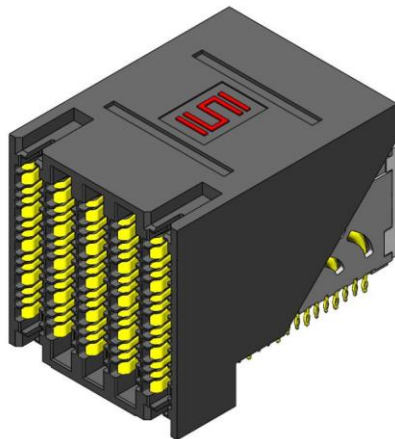
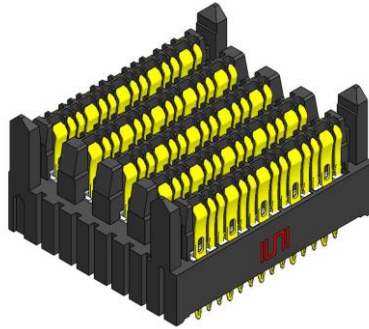


Project Number: Mixed Flowing Gas Test Report	Tracking Code: 2010418_Report_Rev_1
Requested by: Jad Vicich	Date: 4/28/2020
Part #: EBTF-4-10-2.0-S-RA-1/EBTM-4-10-2.0-S-VT-1&10126366-101LF/1012636-101LF	
Part description: EBTF/EBTM	Tech: Kason He
Test Start: 9/28/2015	Test Completed: 1/28/2016



**MIXED FLOWING GAS TEST REPORT**

**EBTF/EBTM**

**SAMTEC: EBTF-4-10-2.0-S-RA-1/EBTM-4-10-2.0-S-VT-1**

**FCI: 10126366-101LF/1012636-101LF**

Tracking Code: 2010418_Report_Rev_1	Part #: EBTF-4-10-2.0-S-RA-1/EBTM-4-10-2.0-S-VT-1& 10126366-101LF/1012636-101LF
Part description: EBTF/EBTM	

**REVISION HISTORY**

<b>DATE</b>	<b>REV.NUM.</b>	<b>DESCRIPTION</b>	<b>ENG</b>
4/28/2020	1	Initial Issue	KH

## CERTIFICATION

All instruments and measuring equipment were calibrated to National Institute for Standards and Technology (NIST) traceable standards according to ISO 10012-1 and ANSI/NCSL 2540-1, as applicable.

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### SCOPE

To perform the following tests: Mixed Flowing Gas per EIA-364-65 and GR-1217 test. Please see test plan.

### APPLICABLE DOCUMENTS

Standards: EIA Publication 364.

### TEST SAMPLES AND PREPARATION

- 1) All materials were manufactured in accordance with the applicable product specification.
- 2) All test samples were identified and encoded to maintain traceability throughout the test sequences.
- 3) After soldering, the parts to be used for LLCR testing were cleaned according to TLWI-0001.
- 4) Either an automated cleaning procedure or an ultrasonic cleaning procedure may be used.
- 5) The automated procedure is used with aqueous compatible soldering materials.
- 6) Parts not intended for testing LLCR are visually inspected and cleaned if necessary.
- 7) Any additional preparation will be noted in the individual test sequences.
- 8) Solder Information: Lead Free
- 9) Samtec Test PCBs used: PCB-106716-TST

**FLOWCHARTS****Mixed Flowing Gas**Note: Initial LLCR shall be  $\leq 60$  mOhms

<u>Group 1</u>		<u>Group 2</u>		<u>Group 3</u>		<u>Group 4</u>	
EBTF-4-10-2.0-S-RA-1 (SAMTEC RAR)		10126366-101LF (AFCI VH)		10126363-101LF (AFCI RAR)		EBTF-4-10-2.0-S-RA-1 (SAMTEC RAR)	
EBTM-4-10-2.0-S-VT-1 (SAMTEC VH)		10126363-101LF (AFCI RAR)		EBTM-4-10-2.0-S-VT-1 (SAMTEC VH)		10126366-101LF (AFCI VH)	
4 Assemblies		4 Assemblies		4 Assemblies		4 Assemblies	
(560 LLCR Points)		(560 LLCR Points)		(560 LLCR Points)		(560 LLCR Points)	
Note: Test Location C		Note: Test Location B		Note: Test Location B		Note: Test Location B	
Step	Description	Step	Description	Step	Description	Step	Description
1.	Visual Inspection	1.	Visual Inspection	1.	Visual Inspection	1.	Visual Inspection
2.	LLCR (1)	2.	LLCR (1)	2.	LLCR (1)	2.	LLCR (1)
3.	Cycles Quantity = 100 Cycles	3.	Cycles Quantity = 100 Cycles	3.	Cycles Quantity = 100 Cycles	3.	Cycles Quantity = 100 Cycles
4.	LLCR (1) Max Delta = 10 mOhm	4.	LLCR (1) Max Delta = 10 mOhm	4.	LLCR (1) Max Delta = 10 mOhm	4.	LLCR (1) Max Delta = 10 mOhm
5.	Mixed Flowing Gas Unmated (3) Duration = 10 Days Note: Expose backplane vertical header only	5.	Mixed Flowing Gas Unmated (3) Duration = 10 Days Note: Expose backplane vertical header only	5.	Mixed Flowing Gas Unmated (3) Duration = 10 Days Note: Expose backplane vertical header only	5.	Mixed Flowing Gas Unmated (3) Duration = 10 Days Note: Expose backplane vertical header only
6.	LLCR (1) Max Delta = 10 mOhm	6.	LLCR (1) Max Delta = 10 mOhm	6.	LLCR (1) Max Delta = 10 mOhm	6.	LLCR (1) Max Delta = 10 mOhm
7.	Mixed Flowing Gas Mated (2) Duration = 10 Days	7.	Mixed Flowing Gas Mated (2) Duration = 10 Days	7.	Mixed Flowing Gas Mated (2) Duration = 10 Days	7.	Mixed Flowing Gas Mated (2) Duration = 10 Days
8.	LLCR (1) Max Delta = 10 mOhm	8.	LLCR (1) Max Delta = 10 mOhm	8.	LLCR (1) Max Delta = 10 mOhm	8.	LLCR (1) Max Delta = 10 mOhm
9.	Disturb Disturb = 0.10 mm Note: Perform in accordance with Telecordia GR-1217-CORE, November 1995, section 9.1.3.3 paragraph 7.	9.	Disturb Disturb = 0.10 mm Note: Perform in accordance with Telecordia GR-1217-CORE, November 1995, section 9.1.3.3 paragraph 7.	9.	Disturb Disturb = 0.10 mm Note: Perform in accordance with Telecordia GR-1217-CORE, November 1995, section 9.1.3.3 paragraph 7.	9.	Disturb Disturb = 0.10 mm Note: Perform in accordance with Telecordia GR-1217-CORE, November 1995, section 9.1.3.3 paragraph 7.
10.	LLCR (1) Max Delta = 10 mOhm	10.	LLCR (1) Max Delta = 10 mOhm	10.	LLCR (1) Max Delta = 10 mOhm	10.	LLCR (1) Max Delta = 10 mOhm
11.	Cycles Quantity = 100 Cycles	11.	Cycles Quantity = 100 Cycles	11.	Cycles Quantity = 100 Cycles	11.	Cycles Quantity = 100 Cycles
12.	LLCR (1) Max Delta = 10 mOhm	12.	LLCR (1) Max Delta = 10 mOhm	12.	LLCR (1) Max Delta = 10 mOhm	12.	LLCR (1) Max Delta = 10 mOhm
13.	Visual Inspection	13.	Visual Inspection	13.	Visual Inspection	13.	Visual Inspection

(1) LLCR = EIA-364-23

Open Circuit Voltage = 20 mV Max  
Test Current = 100 mA Max

(2) Mixed Flowing Gas Mated = EIA-364-65

Environmental Conditions = Class IIA

(3) Mixed Flowing Gas Unmated = EIA-364-65

Environmental Conditions = Class IIA

**ATTRIBUTE DEFINITIONS**

The following is a brief, simplified description of attributes.

**MATING/UNMATING:**

- 1) Reference document: EIA-364-13, *Mating and Unmating Forces Test Procedure for Electrical Connectors*.
- 2) The full insertion position was to within 0.003” to 0.004” of the plug bottoming out in the receptacle to prevent damage to the system under test.
- 3) One of the mating parts is secured to a floating X-Y table to prevent damage during cycling.

**Mixed Flowing Gas:**

- 1) EIA-364-65B, *Mixed Flowing Test Procedure For Electrical Connectors Contacts And Sockets*.
- 2) To adequately evaluate the risk of corrosion, the Mixed Flowing Gas test shall be done with the gas mixtures in below table.

**Table 1 - Environmental classes**

Class	Relative humidity, %	Temperature, °C	Concentration, ppb			
			Cl <sub>2</sub>	NO <sub>2</sub>	H <sub>2</sub> S	SO <sub>2</sub>
I	Discontinued as a test procedure.					
II	Superseded by class IIA					
IIA	70 ± 2	30 ± 1	10 ± 3	200 ± 50	10 ± 5	100 ± 20
III	Superseded by class IIIA					
IIIA	70 ± 2	30 ± 1	20 ± 5	200 ± 50	100 ± 20	200 ± 50
IV	75 ± 2	40 ± 2	30 ± 5	200 ± 50	200 ± 20	N/A

- 3) The mated and unmated exposure is done in parallel for qualification at Class IIA conditions.
- 4) Exposure time for mated and unmated is 20 days

**LLCR:**

- 1) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 2) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 3) The following guidelines are used to categorize the changes in LLCR as a result from stressing
  - a. <= +5.0 mOhms: -----Stable
  - b. +5.1 to +10.0 mOhms: -----Minor
  - c. +10.1 to +15.0 mOhms:-----Acceptable
  - d. +15.1 to +50.0 mOhms:-----Marginal
  - e. +50.1 to +1000 mOhms:-----Unstable
  - f. >+1000 mOhms: -----Open Failure

**RESULTS****LLCR Mixed Flowing Gas Group (360 signal and 200 ground LLCR test points)****Group 1 EBTF-4-10-2.0-S-RA-1/EBTM-4-10-2.0-S-VT-1 (SAMTEC RAR&SAMTEC VH)****Signal**

- **Initial** ----- 25.67 mOhms Max

**Ground**

- **Initial** -----2.52 mOhms Max
- **Durability, 100 Cycles**
  - <= +5.0 mOhms-----560 Points ----- Stable
  - +5.1 to +10.0 mOhms -----0 Points ----- Minor
  - +10.1 to +15.0 mOhms -----0 Points ----- Acceptable
  - +15.1 to +50.0 mOhms -----0 Points ----- Marginal
  - +50.1 to +1000 mOhms-----0 Points ----- Unstable
  - >+1000 mOhms-----0 Points ----- Open Failure
- **10 Days MFG Unmated**
  - <= +5.0 mOhms-----560 Points ----- Stable
  - +5.1 to +10.0 mOhms -----0 Points ----- Minor
  - +10.1 to +15.0 mOhms -----0 Points ----- Acceptable
  - +15.1 to +50.0 mOhms -----0 Points ----- Marginal
  - +50.1 to +1000 mOhms-----0 Points ----- Unstable
  - >+1000 mOhms-----0 Points ----- Open Failure
- **10 Days (20 Days) Total MFG Mated**
  - <= +5.0 mOhms-----555 Points ----- Stable
  - +5.1 to +10.0 mOhms -----5 Points ----- Minor
  - +10.1 to +15.0 mOhms -----0 Points ----- Acceptable
  - +15.1 to +50.0 mOhms -----0 Points ----- Marginal
  - +50.1 to +1000 mOhms-----0 Points ----- Unstable
  - >+1000 mOhms-----0 Points ----- Open Failure
- **Disturb**
  - <= +5.0 mOhms-----560 Points ----- Stable
  - +5.1 to +10.0 mOhms -----0 Points ----- Minor
  - +10.1 to +15.0 mOhms -----0 Points ----- Acceptable
  - +15.1 to +50.0 mOhms -----0 Points ----- Marginal
  - +50.1 to +1000 mOhms-----0 Points ----- Unstable
  - >+1000 mOhms-----0 Points ----- Open Failure
- **Durability, 100 Cycles (200 Cycles)**
  - <= +5.0 mOhms-----559 Points ----- Stable
  - +5.1 to +10.0 mOhms -----1 Points ----- Minor
  - +10.1 to +15.0 mOhms -----0 Points ----- Acceptable
  - +15.1 to +50.0 mOhms -----0 Points ----- Marginal
  - +50.1 to +1000 mOhms-----0 Points ----- Unstable
  - >+1000 mOhms-----0 Points ----- Open Failure

**RESULTS Continuation****Group 2 10126366-101LF/10126363-101LF (AFCI RAR&AFCI VH)****Signal**

- Initial ----- 21.97 mOhms Max

**Ground**

- Initial ----- 26.07 mOhms Max
- Durability, 100 Cycles
  - <= +5.0 mOhms-----560 Points ----- Stable
  - +5.1 to +10.0 mOhms -----0 Points ----- Minor
  - +10.1 to +15.0 mOhms -----0 Points ----- Acceptable
  - +15.1 to +50.0 mOhms -----0 Points ----- Marginal
  - +50.1 to +1000 mOhms-----0 Points ----- Unstable
  - >+1000 mOhms -----0 Points ----- Open Failure
- 10 Days MFG Unmated
  - <= +5.0 mOhms-----560 Points ----- Stable
  - +5.1 to +10.0 mOhms -----0 Points ----- Minor
  - +10.1 to +15.0 mOhms -----0 Points ----- Acceptable
  - +15.1 to +50.0 mOhms -----0 Points ----- Marginal
  - +50.1 to +1000 mOhms-----0 Points ----- Unstable
  - >+1000 mOhms -----0 Points ----- Open Failure
- 10 Days (20 Days) Total MFG Mated
  - <= +5.0 mOhms-----558 Points ----- Stable
  - +5.1 to +10.0 mOhms -----2 Points ----- Minor
  - +10.1 to +15.0 mOhms -----0 Points ----- Acceptable
  - +15.1 to +50.0 mOhms -----0 Points ----- Marginal
  - +50.1 to +1000 mOhms-----0 Points ----- Unstable
  - >+1000 mOhms -----0 Points ----- Open Failure
- Disturb
  - <= +5.0 mOhms-----560 Points ----- Stable
  - +5.1 to +10.0 mOhms -----0 Points ----- Minor
  - +10.1 to +15.0 mOhms -----0 Points ----- Acceptable
  - +15.1 to +50.0 mOhms -----0 Points ----- Marginal
  - +50.1 to +1000 mOhms-----0 Points ----- Unstable
  - >+1000 mOhms -----0 Points ----- Open Failure
- Durability, 100 Cycles (200 Cycles)
  - <= +5.0 mOhms-----560 Points ----- Stable
  - +5.1 to +10.0 mOhms -----0 Points ----- Minor
  - +10.1 to +15.0 mOhms -----0 Points ----- Acceptable
  - +15.1 to +50.0 mOhms -----0 Points ----- Marginal
  - +50.1 to +1000 mOhms-----0 Points ----- Unstable
  - >+1000 mOhms -----0 Points ----- Open Failure

**RESULTS Continuation****Group 3 EBTM-4-10-2.0-S-VT-1/10126363-101LF (SAMTEC VH&AFCl RAR)****Signal**

- Initial ----- 21.97 mOhms Max

**Ground**

- Initial ----- 25.47 mOhms Max
- Durability, 100 Cycles
  - <= +5.0 mOhms-----560 Points ----- Stable
  - +5.1 to +10.0 mOhms -----0 Points ----- Minor
  - +10.1 to +15.0 mOhms -----0 Points ----- Acceptable
  - +15.1 to +50.0 mOhms -----0 Points ----- Marginal
  - +50.1 to +1000 mOhms-----0 Points ----- Unstable
  - >+1000 mOhms -----0 Points ----- Open Failure
- 10 Days MFG Unmated
  - <= +5.0 mOhms-----560 Points ----- Stable
  - +5.1 to +10.0 mOhms -----0 Points ----- Minor
  - +10.1 to +15.0 mOhms -----0 Points ----- Acceptable
  - +15.1 to +50.0 mOhms -----0 Points ----- Marginal
  - +50.1 to +1000 mOhms-----0 Points ----- Unstable
  - >+1000 mOhms -----0 Points ----- Open Failure
- 10 Days (20 Days) Total MFG Mated
  - <= +5.0 mOhms-----559 Points ----- Stable
  - +5.1 to +10.0 mOhms -----1 Points ----- Minor
  - +10.1 to +15.0 mOhms -----0 Points ----- Acceptable
  - +15.1 to +50.0 mOhms -----0 Points ----- Marginal
  - +50.1 to +1000 mOhms-----0 Points ----- Unstable
  - >+1000 mOhms -----0 Points ----- Open Failure
- Disturb
  - <= +5.0 mOhms-----560 Points ----- Stable
  - +5.1 to +10.0 mOhms -----0 Points ----- Minor
  - +10.1 to +15.0 mOhms -----0 Points ----- Acceptable
  - +15.1 to +50.0 mOhms -----0 Points ----- Marginal
  - +50.1 to +1000 mOhms-----0 Points ----- Unstable
  - >+1000 mOhms -----0 Points ----- Open Failure
- Durability, 100 Cycles (200 Cycles)
  - <= +5.0 mOhms-----560 Points ----- Stable
  - +5.1 to +10.0 mOhms -----0 Points ----- Minor
  - +10.1 to +15.0 mOhms -----0 Points ----- Acceptable
  - +15.1 to +50.0 mOhms -----0 Points ----- Marginal
  - +50.1 to +1000 mOhms-----0 Points ----- Unstable
  - >+1000 mOhms -----0 Points ----- Open Failure

**RESULTS Continuation****Group 4 EBTF-4-10-2.0-S-RA-1/10126366-101LF (SAMTEC RAR&AFCI VH)****Signal**

- Initial ----- 21.48 mOhms Max

**Ground**

- Initial ----- 24.70 mOhms Max
- Durability, 100 Cycles
  - <= +5.0 mOhms-----560 Points ----- Stable
  - +5.1 to +10.0 mOhms -----0 Points ----- Minor
  - +10.1 to +15.0 mOhms -----0 Points ----- Acceptable
  - +15.1 to +50.0 mOhms -----0 Points ----- Marginal
  - +50.1 to +1000 mOhms-----0 Points ----- Unstable
  - >+1000 mOhms -----0 Points ----- Open Failure
- 10 Days MFG Unmated
  - <= +5.0 mOhms-----560 Points ----- Stable
  - +5.1 to +10.0 mOhms -----0 Points ----- Minor
  - +10.1 to +15.0 mOhms -----0 Points ----- Acceptable
  - +15.1 to +50.0 mOhms -----0 Points ----- Marginal
  - +50.1 to +1000 mOhms-----0 Points ----- Unstable
  - >+1000 mOhms -----0 Points ----- Open Failure
- 10 Days (20 Days) Total MFG Mated
  - <= +5.0 mOhms-----559 Points ----- Stable
  - +5.1 to +10.0 mOhms -----1 Points ----- Minor
  - +10.1 to +15.0 mOhms -----0 Points ----- Acceptable
  - +15.1 to +50.0 mOhms -----0 Points ----- Marginal
  - +50.1 to +1000 mOhms-----0 Points ----- Unstable
  - >+1000 mOhms -----0 Points ----- Open Failure
- Disturb
  - <= +5.0 mOhms-----560 Points ----- Stable
  - +5.1 to +10.0 mOhms -----0 Points ----- Minor
  - +10.1 to +15.0 mOhms -----0 Points ----- Acceptable
  - +15.1 to +50.0 mOhms -----0 Points ----- Marginal
  - +50.1 to +1000 mOhms-----0 Points ----- Unstable
  - >+1000 mOhms -----0 Points ----- Open Failure
- Durability, 100 Cycles (200 Cycles)
  - <= +5.0 mOhms-----560 Points ----- Stable
  - +5.1 to +10.0 mOhms -----0 Points ----- Minor
  - +10.1 to +15.0 mOhms -----0 Points ----- Acceptable
  - +15.1 to +50.0 mOhms -----0 Points ----- Marginal
  - +50.1 to +1000 mOhms-----0 Points ----- Unstable
  - >+1000 mOhms -----0 Points ----- Open Failure

### DATA SUMMARIES

#### LLCR Mixed Flowing Gas Group

- 1). A total of 360 signal and 200 ground points were measured.
- 2). EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 3). A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 4). The following guidelines are used to categorize the changes in LLCR as a result from stressing.
  - a.  $\leq +5.0$  mOhms:-----Stable
  - b.  $+5.1$  to  $+10.0$  mOhms: -----Minor
  - c.  $+10.1$  to  $+15.0$  mOhms:-----Acceptable
  - d.  $+15.1$  to  $+50.0$  mOhms: -----Marginal
  - e.  $+50.1$  to  $+1000$  mOhms-----Unstable
  - f.  $> +1000$  mOhms:-----Open Failure

#### Group 1 EBTF-4-10-2.0-S-RA-1/EBTM-4-10-2.0-S-VT-1 (SAMTEC RAR&SAMTEC VH)

		Row A	Row B	Row C	Row D	Row E	Row F	Row G	Row H	Row I	Row J	Row K	Row L	Row M	Row N	Ground
<b>Initial (mΩ)</b>	Average	10.86	12.81	14.20	15.23	16.73	17.82	18.80	20.03	21.17	22.20	22.28	23.33	24.23	20.15	2.08
	St. Dev	0.41	0.42	0.46	0.65	0.56	0.72	0.73	0.41	0.51	0.50	0.44	0.50	0.50	0.45	0.21
	Min	10.26	12.25	13.41	14.49	15.92	16.83	18.10	19.45	20.55	21.63	21.70	22.61	23.81	19.46	1.44
	Max	11.60	13.49	15.05	16.64	17.83	19.81	20.58	20.83	22.38	23.13	23.39	24.66	25.67	21.32	2.52
Date: 11/20/2015																
Location C	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Technician: BE	Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
<b>Post 100x Durability Delta (mΩ)</b>	Average	-0.15	-0.34	-0.36	-0.30	-0.44	-0.48	-0.48	-0.37	-0.28	-0.30	-0.34	-0.28	-0.26	-0.35	-0.01
	St. Dev	0.45	0.57	0.51	0.67	0.59	0.72	0.74	0.44	0.50	0.57	0.43	0.53	0.50	0.37	0.06
	Min	-0.76	-1.21	-1.37	-1.51	-1.29	-2.32	-2.19	-1.06	-1.26	-1.51	-1.04	-1.50	-1.37	-1.30	-0.18
	Max	0.45	0.55	0.47	0.65	0.34	0.60	0.58	0.16	0.48	0.51	0.20	0.74	0.40	0.07	0.18
Date: 11/23/2015																
Location C	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Technician: BE	Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
<b>Post 10d Unmated Delta (mΩ)</b>	Average	0.27	-0.09	-0.11	0.28	-0.25	0.05	0.23	-0.14	0.15	0.26	-0.14	0.06	0.17	-0.20	0.06
	St. Dev	0.50	0.57	0.44	0.54	0.44	0.67	0.76	0.42	0.57	0.57	0.42	0.58	0.53	0.32	0.15
	Min	0.00	-0.97	-1.17	-0.54	-1.19	-1.33	-1.51	-1.00	-0.68	-0.73	-0.97	-1.07	-1.21	-0.95	-0.20
	Max	1.84	1.23	0.96	1.79	0.00	1.97	1.71	0.38	2.46	1.39	0.93	1.57	0.95	0.43	0.48
Date: 12/7/2015																
Location C	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Technician: BE	Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
<b>Post 10d Mated Delta (mΩ)</b>	Average	0.54	0.29	0.03	0.43	-0.03	0.11	-0.15	0.70	0.07	-0.04	0.15	0.13	0.45	0.13	0.26
	St. Dev	1.52	0.78	1.32	1.44	0.67	1.11	0.96	2.01	0.59	0.79	0.76	0.80	1.21	0.63	0.39
	Min	-0.85	-0.74	-1.15	-1.41	-1.10	-2.36	-2.33	-0.81	-1.13	-1.40	-0.86	-1.48	-1.51	-1.33	-0.17
	Max	6.34	2.14	7.36	5.42	1.21	3.04	1.14	6.50	1.00	1.90	2.29	2.62	3.91	1.27	1.78
Date: 12/18/2015																
Location C	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Technician: BE	Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
<b>Post Disturb Delta (mΩ)</b>	Average	-0.05	0.05	-0.19	-0.11	-0.17	-0.21	-0.30	-0.05	-0.12	-0.22	-0.04	0.04	0.00	0.08	0.16
	St. Dev	0.48	0.71	0.57	0.79	0.63	0.82	0.92	0.62	0.58	0.70	0.53	0.71	0.61	0.64	0.19
	Min	-0.78	-0.79	-1.23	-1.47	-1.10	-2.34	0.00	-1.06	-1.36	-1.46	-0.87	-1.56	-1.65	-1.45	-0.15
	Max	0.70	2.12	1.01	1.99	1.15	1.78	1.28	1.36	0.70	1.11	0.93	1.48	0.77	1.44	0.66
Date: 12/18/2015																
Location C	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Technician: BE	Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
<b>Post 100x Durability Delta (200x total) (mΩ)</b>	Average	0.27	0.06	0.03	0.22	-0.10	0.06	0.13	0.17	0.21	0.12	0.23	0.37	0.56	0.28	0.19
	St. Dev	0.54	0.53	0.52	0.77	0.56	0.74	0.73	0.68	0.43	0.52	0.85	0.70	1.43	0.42	0.21
	Min	-0.55	-0.84	-0.90	-1.17	-1.16	-1.46	-1.60	-0.78	-0.58	-0.86	-0.51	-0.42	-0.47	0.00	-0.09
	Max	1.46	1.22	1.34	1.67	1.58	1.64	1.53	2.66	1.42	1.08	3.59	2.58	6.36	1.31	0.71
Date: 12/21/2015																
Location C	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Technician: BE	Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200

#### LLCR Delta Count by Category

mOhms	≤5	>5&≤10	>10&≤15	>15&≤50	>50&≤1000	>1000
100x Durability	560	0	0	0	0	0
10d Unmated	560	0	0	0	0	0
10d Mated	555	5	0	0	0	0
Disturb	560	0	0	0	0	0
200x Durability	559	1	0	0	0	0

## DATA SUMMARIES Continuation

## Group 2 10126366-101LF/10126363-101LF (AFCl RAR&amp;AFCl VH)

		Row A	Row B	Row C	Row D	Row E	Row F	Row G	Row H	Row I	Row J	Row K	Row L	Row M	Row N	Ground
Initial (mΩ) Date: 1/2/2016 Location B	Average	8.15	6.06	7.83	14.32	14.52	8.70	8.20	11.22	17.62	11.79	8.55	11.31	21.18	21.25	14.93
	St. Dev	4.86	4.63	5.62	0.36	0.50	6.41	7.35	7.63	0.34	8.06	8.00	9.32	0.39	0.31	10.62
	Min	2.24	2.26	2.18	13.77	13.86	2.29	2.23	1.87	17.11	2.12	2.06	1.95	20.60	20.55	1.62
	Max	12.68	12.01	13.82	15.34	15.77	15.78	17.34	18.11	18.60	18.92	18.34	21.41	21.97	21.70	26.07
	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200	
Post 100x Durability Delta (mΩ) Date: 1/21/2016 Location B	Average	-0.04	-0.07	-0.17	-0.26	-0.29	-0.10	-0.12	-0.16	-0.35	-0.19	-0.10	-0.18	-0.18	-0.36	-0.14
	St. Dev	0.15	0.13	0.23	0.27	0.28	0.21	0.26	0.24	0.24	0.30	0.11	0.25	0.31	0.30	0.21
	Min	-0.31	-0.47	-0.98	-0.74	-0.84	-0.74	-0.92	-0.86	-0.89	-1.05	-0.40	-0.90	-1.12	-0.95	-1.41
	Max	0.22	0.18	0.08	0.21	0.29	0.25	0.33	0.31	0.14	0.35	0.14	0.16	0.46	0.36	0.59
	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200	
Post 10d Unmated Delta (mΩ) Date: 2/1/2016 Location B	Average	0.30	0.17	-0.08	-0.03	-0.12	0.10	-0.11	-0.09	-0.23	-0.09	-0.06	-0.16	-0.06	-0.24	-0.01
	St. Dev	0.47	0.47	0.22	0.34	0.30	0.47	0.26	0.23	0.36	0.33	0.11	0.23	0.56	0.35	0.30
	Min	0.00	-0.29	-0.79	-0.53	-0.68	-0.58	-0.86	-0.56	-1.12	-1.28	-0.35	-0.70	-1.43	-0.70	-1.35
	Max	1.53	1.92	0.31	0.97	0.00	2.72	0.12	0.33	0.33	0.38	0.09	0.16	1.21	0.44	2.15
	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200	
Post 10d Mated Delta (mΩ) Date: 2/11/2016 Location B	Average	0.68	0.37	0.13	0.29	0.37	0.42	-0.01	0.16	-0.04	0.09	0.13	0.00	0.26	0.03	0.32
	St. Dev	0.85	0.50	0.38	0.56	0.48	0.78	0.29	0.25	0.37	0.30	0.49	0.37	1.08	0.56	0.83
	Min	-0.20	-0.08	-0.48	-0.42	-0.55	-0.51	-0.76	-0.19	-0.70	-0.27	-0.31	-1.02	-0.65	-0.74	-0.90
	Max	2.57	1.50	1.48	1.62	1.29	3.86	0.43	0.82	0.80	1.08	2.13	1.67	4.53	1.80	5.30
	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200	
Post Disturb Delta (mΩ) Date: 2/11/2016 Location B	Average	0.47	0.29	0.06	0.09	0.19	0.25	-0.10	0.13	-0.18	-0.05	-0.01	-0.05	0.02	-0.19	0.12
	St. Dev	0.70	0.47	0.38	0.33	0.51	0.55	0.23	0.46	0.35	0.29	0.17	0.37	0.58	0.27	0.50
	Min	-0.10	-0.06	-0.59	-0.46	-0.86	-0.38	0.00	-0.38	-1.24	-0.84	-0.32	-0.68	-1.21	-0.63	-1.20
	Max	2.69	1.55	1.97	0.75	1.47	1.96	0.13	1.51	0.53	0.63	0.44	1.72	1.53	0.30	3.58
	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200	
Post 100x Durability Delta (200x total) (mΩ) Date: 2/12/2016 Location B	Average	0.25	0.22	0.01	-0.12	0.03	0.06	-0.12	0.01	-0.20	-0.15	-0.07	-0.04	-0.11	-0.23	0.02
	St. Dev	0.47	0.35	0.45	0.35	0.47	0.39	0.27	0.27	0.40	0.25	0.15	0.49	0.50	0.34	0.39
	Min	-0.18	-0.12	-0.56	-0.63	-0.91	-0.57	-1.02	-0.30	-1.03	-0.72	-0.46	-0.73	-1.06	0.00	-0.83
	Max	1.65	1.18	2.39	0.57	1.14	1.41	0.12	0.80	0.76	0.24	0.29	2.34	1.24	0.41	2.22
	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200	

LLCR Delta Count by Category						
mOhms	≤5	>5&≤10	>10&≤15	>15&≤50	>50&≤1000	>1000
100x Durability	560	0	0	0	0	0
10d Unmated	560	0	0	0	0	0
10d Mated	558	2	0	0	0	0
Disturb	560	0	0	0	0	0
200x Durability	560	0	0	0	0	0

Part description: EBTF/EBTM

**DATA SUMMARIES Continuation****Group 3 10126363-101LF/EBTM-4-10-2.0-S-VT-1 (AFCI RAR&SAMTEC VH)**

		Row A	Row B	Row C	Row D	Row E	Row F	Row G	Row H	Row I	Row J	Row K	Row L	Row M	Row N	Ground
<b>Initial (mΩ)</b>	Average	7.54	5.83	7.45	13.63	13.64	8.49	7.83	10.67	17.06	11.56	8.41	10.91	20.64	20.77	14.63
	St. Dev	4.34	4.39	5.23	0.31	0.26	6.22	6.94	7.16	0.34	7.88	7.93	8.95	0.35	0.45	10.39
	Min	2.26	2.21	2.16	13.07	13.17	2.18	2.15	1.81	16.44	2.00	2.00	1.95	20.13	20.21	1.64
	Max	11.68	11.56	13.50	14.25	14.07	15.15	16.47	16.63	17.87	18.63	18.45	21.54	21.68	21.97	25.47
	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Date: 1/20/2016 Location B	Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
<b>Post 100x Durability Delta (mΩ)</b>	Average	-0.07	-0.04	-0.10	-0.22	-0.14	-0.11	-0.07	-0.03	-0.22	-0.17	-0.10	-0.09	-0.19	-0.19	-0.09
	St. Dev	0.18	0.14	0.18	0.19	0.27	0.18	0.16	0.11	0.27	0.26	0.25	0.33	0.21	0.28	0.23
	Min	-0.40	-0.34	-0.51	-0.60	-0.90	-0.59	-0.41	-0.24	-0.84	-1.03	-0.86	-1.94	-0.81	-0.76	-1.20
	Max	0.36	0.28	0.46	0.23	0.24	0.18	0.34	0.18	0.55	0.12	0.40	0.21	0.12	0.21	0.78
	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Date: 1/21/2016 Location B	Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
<b>Post 10d Unmated Delta (mΩ)</b>	Average	0.51	0.26	0.51	0.15	0.29	0.26	0.34	0.51	0.24	0.17	0.13	0.22	0.46	0.45	0.18
	St. Dev	0.77	0.38	0.72	0.33	0.56	0.56	0.47	0.50	0.31	0.30	0.16	0.49	0.34	0.60	0.37
	Min	0.00	-0.08	-0.25	-0.45	-0.85	-0.43	-0.05	0.05	-0.24	-0.58	-0.11	-1.75	-0.08	-0.26	-0.87
	Max	2.77	1.41	3.34	0.78	0.00	2.92	1.92	1.90	1.41	0.70	0.52	2.12	1.51	2.13	2.29
	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Date: 2/1/2016 Location B	Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
<b>Post 10d Mated Delta (mΩ)</b>	Average	0.65	0.60	0.85	0.69	0.53	0.72	0.70	0.79	0.47	0.48	0.40	0.41	0.80	0.66	0.55
	St. Dev	0.64	0.67	0.73	0.65	0.51	1.02	0.61	0.81	0.65	0.66	0.41	0.53	0.85	0.71	0.78
	Min	-0.23	-0.01	0.06	-0.15	-0.29	-0.19	0.11	0.06	-0.51	-0.06	-0.01	-1.69	0.10	-0.26	-0.93
	Max	2.12	2.66	2.77	2.33	1.81	4.50	2.30	2.61	3.26	2.85	1.58	1.78	3.33	2.63	5.12
	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Date: 2/11/2016 Location B	Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
<b>Post Disturb Delta (mΩ)</b>	Average	0.33	0.29	0.39	0.25	0.25	0.36	0.26	0.34	0.24	0.22	0.20	0.11	0.40	0.08	0.21
	St. Dev	0.39	0.30	0.45	0.37	0.36	0.45	0.34	0.33	0.34	0.29	0.22	0.38	0.82	0.36	0.40
	Min	-0.28	-0.09	-0.28	-0.30	-0.43	-0.24	0.00	-0.01	-0.41	-0.25	-0.06	-1.84	-0.37	-0.75	-1.29
	Max	1.07	1.01	2.01	1.29	1.22	1.52	1.54	1.20	1.03	0.97	0.78	0.86	3.60	0.66	2.61
	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Date: 2/11/2016 Location B	Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
<b>Post 100x Durability Delta (200x total) (mΩ)</b>	Average	0.09	0.11	0.06	-0.12	0.06	0.05	-0.01	0.16	-0.02	0.00	0.01	-0.03	-0.11	-0.19	-0.02
	St. Dev	0.32	0.22	0.21	0.26	0.37	0.26	0.13	0.24	0.37	0.23	0.24	0.39	0.29	0.29	0.26
	Min	-0.38	-0.21	-0.45	-0.57	-0.72	-0.41	-0.26	-0.09	-0.70	-0.41	-0.59	-2.17	-0.88	0.00	-1.40
	Max	0.76	0.56	0.72	0.39	1.15	0.65	0.19	0.93	1.12	0.68	0.46	0.33	0.43	0.27	1.42
	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Date: 2/12/2016 Location B	Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200

<b>LLCR Delta Count by Category</b>						
mΩ	≤5	>5&≤10	>10&≤15	>15&≤50	>50&≤1000	>1000
100x Durability	560	0	0	0	0	0
10d Unmated	560	0	0	0	0	0
10d Mated	559	1	0	0	0	0
Disturb	560	0	0	0	0	0
200x Durability	560	0	0	0	0	0

**DATA SUMMARIES Continuation**

**Group 4 EBTF-4-10-2.0-S-RA-1/10126366-101LF (SAMTEC RAR&AFCl VH)**

		Row A	Row B	Row C	Row D	Row E	Row F	Row G	Row H	Row I	Row J	Row K	Row L	Row M	Row N	Ground
<b>Initial (mΩ)</b>	Average	7.19	5.48	7.77	14.08	14.18	8.49	8.04	11.11	17.14	11.54	8.37	11.13	20.68	20.75	14.27
	St. Dev	4.20	4.09	5.58	0.33	0.33	6.39	7.27	7.61	0.31	8.05	8.05	9.30	0.35	0.28	10.27
	Min	2.01	2.08	2.07	13.42	13.60	2.01	2.11	1.72	16.61	1.83	1.85	1.76	20.27	20.41	1.34
	Max	11.34	11.19	14.37	14.66	14.72	15.06	17.06	17.42	18.24	18.26	18.25	21.48	21.47	21.40	24.70
	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Date: 1/20/2016 Location B	Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
<b>Post 100x Durability Delta (mΩ)</b>	Average	0.00	0.00	-0.22	-0.23	-0.22	-0.06	-0.11	-0.23	-0.17	-0.07	-0.07	-0.19	-0.28	-0.29	-0.20
	St. Dev	0.20	0.11	0.26	0.29	0.27	0.15	0.15	0.24	0.28	0.20	0.08	0.24	0.28	0.33	0.26
	Min	-0.36	-0.14	-1.03	-0.94	-0.96	-0.53	-0.37	-0.79	-1.26	-0.53	-0.26	-0.86	-0.64	-0.95	-1.26
	Max	0.68	0.36	0.04	0.07	0.13	0.31	0.09	0.26	0.18	0.35	0.04	0.12	0.18	0.20	0.14
	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Date: 1/21/2016 Location B	Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
<b>Post 10d Unmated Delta (mΩ)</b>	Average	0.44	0.25	0.01	0.19	0.35	0.34	0.03	0.01	0.21	0.24	0.10	-0.08	0.05	0.14	-0.02
	St. Dev	0.90	0.72	0.18	0.46	0.37	0.83	0.13	0.30	0.53	0.43	0.34	0.34	0.31	0.43	0.38
	Min	0.00	-0.16	-0.42	-0.47	-0.20	-0.11	-0.12	-0.58	-0.99	-0.13	-0.14	-1.29	-0.49	-0.45	-1.19
	Max	4.00	3.14	0.58	1.24	0.00	4.49	0.50	0.72	2.09	1.57	1.31	0.68	0.65	0.95	1.57
	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Date: 2/1/2016 Location B	Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
<b>Post 10d Mated Delta (mΩ)</b>	Average	0.76	0.45	0.08	0.39	0.22	0.51	0.02	-0.07	0.20	0.36	-0.05	-0.10	0.17	-0.08	0.07
	St. Dev	1.03	0.83	0.54	0.97	0.74	1.05	0.20	0.34	0.79	0.64	0.11	0.31	0.72	0.41	0.56
	Min	-0.02	-0.09	-1.35	-0.55	-0.54	-0.32	-0.43	-0.96	-1.57	-0.48	-0.44	-0.96	-0.70	-0.83	-1.44
	Max	3.26	2.86	1.97	3.09	3.02	5.06	0.43	0.79	3.24	1.58	0.10	0.65	1.93	0.84	3.42
	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Date: 2/11/2016 Location B	Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
<b>Post Disturb Delta (mΩ)</b>	Average	0.46	0.33	-0.07	0.21	0.42	0.28	-0.02	0.04	0.04	0.35	-0.01	-0.16	0.15	-0.11	-0.03
	St. Dev	0.60	0.60	0.30	0.65	0.84	0.68	0.25	0.41	0.48	0.54	0.16	0.36	0.65	0.45	0.47
	Min	-0.06	-0.08	-1.11	-0.57	-0.84	-0.42	0.00	-0.72	-1.27	-0.16	-0.44	-1.65	-0.75	-0.88	-1.58
	Max	1.78	1.98	0.81	1.81	2.84	2.78	0.55	1.36	1.51	1.79	0.46	0.78	1.74	0.97	2.94
	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Date: 2/11/2016 Location B	Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
<b>Post 100x Durability Delta (200x total) (mΩ)</b>	Average	0.29	0.12	-0.14	0.08	-0.08	0.07	-0.02	-0.11	-0.10	0.13	-0.09	-0.22	-0.13	-0.26	-0.18
	St. Dev	0.47	0.36	0.36	0.46	0.27	0.25	0.29	0.28	0.35	0.45	0.11	0.29	0.39	0.36	0.34
	Min	-0.08	-0.11	-1.11	-0.72	-0.64	-0.25	-0.52	-0.66	-1.20	-0.37	-0.30	-1.23	-0.74	0.00	-1.32
	Max	1.51	1.56	0.91	1.33	0.37	0.83	0.65	0.54	0.85	1.47	0.06	0.13	0.71	0.42	1.02
	Summary Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200
Date: 2/12/2016 Location B	Total Count	20	20	40	20	20	40	20	20	40	20	20	40	20	20	200

<b>LLCR Delta Count by Category</b>						
mΩ	≤5	>5&≤10	>10&≤15	>15&≤50	>50&≤1000	>1000
100x Durability	560	0	0	0	0	0
10d Unmated	560	0	0	0	0	0
10d Mated	559	1	0	0	0	0
Disturb	560	0	0	0	0	0
200x Durability	560	0	0	0	0	0

**EQUIPMENT AND CALIBRATION SCHEDULES****Equipment #:** HZ-TCT-01**Description:** Normal force analyzer**Manufacturer:** Mecmesin Multitester**Model:** Mecmesin Multitester 2.5-i**Serial #:** 08-1049-04**Accuracy:** Last Cal: 3/7/2020, Next Cal: 3/6/2021**Equipment #:** HZ-MO-05**Description:** Micro-ohmmeter**Manufacturer:** Keithley**Model:** 3706**Serial #:** 1285188**Accuracy:** Last Cal: 9/26/2019, Next Cal: 9/25/2020**Equipment #:** DG-MFG-01**Description:** Mixed Flow Gas Chamber**Manufacturer:** Yamasaki**Model:** GH-180**Serial #:** 715**Accuracy:** Last Cal: 12/5/2019, Next Cal: 12/4/2020