

EMI Solutions Filtered Insert Salt Spray Test Report

MIL-STD-810F Test Report

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Environmental Salt Spray testing for MIL-STD-810F compliance, was performed on (2) EMI Solutions filter insert / harness assemblies at Environmental Associates in Santa Ana California from, 10-27-2008 through 10-29-2008.

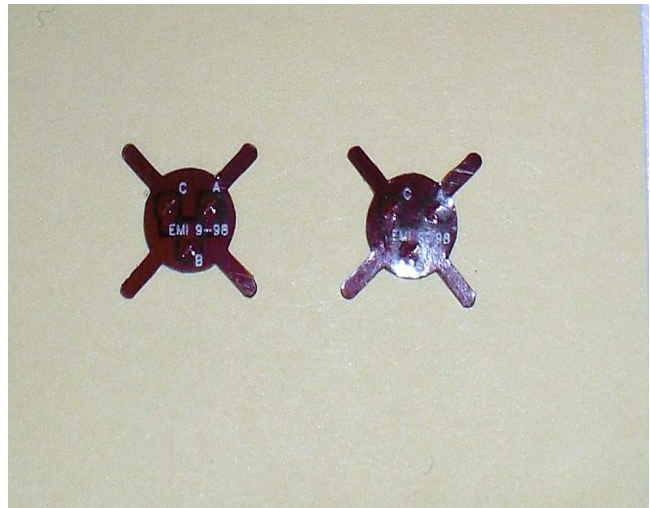
The Official Part numbers for the test harnesses which the filter inserts were placed into for testing were: FCC1/20/9-98PW-S1-821 & FCC1/20/9-98PW-S1-471

The Filter Insert Part numbers were: D38999/9-98R-F1-821 & D38999/9-98R-F1-471.

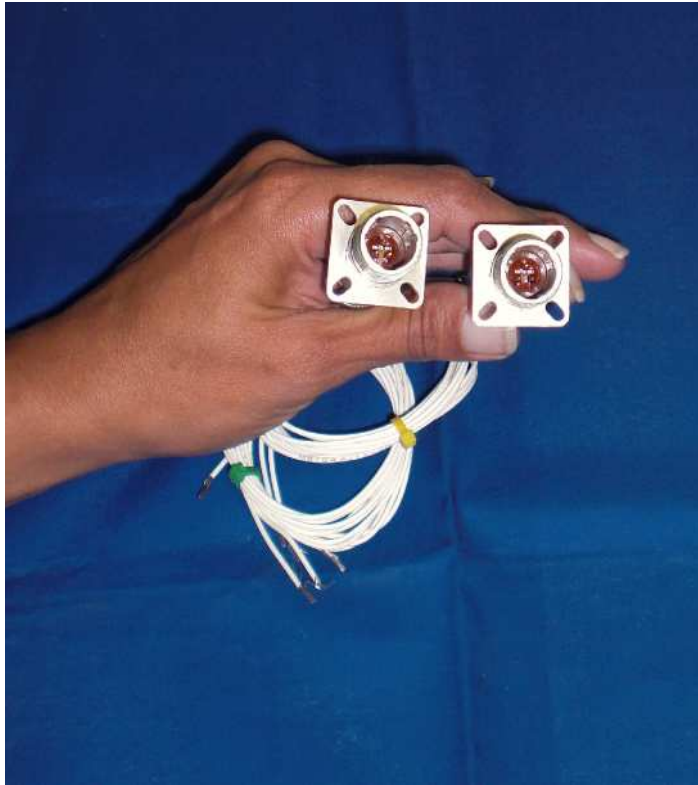
Photos of Filtered Inserts Pre-Testing, (Note: Inserts larger than actual size):



Front Chip CAP Side of Inserts



Rear Part / Pin Number Face of Inserts



Filter Inserts Inserted into D38999 connectors and color coded to capacitive value



Filtered Harness Assemblies Prior to Salt Fog testing at Environmental Associates

Laboratory Test Data

Environment Associates, Inc.

SALT SPRAY DATA SHEET

TEST SETUP

CUSTOMER EMI SOLUTIONS JOB NO. 022510-1014667 DATE 10-17-08
 SPECIMEN CONNECTORS PART NO. D38999-9-98R-F1-821 SERIAL NO. _____
 SPECIFICATION NO. MIL-STD-810 REV. NO. 4 F PARAGRAPH NO. _____
 PREPARATION OF SPECIMENS NONE
 PROTECTION FOR NON-TESTED PARTS WIRE PROTRUDE OUTSIDE CHAMBER
 VENTS, PORTS, CONNECTORS CAPPED: YES _____ NO COMMENT: _____
 SUPPORT METHOD RACK ORIENTATION OF SPECIMENS HORIZONTAL
 SOLUTION: SALT 5 % H₂O 95 % (by weight) pH 6.8 AT 95 °F CHAMBER TEMPERATURE 95 °F
 SPECIFIC GRAVITY 1.026 AT 95 °F WATER COLUMN TEMPERATURE 95 °F NOZZLE PRESSURE 14 PSIG

TEST RECORD

ELAPSED TIME (HOURS and Date)	CHAMBER TEMP. (°F)	SOLUTION VOLUME PER 80 CM ² AREA (1) (ml/HR)	SOLUTION VOLUME PER 80 CM ² AREA (2) (ml/HR)	SOLUTION VOLUME PER 80 CM ² AREA (3) (ml/HR)	SOLUTION VOLUME PER 80 CM ² AREA (4) (ml/HR)	COLLECTED SOLUTION SPECIFIC GRAVITY	COLLECTED SOLUTION pH VALUE	COLLECTED SOLUTION TEMP. (°F)
<u>24</u>	<u>95</u>	<u>2.0</u>	<u>1.2</u>	<u>—</u>	<u>—</u>	Meas. _____ Corr. _____ Actual <u>1.029</u>	<u>6.8</u>	<u>85°F</u>
<u>48</u>	<u>95</u>	<u>2.0</u>	<u>1.1</u>	<u>—</u>	<u>—</u>	Meas. _____ Corr. _____ Actual <u>1.030</u>	<u>6.7</u>	<u>86°F</u>
—	—	—	—	—	—	Meas. _____ Corr. _____ Actual _____	—	—
—	—	—	—	—	—	Meas. _____ Corr. _____ Actual _____	—	—

STOP DATE AND TIME 10/29/08 10:00am TEST DURATION 48 HOURS PHOTOGRAPH TAKEN: YES NO _____

COMMENTS: NONE

RESULTS OF TEST: NO VISIBLE CORROSION NOTED.

TEST TECHNICIAN [Signature] TEST ENGINEER [Signature]

(1), (2), (3), (4) Check the Specification and Revision for the number and location of collection receptacles. Describe on the log sheet.

Sheet # 1 Test Setup

TEST DATA

DATE STARTED 10-27-08	CUSTOMER EMI SOLUTIONS	TECHNICIAN (SIGNATURE) <i>[Signature]</i>
DATE COMPLETED 10-29-08	SPECIMEN DESCRIPTION CONNECTORS	ENGINEER (SIGNATURE) <i>[Signature]</i>
TEMPERATURE (LABORATORY) 21°C	TYPE OF TEST SALT FOG	ENGINEER George Kujawa
HUMIDITY (LABORATORY) 58% R.H.	TEST SPECIFICATION MIL-STD-810 F	PARAGRAPH NUMBER OC20510-1014867
SPECIMEN NUMBER SEE BELOW	P/N D38999-9-98R-F1-521	

MATED CONNECTORS SHALL BE SUBJECTED TO A 5% NaCl SOLUTION FOR A 48 HOUR PERIOD. CONNECTORS SHALL BE MOUNTED IN THE CHAMBER HORIZONTALLY WITH THE WIRE ENDS PROTRUDING FROM THE CHAMBER.

10/27 0945 CONNECTORS PLACED IN SALT SPRAY CHAMBERS WITH WIRES PROTRUDING FROM CHAMBER.

0947 PICTURE TAKEN.

0950 FILLED CHAMBER RESERVOIR WITH 5% NaCl SOLUTION.

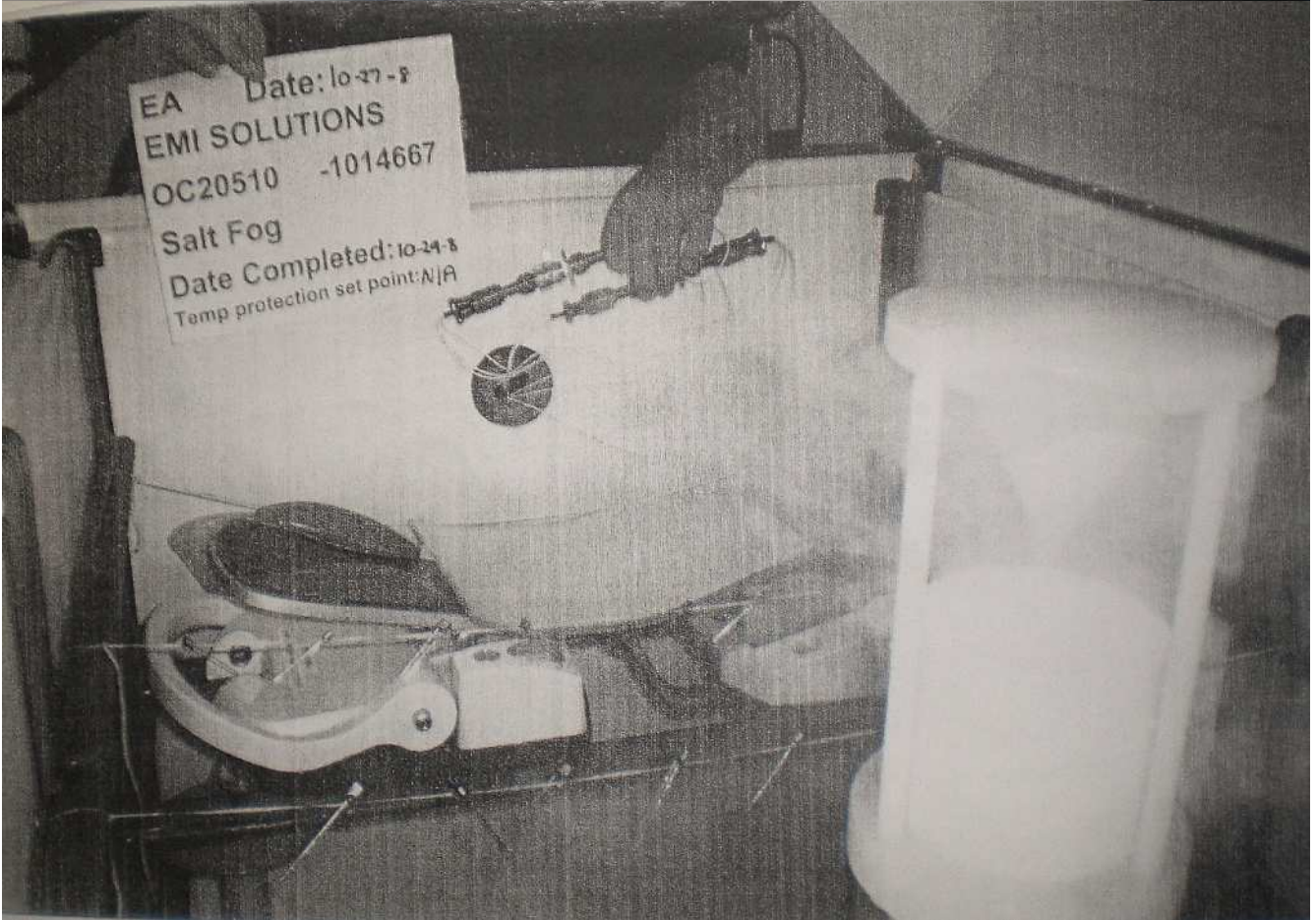
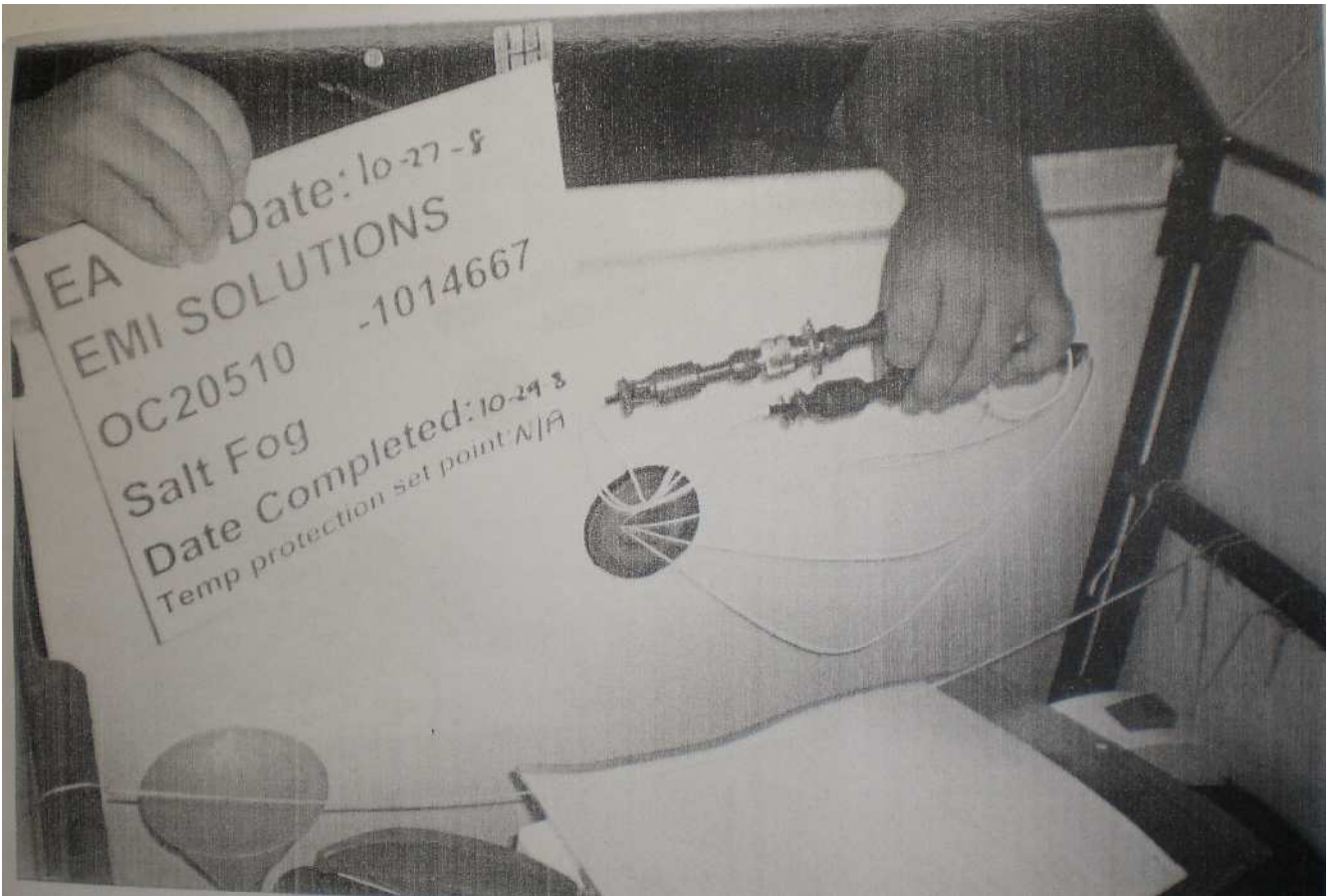
10:00 SEALED CHAMBER, START TEST.

10/28 1100 REFILL RESERVOIR WITH 5% NaCl SOLUTION. TEST CONDITIONS NORMAL.

10/29 1000 SAMPLES REMOVED FROM CHAMBER AND RINSED UNDER TAP WATER.

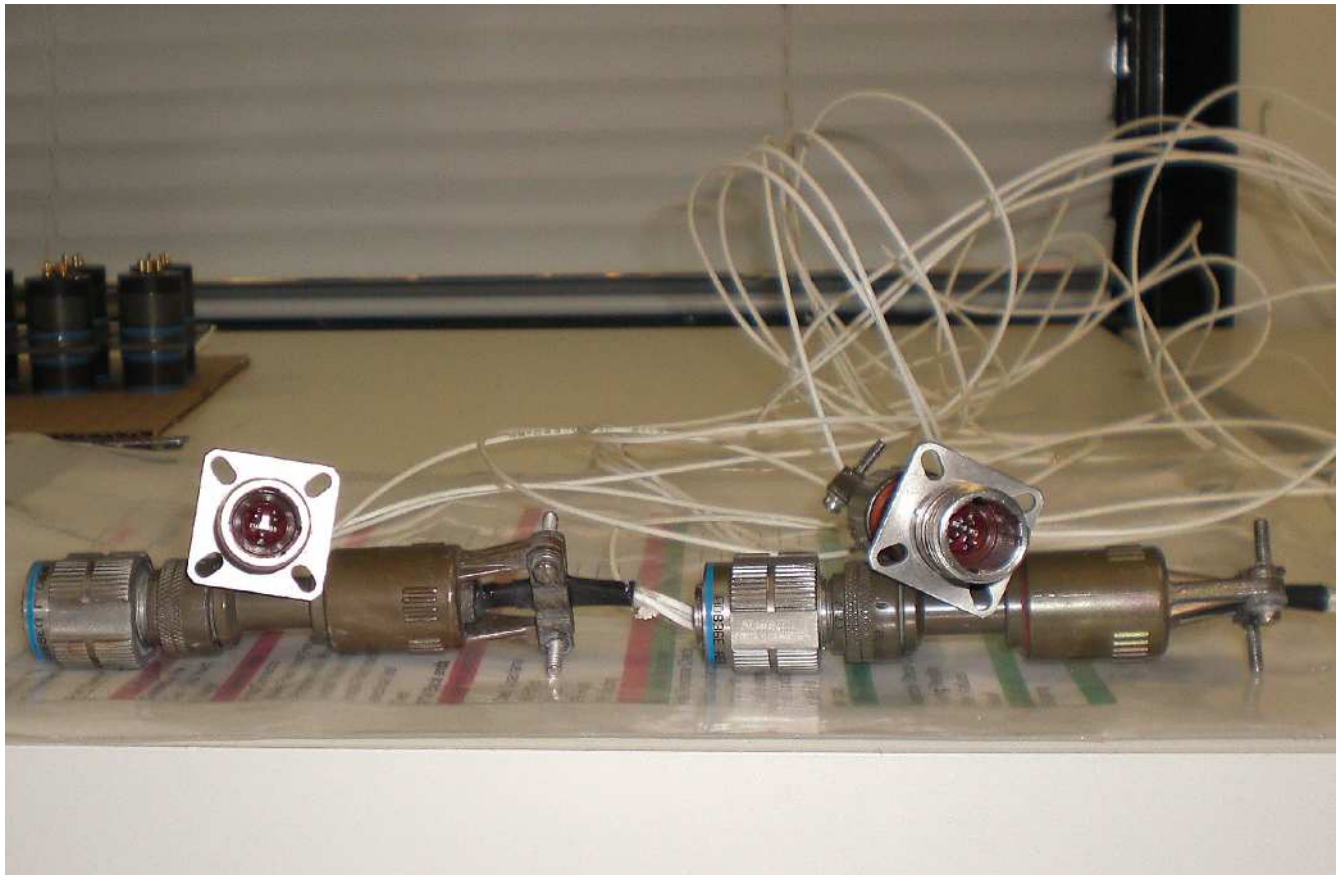
11:50 TESTED CAPACITORS. BOTH SAMPLES PASSED.

TEST COMPLETE





Filter Inserts Pretest @ Environmental Associates & Post Test at EMI Solutions



Conclusion

Test Results performed on our filter inserts within two D38999 harnesses are as follows:

1) The filtered harness assemblies included the wiring, and the inserts were always mated within the connectors, to fully comply within normal operating conditions for the filter inserts, and to comply with MIL-STD-810F for Salt Spray.

2) The filtered harnesses were electrically tested pre & post salt spray testing for: Capacitance Value Drift, Pin Contact Resistance, Ceramic Component ground leakage (MEGGAR); and they were Visually inspected under a Microscope for any trace of Salt Migration. No defects were found either at the Test lab or at EMI Solutions.

TEST RESULTS

The two filter inserts passed the MIL-STD-810F Salt Fog requirements 100%.