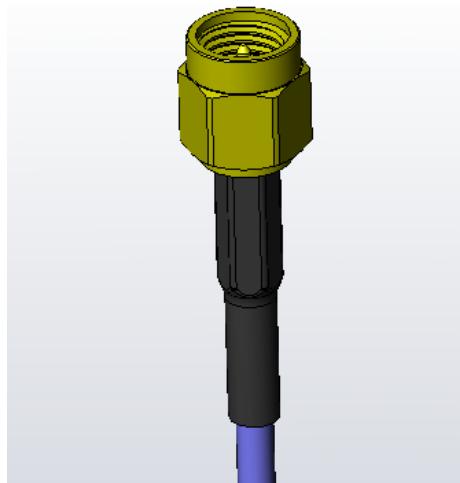
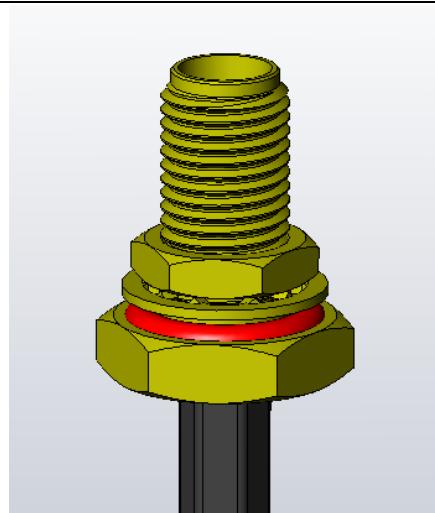


Project Number: Design Verification Test Report	Tracking Code: 107044_Report_Rev_2		
Requested by: Tori Meek	Date: 11/3/2010	Product Rev: 0	
Part #:SMA-J-C-XX-ST-SB1/SMA-P-C-XX-ST-CA1	Lot #: na	Tech: Gary Lomax	Eng: Eric Mings
Part description: SMA	Qty to test: 40		
Test Start: 10/12/2010	Test Completed: 10/26/2010		

**Dust & Water Test Report****SMA****SMA-J-C-XX-ST-SB1/SMA-P-C-XX-ST-CA1**

## 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: Design Verification Test ,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) Either an automated cleaning procedure or an ultrasonic cleaning procedure may be used.
- 4) Any additional preparation will be noted in the individual test sequences.

## FLOWCHARTS

### IP67 Dust & Water

TEST STEP	GROUP A1 (6) <b>MATED</b>	GROUP A2 (6) <b>MATED</b>	GROUP A3 (6) <b>UNMATED</b>	GROUP A4 (6) <b>UNMATED</b>
01	Dust Test	Submersion Water Test	Dust Test	Submersion Water Test
02	Check for Dust	Check for Water	Check for Dust	Check for Water

Dust/Water Testing = Per CEI/IEC 60529 Code IP67

### IP66 Dust & Water

TEST STEP	GROUP B2 (6) <b>MATED</b>	GROUP B4 (6) <b>UNMATED</b>
01	Stream of Water Test	Stream of Water Test
02	Check for Water	Check for Water

Dust/Water Testing = Per CEI/IEC 60529 Code IP66

\* It is not necessary to perform the dust portion of this test if IP67 testing has been performed

**FLOWCHARTS CONTINUED****IP68 Dust & Water**

<b>TEST STEP</b>	<b>GROUP C1 2 Mated Connectors For Each Depth Tested (27 Total Mated Connectors)</b>
<b>01</b>	2M for 30 Minutes
<b>02</b>	Check for Water
<b>03</b>	3M for 30 Minutes
<b>04</b>	Check for Water
<b>05</b>	4M for 30 Minutes
<b>06</b>	Check for Water
<b>07</b>	5M for 30 Minutes
<b>08</b>	Check for Water
<b>09</b>	6M for 30 Minutes
<b>10</b>	Check for Water
<b>11</b>	7M for 30 Minutes
<b>12</b>	Check for Water
<b>13</b>	8M for 30 Minutes
<b>14</b>	Check for Water
<b>15</b>	9M for 30 Minutes
<b>16</b>	Check for Water
<b>17</b>	10M for 30 Minutes
<b>18</b>	Check for Water

Dust/Water Testing = Per CEI/IEC 60529 Code IP68

For this test you have to use the pressure chamber

New parts should be used for each depth tested

Stop testing once parts fail

\* It is not necessary to perform the dust portion of this test if IP67 testing has been performed

## ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

### DEGREES OF PROTECTION PROVIDED BY ENCLOSURES (IP Code)

The extent of protection provided by an enclosure against access to hazardous parts, against ingress of solid foreign objects and/or against ingress of water and verified by standardized test methods

The object is to give:

- 1) Protection of persons against access to hazardous parts inside the enclosure;
- 2) Protection of the equipment inside the enclosure against ingress of solid foreign objects;
- 3) Protection of the equipment inside the enclosure against harmful effects due to the ingress of water.

### WATER TESTING:

- 1) Reference document: CEI/IEC 60529 Code IP66, IP67, and IP68
- 2) Torque requirements for testing:
  - a. DCN-1532-32: 2.5 Inch/Lb Min.
  - b. Machine Screw Torque to Fixture: 15.0 Inch/Lb Min.

### DUST TESTING:

- 1) Reference document: CEI/IEC 60529 Code IP67
- 2) Torque requirements for testing:
  - a. DCN-1532-32: 2.5 Inch/Lb Min.
  - b. Machine Screw Torque to Fixture: 15.0 Inch/Lb Min.

## RESULTS

### IP67 Dust & Water

#### Dust test:

- Mated----- PASS
- Unmated ----- PASS

#### Submersion Water Test:

- Mated----- PASS
- Unmated ----- PASS

### IP66 Dust & Water

#### Stream of Water Test

- Mated----- PASS
- Unmated ----- PASS

### IP68 Dust & Water

#### Depth immersion Test:

- Mated----- 7 m Max.

## DATA SUMMARIES

### IP67 Dust test

Mated:

*Visual Inspection after Dust Test*

<b><u>Sample #</u></b>	<b><u>Visual Inspection</u></b>
1	Pass
2	Pass
3	Pass
4	Pass
5	Pass
6	Pass

Unmated:

*Visual Inspection after Dust Test*

<b><u>Sample #</u></b>	<b><u>Visual Inspection</u></b>
1	Pass
2	Pass
3	Pass
4	Pass
5	Pass
6	Pass

### IP67 Submersion Water Test

Mated:

*Visual Inspection after Water Test*

<b><u>Sample #</u></b>	<b><u>Visual Inspection</u></b>
1	Pass
2	Pass
3	Pass
4	Pass
5	Pass
6	Pass

**Unmated:*****Visual Inspection after Water Test***

<b><u>Sample #</u></b>	<b>Visual Inspection</b>
1	Pass
2	Pass
3	Pass
4	Pass
5	Pass
6	Pass

**IP66 Stream of Water Test****Mated:*****Visual Inspection after Water Test***

<b><u>Sample #</u></b>	<b>Visual Inspection</b>
1	Pass
2	Pass
3	Pass
4	Pass
5	Pass
6	Pass

**Unmated:*****Visual Inspection after Water Test***

<b><u>Sample #</u></b>	<b>Visual Inspection</b>
1	Pass
2	Pass
3	Pass
4	Pass
5	Pass
6	Pass

**IP68 Depth immersion Test:*****Visual Inspection after Water Test***

<b>Sample #</b>	<b>Visual Inspection</b>
1 (2M)	Pass
2 (3M)	Pass
3 (4M)	Pass
4 (5M)	Pass
5 (6M)	Pass
6 (7M)	Pass
7 (8M)	Fail

## EQUIPMENT AND CALIBRATION SCHEDULES

**Equipment #:** Dust-01

**Description:** IP-X6 Dust Tester

**Manufacturer:** Samtec Machine

**Model:**

**Serial #:** N/A

**Accuracy:**

... Last Cal: No Calibration Required

**Equipment #:** Water-02

**Description:** IP-68 Water Depth Chamber

**Manufacturer:** Samtec Machine

**Model:**

**Serial #:** N/A

**Accuracy:**

... Last Cal: No Calibration Required

**Equipment #:** Water-01

**Description:** IP-67 1.0 Meter Water Column Chamber

**Manufacturer:** Samtec Machine

**Model:**

**Serial #:** N/A

**Accuracy:**

... Last Cal: No Calibration Required

**Equipment #:** Water-03

**Description:** IP-66 Water Nozzle Spray Chamber

**Manufacturer:** Samtec Machine

**Model:**

**Serial #:** N/A

**Accuracy:**

... Last Cal: No Calibration Required