Withstand Voltage				
Test Setup	Test Setup Description	Measured Leaked Current (µA)		
		Pre-Conditioning	Post-Conditioning	
			Thermal Shock	Humidity
M1A/F1A	Male Straight PC Tail Female Right-Angle Cable Solder	0.0	0.0	0.0
M2A/F2A	Male Right-Angle PC Tail Female Straight Cable Solder	0.0	0.0	0.0
M3A/F2A	Male Straight Cable Solder Female Straight Cable Solder	0.0	0.0	0.0

6. Group 4 Testing

6.1. Contact Resistance: EIA-364-06C: 1999

Methodology & Specification: See section 3.1

Results: See Table 8.

6.2. Salt Spray: EIA-364-26 Condition B

Methodology: The samples were placed into the salt mist chamber for 48 hours and measured for contact resistance, current, voltage breakdown, insulation resistance and durability, as well as visual inspection post-testing.

Specification:

- Duration = 48 hours continuous
- Water/Salt Mix = 5% NaCl
- Chamber Temperature = +35°C
- pH Level = 6.5-7.2

Results: See Table 9.

6.3. Contact Resistance: EIA-364-06C: 1999

Methodology & Specification: See section 3.1

Results: See Table 8.

6.4. Test Results

Table 8: Group 4 Test Results – Post-Salt Spray Contact Resistance

Test Setup	Test Setup Description	Contact Resistance (mΩ) Pre-Conditioning			Contact Resistance (mΩ) Post-Salt Spray		
		Max	Min	Avg.	Max	Min	Avg.
M1A/F1A	Male Straight PC Tail	0.37	1.35	0.35	7.09	0.10	2.42
	Female Right-Angle Cable Solder						
M2A/F2A	Male Right-Angle PC Tail	0.48	0.42	0.45	8.55	0.03	2.55
	Female Straight Cable Solder						
M3A/F2A	Male Straight Cable Solder	0.58	0.48	0.54	9.06	0.03	3.33
	Female Straight Cable Solder						

7. Group 5 Testing

7.1. Mating Force: EIA-364-13 Method A

Methodology & Specification: See Section 4.1

Results: See Table 10.

7.2. Contact Resistance: EIA-364-06C: 1999

Methodology & Specification: See Section 3.1

Results: See Table 10.

7.3. Temperature Life: EIA-364-17 Condition 7 Method A Length D

Methodology: Connectors were subjected to 96 hours and 1,000 hours at 150±5°C.

Specification: Operating temperature = -65°C to +150°C.

Results: There were no obvious visual changes. Contact Resistance and mating/un-mating force results found in Table 10.

7.4. Contact Resistance: EIA-364-06C: 1999

Methodology: See Section 3.1

Results: See Table 10.

7.5. Unmating Force: EIA-364-13 Method A

Methodology & Specification: See Section 4.3

Results: See Table 10.

7.6. Test Results

Table 9: Group 5 Test Results
Pre- and Post-Temperature Life Mating/Un-mating Forces & Contact Resistance

Test Setup	Test Setup Description	Pre-Conditioned						1000hrs Temperature Life					
		First Mating Force (N)			Contact Resistance (mΩ)			First Unmating Force (N)			Contact Resistance (mΩ)		
		Max	Min	Avg.	Max	Min	Avg.	Max	Min	Avg.	Max	Min	Avg.
M1A/F1A	Male Straight PC Tail / Female Right-Angle Cable Solder	74.55	51.20	60.99	0.38	0.35	0.36	23.17	12.03	17.89	0.83	0.56	0.66
M2A/F2A	Male Right-Angle PC Tail / Female Straight Cable Solder	88.35	57.75	73.76	0.49	0.43	0.45	29.91	21.29	26.13	0.70	0.54	0.62
M3A/F2A	Male Straight Cable Solder / Female Straight Cable Solder	72.95	59.60	66.41	0.57	0.46	0.53	21.43	14.21	16.74	0.81	0.62	0.72

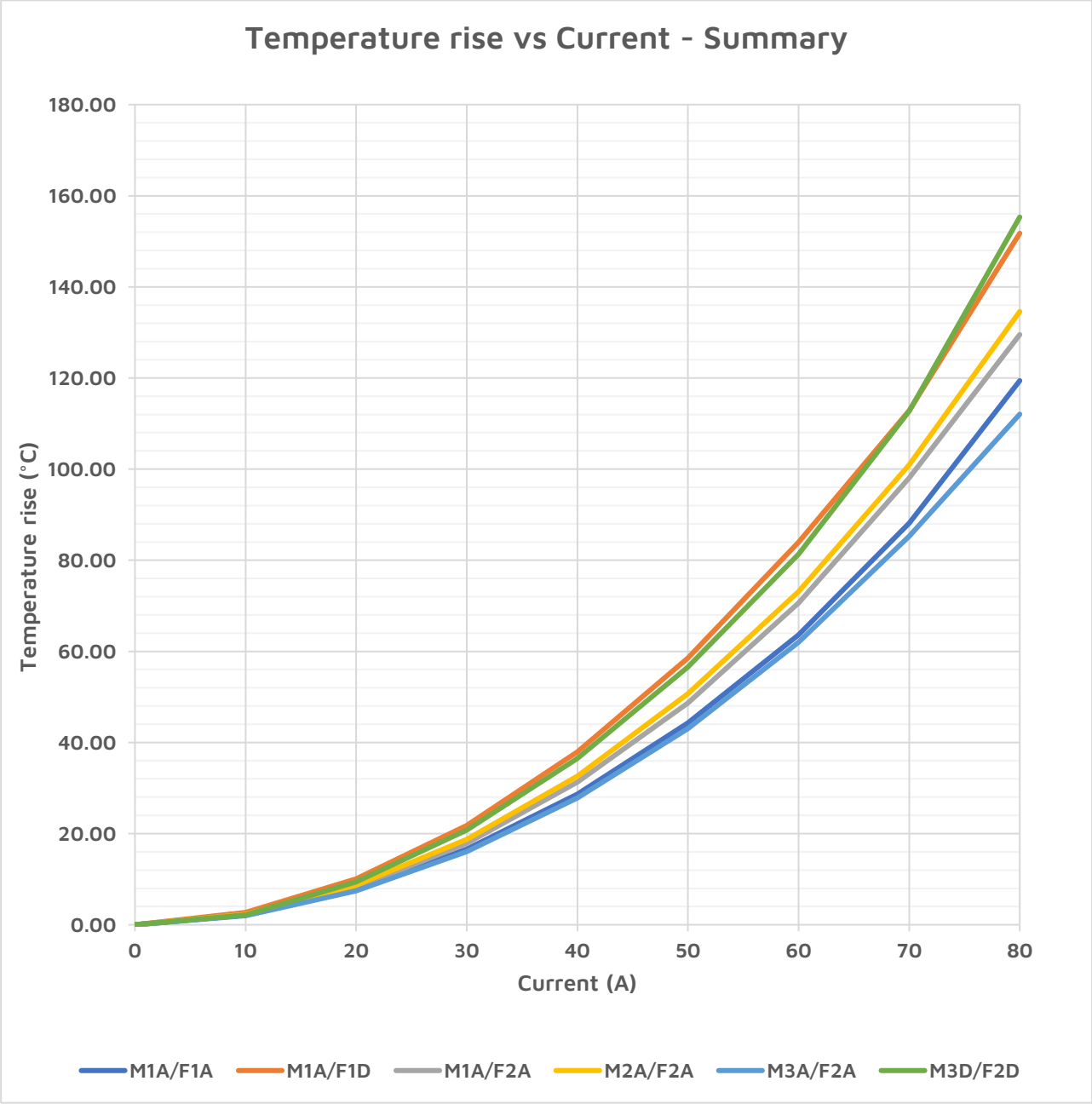
8. Group 6 Testing

8.1. Temperature Rise Versus Current: EIA-364-70A: 1999 Method 2

Methodology: This test demonstrates the current carrying capability of the Kona connector system. The mated connector pairing was wired in a series circuit using 8AWG Silicone Rubber insulated wire and a custom PCB to complete the circuit. Power was supplied using a controlled power source. Current was applied in 10A increments to the connector, and the temperature rise above ambient recorded in each case.

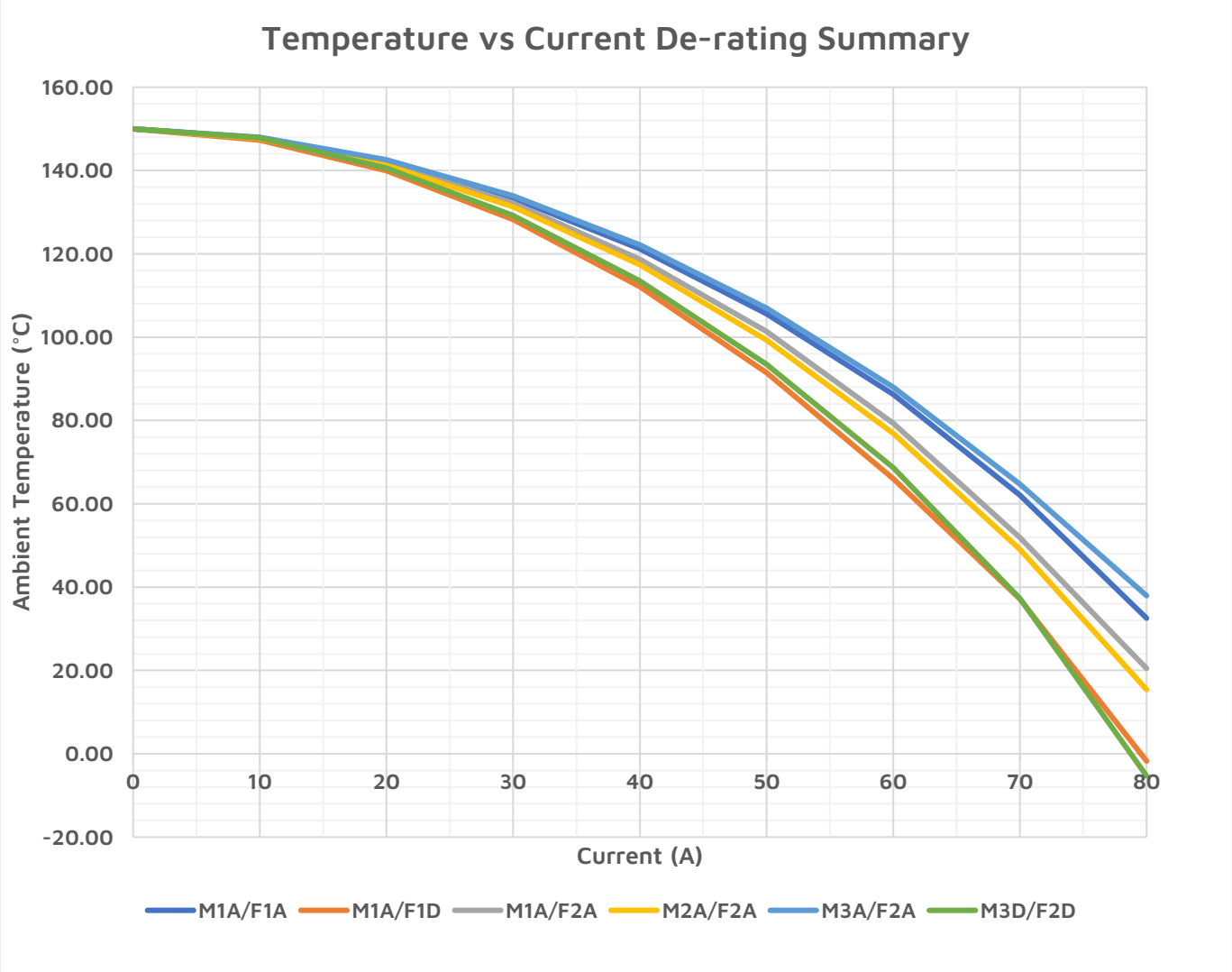
Specification: Current Rating (when all contacts are electrically loaded) = 60.0A

Results: Graphs & Tables below detail the results up to 80A.



Graph 5: Temperature rise vs current summary.

Table 10: Group 6 – Temperature vs Current						
Current (A)	Average Temperature Rise (°C)					
	M1A/F1A	M1A/F1D	M1A/F2A	M2A/F2A	M3A/F2A	M3A/F2D
0	0.00	0.00	0.00	0.00	0.00	0.00
10	2.12	2.70	2.12	2.27	1.89	2.18
20	7.75	10.05	8.17	8.70	7.42	9.43
30	16.62	21.79	17.83	18.73	16.07	20.81
40	28.83	37.92	31.31	32.61	27.83	36.54
50	44.41	58.53	48.66	50.69	43.02	56.54
60	63.74	83.95	70.64	73.12	62.00	81.31
70	87.91	112.88	98.08	100.97	85.29	112.73
80	117.46	151.76	129.52	134.60	112.06	155.31



Graph 6: Temperature de-rating summary.

Table 11: Group 6 – Temperature vs Current De-rating						
Current (A)	Average Temperature De-rate (°C)					
	M1A/F1A	M1A/F1D	M1A/F2A	M2A/F2A	M3A/F2A	M3A/F2D
0	150.00	150.00	150.00	150.00	150.00	150.00
10	147.88	147.30	147.88	147.73	148.02	147.82
20	142.25	139.95	141.83	141.30	142.58	140.57
30	133.39	128.21	132.17	131.27	133.93	129.19
40	121.17	112.08	118.69	117.40	122.17	113.46
50	105.59	91.47	101.34	99.31	106.98	93.46
60	86.26	66.06	79.36	76.88	88.00	68.69
70	62.09	37.12	51.92	49.04	64.71	37.27
80	32.54	-1.76	20.48	15.40	37.94	-5.31

8.2. Cable Pullout: EIA-364-35

Methodology: Crimp Strength testing has been conducted on the crimp variants for both straight and right-angled options. Crimped contact samples are subjected to a separation force to determine whether they display >100N crimp strength.

Specification: Crimp Strength > 100N

Results: All results Pass – see results Table 12.

Table 12: Group 3 Test Results	
Test Setup	Crimp Strength Retention (N) >100N
KA1-0450005	Pass
KA1-0550005	Pass
KA1-1450005	Pass