Additive Manufactured Power Key 5.0 WTW Cap Housings

1. INTRODUCTION

1.1 Purpose

Testing was performed on TE Connectivity (TE) Additive Manufactured Power Key 5.0 WTW Cap Housings to determine their conformance to the requirements of Product Specification 108-160702, Rev D.

1.2 Scope

This report covers the electrical, mechanical, and environmental performance of TE Additive Manufactured Power Key 5.0 WTW Cap Housings. Testing was performed at the Harrisburg Electrical Components Test Laboratory (HECTL) between May 23, 2023 and April 12, 2024. Detailed test data is on file and maintained at HECTL under EA20230171T and EA20240126T.

1.3 Conclusion

The Additive manufactured Power Key 5.0 WTW Cap Housings listed in Paragraph 1.5 conformed to the requirements of product Specification 108-160702, Rev D. See Section 2 for detailed results.

1.4 Product Description

The TE Connectivity Power Key (PK) 5.0mm Cap housing utilizes the additive manufacturing process. The PK 5.0 cap housing is a wire-to-wire application featuring crimp termination technology on 5.0mm centerlines. The 3D printed housing is designed to mate with the existing injection molded PK 5.0 Plug system and integrates the use of TE's Power Double Lock Tab and Power Key Receptacle contacts for 20-16 AWG wire range. This printed cap housing is available in a multiple single row and double row configuration with universal keying. The PK 5.0 Cap housing is compliant to glow wire standards.

1.5 Test Specimens

The test specimens were representative of normal production lots, and the following part numbers were used for test:

Table 1 – Test Specimens

Test Set	Qty	Part Number	Description
1	10	1376389-1	Power Key Plug Housing, 3 Position
	10	2407038-3	Power Key Cap Housing, 3 Position
	30	177917-1	Power Double Lock Tab, Crimped on 18 AWG Wire
	30	1376347-1	Power Key Receptacle, Crimped on 18 AWG Wire
2	10	1376389-1	Power Key Plug Housing,3 Position
	10	2407038-3	Power Key Cap Housing, 3 Position
	30	177917-1	Power Double Lock Tab, Crimped On 18 AWG Wire
	30	1376347-1	Power Key Receptacle, Crimped On 18 AWG Wire
3	8	1376390-1	Power Key Plug Housing, 4 Position
	8	2407038-4	Power Key Cap Housing, 4 Position
	32	177917-1	Power Double Lock Tab, Crimped On 18 AWG Wire
	32	1376347-1	Power Key Receptacle, Crimped On 18 AWG Wire
4	5	1376393-1	Power Key Plug Housing, 6 Position
	5	2408508-6	Power Key Cap Housing, 6 Position
	30	177917-1	Power Double Lock Tab, Crimped On 18 AWG Wire
	30	1376347-1	Power Key Receptacle, Crimped On 18 AWG Wire

Table 1 – Test Specimens (Continued)

Test Set	Qty	Part Number	Description
5	6	2407038-4	Power Key Cap Housing, 4 Position
6	9	2408508-6	Power Key Cap Housing, 6 Position
7	5	1376393-1	Power Key Plug Housing, 6 Position
	5	2408508-6	Power Key Cap Housing, 6 Position
	30	177917-1	Power Double Lock Tab, Crimped on 18 AWG Wire
	30	1376347-1	Power Key Receptacle, Crimped on 18 AWG Wire
8	8	1376390-1	Power Key Plug Housing, 4 Position
	8	2407038-4	Power Key Cap Housing, 4 Position
	32	177917-1	Power Double Lock Tab, Crimped on 16 AWG Wire
	32	1376347-1	Power Key Receptacle, Crimped on 16 AWG Wire
9	8	1376390-1	Power Key Plug Housing, 4 Position
	8	2407038-4	Power Key Cap Housing, 4 Position
	32	177917-1	Power Double Lock Tab, Crimped on 20 AWG Wire
	32	1376347-1	Power Key Receptacle, Crimped on 20 AWG Wire
10	10	1376390-1	Power Key Plug Housing, 4 Position
	10	2407038-4	Power Key Cap Housing, 4 Position
11	4	1376390-1	Power Key Plug Housing, 4 Position
	4	2407038-4	Power Key Cap Housing, 4 Position
	16	177917-1	Power Double Lock Tab, Crimped on 18 AWG Wire
	16	1376347-1	Power Key Receptacle, Crimped on 18 AWG Wire
12	4	1376393-1	Power Key Plug Housing, 6 Position
	4	2408508-6	Power Key Cap Housing, 6 Position
	24	177917-1	Power Double Lock Tab, Crimped on 18 AWG Wire
	24	1376347-1	Power Key Receptacle, Crimped on 18 AWG Wire
13	4	1376389-1	Power Key Plug Housing, 3 Position
	4	2407038-3	Power Key Cap Housing, 3 Position
	12	177917-1	Power Double Lock Tab, Crimped on 18 AWG Wire
	12	1376347-1	Power Key Receptacle, Crimped on 18 AWG Wire
14	3	1376393-1	Power Key Plug Housing, 6 Position
	3	2408508-6	Power Key Cap Housing, 6 Position
	18	177917-1	Power Double Lock Tab, Crimped on 18 AWG Wire
	18	1376347-1	Power Key Receptacle, Crimped on 18 AWG Wire

1.6 Qualification Test Sequence

Specimens identified in Table 1 were subjected to the test sequence outlined in Table 2.

Table 2 - Test Sequence

Test or Examination	108-160702 Test Group							
	1	2	3	4	5	6	7	8
	Test Sets							
	1	2, 3, 4	5, 6	7	8, 9	10	11, 12	13, 14
	Test Sequence (a)							
Initial Examination of Product	1	1	1	1	1	1	1	1
Low Level Contact Resistance	3, 7				2, 5, 7, 9		2, 4	2, 4
Dielectric Withstanding Voltage		3, 7						
Insulation Resistance		2, 6						
Temperature Rise vs. Current					3, 10			
Sinusoidal Vibration	5				8			
Mechanical Shock	6							
Durability	4							
Connector Mating Force	2			3				
Connector Unmating Force	8			4				
Connector Locking Strength						2		
Contact Insertion Force				2				
Contact Retention Force				5	11			
Glow Wire Test			2					
Thermal Shock		4						
Humidity / Temperature Cycling		5			4			
Temperature Life (Heat Aging)					6			
Salt Spray							3	
Resistance to Cold								3
Final Examination of Product	9	8	3	6	12	3	5	5

NOTE *(a) Numbers indicate the sequence in which tests were performed.*

1.7 Environmental Conditions

Unless otherwise stated, the following environmental conditions prevailed during testing:

Temperature:	15°C to 35°C
Relative Humidity	20% to 80%

2. SUMMARY OF TESTING

2.1 Initial Examination of Product – All Test Groups

A C of C was issued stating that all specimens in this test package were produced, inspected, and accepted as conforming to product drawing requirements, and were manufactured using the same core manufacturing processes and technologies as production parts.

Where specified, specimens were visually examined and no evidence of physical damage detrimental to product performance was observed.

2.2 Low Level Contact Resistance – Test Groups 1, 5, 7, & 8

Specimens had an initial maximum termination resistance of 2.442 milli-Ohms, meeting the initial 10 milli-Ohm maximum requirement listed in the Product Specification. Specimens had a final maximum termination resistance of 6.254 milli-Ohms, meeting the final 20 milli-Ohm maximum requirement. See Table 3 for the bulk resistance values removed from the resistance measurements. See Table 4 through Table 7 for a summary of the test results.

Table 3 – Low Level Contact Resistance – Bulk Resistance

Test Set	Wire Gauge	Bulk Length	Bulk Resistance
TS1	18 AWG	22.25”	12.304 mΩ
TS8	16 AWG	22.5”	7.794 mΩ
TS9	20 AWG	22.5”	19.595 mΩ
TS11 to TS14	18 AWG	16.0”	8.848 mΩ

Table 4 – Low Level Contact Resistance Summary – Test Group 1

Milliohms	Initial	Final
Test Set 1 – 18 AWG Wire – 3 Position		
Minimum	1.860	0.682
Maximum	2.126	3.507
Mean	1.955	1.988
Std. Dev.	0.054	0.789
Count	30	30

Table 5 – Low Level Contact Resistance Summary – Test Group 5

Milliohms	Initial	After Humidity Cycling	After Temperature Life	After Vibration – Final
Test Set 8 – 16 AWG Wire at 96 Hours of Temp Life – 4 Position				
Minimum	1.547	1.751	2.071	2.477
Maximum	1.936	3.136	3.836	5.720
Mean	1.738	2.191	2.679	3.901
Std. Dev.	0.090	0.310	0.441	0.808
Count	32	32	32	32
Test Set 9 – 20 AWG Wire at 96 Hours of Temp Life – 4 Position				
Minimum	1.653	1.797	2.009	2.210
Maximum	2.125	2.512	3.387	6.254
Mean	1.841	2.084	2.496	3.584
Std. Dev.	0.120	0.169	0.312	0.909
Count	32	32	32	32

Table 6 – Low Level Contact Resistance Summary – Test Group 7

Milliohms	Initial	Final
TS11 – 18 AWG Wire – 4 Position		
Minimum	1.969	2.048
Maximum	2.120	4.813
Mean	2.067	2.852
Std. Dev.	0.044	0.654
Count	16	16
TS12 – 18 AWG Wire – 6 Position		
Minimum	1.932	2.006
Maximum	2.442	3.905
Mean	2.093	2.834
Std. Dev.	0.104	0.551
Count	24	24

Table 7 – Low Level Contact Resistance Summary – Test Group 8

Milliohms	Initial	Final
TS13 – 18 AWG Wire – 3 Position		
Minimum	2.116	2.074
Maximum	2.218	2.195
Mean	2.168	2.138
Std. Dev.	0.034	0.039
Count	12	12
TS14 – 18 AWG Wire – 6 Position		
Minimum	2.097	2.111
Maximum	2.322	2.479
Mean	2.202	2.275
Std. Dev.	0.064	0.109
Count	18	18

2.3 Dielectric Withstanding Voltage – Test Group 2

For the initial and final testing, specimens met the specified requirements of 5.0 mA maximum leakage current with no creeping discharge or flashover, as listed in the Product Specification.

2.4 Insulation Resistance – Test Group 2

All specimens met the initial 1,000 MΩ minimum requirement and the final 500 MΩ minimum requirement listed in the Product Specification.

2.5 Temperature Rise vs. Current – Test Group 5

Specimens had a maximum temperature rise of 28.22°C, meeting the 30C maximum requirement listed in the Product Specification. See Table 8 for a summary of the test results.

Table 8 – Temperature Rise vs Current Results Summary in °C

Temp. Life Duration	96 Hours			
Test Set	**Test Set 8**		**Test Set 9**	
Wire Size	**16 AWG**		**20 AWG**	
Applied Current	**9.0 Amps**		**6.0 Amps**	
Run	**Initial**	**Final**	**Initial**	**Final**
Minimum	13.56	20.13	12.14	16.74
Maximum	17.80	28.22	16.25	27.19
Mean	16.50	24.74	14.20	20.30
Std. Dev.	0.97	2.59	1.02	2.88
Count	16	16	16	16
Ambient Temp	**24.1**	**23.0**	**23.8**	**22.8**

2.6 Sinusoidal Vibration – Test Groups 1 & 5

None of the test specimens had any apparent physical damage and no discontinuities of 1 microsecond or longer had occurred during testing.

2.7 Mechanical Shock – Test Group 1

None of the test specimens had any apparent physical damage and no discontinuities of 1 microsecond or longer had occurred during testing.

2.8 Durability – Test Group 1

After durability, specimens were visually examined and no evidence of physical damage detrimental to product performance was observed.

2.9 Connector Mating Force – Test Groups 1 & 4

Specimens had a maximum average mating force per position of 6.79 Newtons, meeting the 9.8 Newton per position maximum requirement listed in the Product Specification. See Table 9 and Table 10 for summaries of the test results.

Table 9 – Connector Mating Force Results Summary – Test Group 1

Newtons	Peak Applied Force	Average Mating Force per Position
Test Set 1 – 3 Position Housing (Latches Engaged for Mating)		
Minimum	12.09	4.03
Maximum	20.38	6.79
Mean	16.33	5.44
Std. Dev.	2.34	0.78
Count	10	10

Table 10 – Connector Mating Force Results Summary – Test Group 4

Newtons	Peak Applied Force	Average Mating Force per Position
Test Set 7 – 6 Position Housing (Latches Disengaged for Mating)		
Minimum	22.35	3.73
Maximum	24.48	4.08
Mean	23.40	3.90
Std. Dev.	0.80	0.13
Count	5	5

2.10 Connector Unmating Force – Test Groups 1 & 4

Specimens had a minimum average unmating force per position of 2.98 Newtons, meeting the 1.47 Newton per position minimum force requirement listed in the Product Specification. See Table 11 and Table 12 for summaries of the test results.

Table 11 – Connector Unmating Force Results Summary – Test Group 1

Newtons	Peak Applied Force	Average Unmating Force per Position
Test Set 1 – 3 Position Housing		
Minimum	8.94	2.98
Maximum	11.09	3.70
Mean	9.73	3.24
Std. Dev.	0.72	0.24
Count	10	10

Table 12 – Connector Unmating Force Results Summary – Test Group 4

Newtons	Peak Applied Force	Average Unmating Force per Position
Test Set 7 – 6 Position Housing		
Minimum	19.56	3.26
Maximum	22.10	3.68
Mean	20.90	3.48
Std. Dev.	1.16	0.19
Count	5	5

2.11 Connector Locking Strength – Test Group 6

The specimens had a minimum connector locking strength of 29.46 Newtons, meeting the 29.4 Newton minimum requirement listed in the Product Specification. See Table 13 for a summary of the test results.

Table 13 – Connector Locking Strength

Newtons	Peak Applied Force
Test Set 10 – 4 Position Housing	
Minimum	29.46
Maximum	64.37
Mean	51.50
Std. Dev.	10.00
Count	10

2.12 Contact Insertion Force – Test Group 4

Specimens had a maximum contact insertion force of 10.60 Newtons, meeting the 12 Newton maximum requirement listed in the Product Specification. See Table 14 for a summary of the test results.

Table 14 – Contact Insertion Force

Newtons	Peak Applied Force
Test Set 7 – 6 Position Housing	
Minimum	4.74
Maximum	10.60
Mean	7.61
Std. Dev.	1.46
Count	30

2.13 Contact Retention Force – Test Groups 4 & 5

Specimens had a minimum contact retention force of 52.40 Newtons, meeting the 39.2 Newtons minimum requirement listed in the Product Specification. See Table 15 and Table 16 for summaries of the test results

Table 15 – Contact Retention Force Summary – Cap Housing - Test Group 4

Newtons	Peak Applied Force
Test Set 7 – 6 Position Housing	
Minimum	52.40
Maximum	70.46
Mean	62.25
Std. Dev.	3.81
Count	30

Table 16 – Contact Retention Force Summary – Cap Housing - Test Group 5

Newtons	Peak Applied Force – 4 Position Housing	
	At 96 Hours of Temp Life	
Test Set	**Test Set 8**	**Test Set 9**
Wire Size	**16 AWG**	**20 AWG**
Minimum	67.42	63.95
Maximum	78.78	79.66
Average	74.08	74.08
Std Dev	3.12	3.13
Count	32	32

2.14 Glow Wire Test – Test Group 3

Specimens met the requirements listed in the Product Specification. None of the specimens had any visible flame ignition, and no material dropped onto the specified layer (wrapping tissue paper).

2.15 Thermal Shock – Test Group 2

Specimens showed no visual damage detrimental to product performance as a result of Thermal Shock testing.

2.16 Humidity / Temperature Cycling – Test Groups 2 & 5

Specimens showed no visual damage detrimental to product performance as a result of Humidity - Temperature Cycling testing.

2.17 Temperature Life (Heat Aging) – Test Group 5

After temperature life, specimens were visually examined and no evidence of physical damage detrimental to product performance was observed.

2.18 Salt Spray – Test Group 7

After salt spray, specimens were visually examined and no evidence of physical damage detrimental to product performance was observed.

2.19 Resistance to Cold – Test Group 8

After resistance to cold, specimens were visually examined and no evidence of physical damage detrimental to product performance was observed.

2.20 Final Examination of Product – All Test Groups

Where specified, specimens were visually examined and no evidence of physical damage detrimental to product performance was observed.

3. TEST METHODS

3.1 Initial Examination of Product – All Test Groups

Specimens were tested in accordance with EIA-364-18B. Specimens were visually examined without magnification for evidence of physical damage detrimental to product performance.

3.2 Low Level Contact Resistance – Test Groups 1, 5, 7, & 8

Specimens were subjected to a low level contact resistance test in accordance with Test Procedure EIA-364-23D. Specimens were tested for low level contact resistance using a 4-point measurement technique. Specimens were subjected to 100 milliamperes maximum and 20 millivolts maximum open circuit voltage.

3.3 Dielectric Withstanding Voltage – Test Group 2

Specimens were subjected to insulation resistance in accordance with EIA-364-20F, Condition I. A potential of 2.2 kV_{AC} was applied between the adjacent circuits of a mated connector at a rate of 500 V_{AC} / second and was held for 1 minute. A potential of 2.2 kV_{AC} was then applied between the contacts and the surface of the housing and was held for 1 minute. The surface of the housing was wrapped in aluminum foil. Leakage current was measured and recorded at the end of each one minute hold.

3.4 Insulation Resistance – Test Group 2

Specimens were subjected to insulation resistance in accordance with EIA-364-21F. A potential of 500 VDC was applied between the adjacent circuits of a mated connector at a rate of 500 VDC / second. The voltage was held for 2 minutes. Resistance was measured and recorded at the end of the two minute hold. A potential of 500 VDC was then applied between the contacts and the surface of the housing. The surface of the housing was wrapped in aluminum foil. The voltage was held for 2 minutes. Resistance was measured and recorded at the end of the two minute hold.

3.5 Temperature Rise vs. Current – Test Group 5

Specimens were subjected to a temperature rise vs current test in accordance with EIA-364-70D. Thermocouples were beaded and resistively welded to the rear of the crimp area, then the contacts were inserted into the housings prior to temperature rise testing. The specimens were placed in a draft free enclosure and wired in series. The thermocouples were connected to the data acquisition system and the specimens were connected to the power supply. The specimens were energized at 9.0 Amps DC for test sets with 16 AWG wire size and 6.0 Amps DC for test sets with 20 AWG wire size. The specimens were energized until temperature stability occurred. Stability is defined as when the temperature of 3 consecutive readings taken at 5 minute intervals did not differ by more than 1°C. The ambient temperature was then subtracted from this measured temperature to find the temperature rise.

3.6 Sinusoidal Vibration – Test Groups 1 & 5

The test specimens were subjected to a sinusoidal vibration test in accordance with specification EIA-364-28F, test condition I. The test specimens were subjected to a simple harmonic motion having an amplitude of 0.06 inch double amplitude (maximum total excursion). The vibration frequency was varied uniformly between the approximate limits of 10 to 55 Hertz (Hz). The entire frequency range of 10 to 55 Hz and return to 10 Hz was traversed in approximately 1 minute. The motion was applied for a period of 2 hours in each of the three mutually perpendicular axes, so the motion was applied for a total period of approximately 6 hours. The test specimens were monitored for discontinuities of 1 microsecond or greater using an energizing current of 100 milliamperes.

3.7 Mechanical Shock – Test Group 1

The test specimens were subjected to a mechanical shock test in accordance with specification EIA-364-27D, test condition “A”. The parameters of this test condition are a half-sine waveform with an acceleration amplitude of 50 gravity units (g's peak) and a duration of 11 milliseconds. Three shocks in each direction were applied along the three mutually perpendicular axes of the test specimens, for a total of eighteen shocks. The test specimens were monitored for discontinuities of 1 microsecond or greater using an energizing current of 100 milliamperes.

3.8 Durability – Test Group 1

Specimens were subjected to durability in accordance with EIA-364-9D. Specimens were mated and unmated by hand for 25 cycles at a maximum rate of 500 cycles per hour.

3.9 Connector Mating Force – Test Groups 1 & 4

Specimens were subjected to a mating force test in accordance with EIA-364-13E. A loaded plug housing was held in a vice with “L” shaped jaws attached to a free-floating XYR alignment table secured to the base of the tensile / compression machine. A hold down was used to disengage the plug latch for Test Set 4. A fully loaded cap housing was lightly inserted into the plug. A goal post fixture with a slotted plate attached to the load cell and crosshead of the tensile / compression machine was aligned above the cap. The crosshead was lowered at a rate of 100 mm / min until the specimen was fully mated. The peak force and force vs. distance graph were recorded.

3.10 Connector Un-Mating Force – Test Groups 1 & 4

Specimens were subjected to an unmating force test in accordance with EIA-364-13E. The plug latch was removed prior to testing. A mated, loaded plug housing was held in a vice with “L” shaped jaws attached to a free-floating XYR alignment table secured to the base of the tensile / compression machine. A goal post fixture with a slotted plate attached to the load cell and crosshead of the tensile / compression machine was used to hold the cap. The crosshead was raised at a rate of 100 mm / min until the specimen was fully unmated. The peak force and force vs. distance graph were recorded.

3.11 Connector Locking Strength – Test Group 6

Specimens were subjected to connector locking strength in accordance with EIA-364-98. The test was performed with unloaded, mated housings. The cap housing was held in a vice with “L” shaped jaws secured to a free-floating XYR alignment table attached to the base of the tensile / compression machine. The plug was held with a slotted plate and goal post fixture attached to the load cell and crosshead of the tensile / compression machine. The crosshead was raised at a rate of 100 mm / min until the specimen was fully unmated. The peak locking strength force and the force vs distance graph were recorded.

3.12 Contact Insertion Force – Test Group 4

Specimens were subjected to contact insertion force in accordance with EIA-364-5C. A specimen was held in a vice with “L” shaped jaws attached to a free-floating XYR alignment table secured to the base of the tensile / compression machine. A terminal was held in a modified drill chuck fixture attached to the load cell and crosshead of the tensile / compression machine. The terminal was aligned above a contact cavity. The crosshead was lowered at a rate of 100 mm / min until the terminal was fully inserted into the specimen. The peak insertion force and force vs distance graph were recorded.

3.13 Contact Retention Force – Test Groups 4 & 5

Specimens were subjected to contact extraction force in accordance with EIA-364-29E. A specimen was held in a vice with “L” shaped jaws secured to a free-floating XYR alignment table attached to the base of the tensile / compression machine. A wire was held in air jaws attached to the load cell and crosshead of the tensile / compression machine. The crosshead was raised at a rate of 100 mm / min until the contact was removed from the housing. The peak extraction force and the force vs distance graph were recorded.

3.14 Glow Wire Test – Test Group 3

The specimens were subjected to the Glow Wire test per IEC 60695-2-11 Edition 3.0 Dated 2021-10. Specimens were preconditioned for a minimum of 24 hours at a temperature between 15 to 35°C and at a humidity between 45% to 75% RH. The specimens were subjected to glow wire for a duration of 30 seconds at 750°C ± 10°C with a glow wire penetration depth of 7 mm. All test specimens were tested unmated. The specimens were orientated whereas not to impede the material from burning up the test specimen or dripping down to the specified layer (wrapping tissue paper) which was placed on a ceramic tile. The tester observed each test specimen for flame height, flame duration, and burning of the specified layer.

3.15 Thermal Shock – Test Group 2

Specimens were subjected to thermal shock in accordance with EIA-364-32H, Method A, Test Condition I. Mated specimens were subjected to 25 Cycles between -55°C and 85°C with 30 minutes at each temperature extreme. Specimens were held at ambient for 15 minutes between each temperature and held at ambient during off hours.

3.16 Humidity / Temperature Cycling – Test Groups 2 & 5

Specimens were subjected to humidity / temperature cycling in accordance with EIA-364-31F, Method IV, without cold shock. Mated specimens were subjected to 10 cycles between 25°C and 65°C at a relative humidity between 90% and 95%. Each cycle was 24 hours in length. Specimens were held at ambient for three hours at the conclusion of humidity temperature cycling prior to taking measurements.

3.17 Temperature Life (Heat Aging) – Test Group 5

Specimens were subjected to temperature life in accordance with EIA-364-17C, Method A, Test Condition 4. Specimens were subjected to 105 ± 2°C for 96 Hours.

3.18 Salt Spray – Test Group 7

Specimens were subjected to salt spray in accordance with EIA-364-26C, Test Condition B. The mated specimens were placed in the chamber with the mating interface(s) on a horizontal axis. The chamber was operated with the mated specimens for a period of 48 hours. See Table 17 for chamber collection data. Upon completion of the test the specimens were rinsed in warm tap water to remove salt deposits for 5 minutes maximum then dried at 38°C in an air-circulating oven for a maximum of 16 hours. The chamber operating parameters were as follows:

Salt Fog Chamber Operating Parameters:

- Chamber Temperature: 35°C.
- Aeration Tower temperature: 48°C.
- 5% Brine Solution Purity: Sodium Chloride with no more than .3% impurities.
- Aeration Tower Pressure: 22 PSI.
- Brine Solution pH Range: 6.5 to 7.2.
- Specific Gravity Range: 1.028 to 1.037.
- Collection rate: .5 to 3ml per hour.

Table 17 – Salt Spray – Chamber Collection Data

DATE	TECHNICIAN	TOTAL HOURS	AIR PRESSURE (PSI)	COLLECTION				PH		SPECIFIC GRAVITY		SOLUTION TEMP (°C)		COMMENTS
				TOTAL (ml)		RATE (ml/hr)								
				L	R	L	R	L	R	L	R	L	R	
6/2/2023	ZUVICH	48	22	96	59	2.00	1.23	6.94	6.81	1.033	1.034	24.1	24.4	5/30/23 to 6/1/23

3.19 Resistance to Cold – Test Group 8

Specimens were subjected to temperature life in accordance with EIA-364-59A, Test Condition 3, Test Time Duration D. Specimens were subjected to -40 ± 2°C for 96 Hours.

3.20 Final Examination of Product – All Test Groups

Specimens were tested in accordance with EIA-364-18B. Specimens were visually examined without magnification for evidence of physical damage detrimental to product performance.