705(-ATEX), 705+(-ATEX) FINAL ASSEMBLY

**1.0 PURPOSE AND SCOPE**

This document outlines the final assembly and test procedure for the 705, 705-ATEX, 705+ and 705+-ATEX instruments. All employees who have responsibility for testing these products are required the follow the instructions detailed in this procedure.

**2.0 AFFECTED DEPARTMENTS**

Manufacturing

**3.0 REFERENCE DOCUMENTS**

Final assembly drawing S705.10 or S705.10-ATEX.

**4.0 RESPONSIBILITIES & AUTHORITY**

The technician has the following responsibilities and authority:

* Verify compliance of the product under test to specifications.
* Troubleshoot and correct product as required.
* Communicate concerns to the Supervisor of Quality Assurance.
* Request management review of product concerns.
* Follow established ESD standards.

**5.0 DEFINITIONS**

Several of the following test procedures require that an electrical test adapter be connected to the input of the Spark instrument being tested. Spark instruments use the MPR001 or MPR001-ATEX mic/preamp, which has a Knowles BL-7046 microphone (LD# 6610.0005). ***Therefore, the ADP046 (with CBL118) is the electrical test adapter that is to be used when testing Spark instruments.***

The term “analog board” will be used in this document to refer to board assemblies A705.12 or A705.22.

The term “digital board” will be used in this document to refer to board assemblies A705.11 or A705.21.

**6.0 SAFETY PRECAUTIONS**

Safety glasses when soldering, lead clipping, or testing power supplies.

**7.0 EQUIPMENT AND MATERIALS**

## DC Power Supply.

* CBL066 (BNC to BNC cables).
* IR Communications interface module (DVX008/DVX009 IR Dongle) or equivalent.
* Computer (PC that is compatible with Windows ME, 2000, XP or later).
* SLMTest.exe Windows software (Part #5499.0004 – current version).
* Larson Davis Test Station (2900, 2209/2239, Computer).
* Electrical Test Adapter ADP046 with a CBL118.

**8.0 INSTRUCTIONS**

* 1. **Conformal Coating**

A. The A705.11 board assembly needs a conformal coating. For the A705.21 (ATEX versions), move onto section 8.2. The A705.11 needs to be conformal coated on the main processor side (A quick spray covering the whole surface to begin, and then a full coat that flows around the components (See the instructions on the can for further details)). Cover the main board connector (P1) and the IR chip (U8) with kapton tape before spraying to prevent conformal coating of these areas. Allow 10-15 minutes to air dry and the coating will be tack free. Once dry, remove the kapton tape and discard it.

* 1. **Assemble the Instrument**

 A. Assemble the instrument according to the appropriate assembly drawing.

* 1. **Final Test of the Instrument with the SLM Test Software**
1. Setup the DC power supply with the voltage = 1.5V and current limit = 500mV. (Limit the current if the power supply used has this capability). Power the Spark.

1. Connect the ADP046 test adapter to the input of the SPARK found on the analog board. Connect the input of the ADP046 test adapter to the signal output of the 2209 / 2239 (use a CBL066).
2. Open the SLMtest software and follow these steps to test the SPARK.
	1. Make sure the SPARK is in front of the IR interface module and that the SPARK is on.
	2. Open the **Commands** menu and select **Connect**. The software will report if it has successfully connected to the SPARK.
	3. If needed, open the **File** menu and select **Customize Tests** to open “Customize Tests” dialog box (Refer to Section 8.4 of D0001.8132 for specific settings needed for the SLMtest).

C.4 For **Final Production Testing**, make sure only the “LogLin” and “Do Scale-offset” options are selected. (Unless the other tests were not run previously – see procedure D0001.8132).

C.5 Make sure that the ADP046’s switch is in the “input” position (see figure 1).

C.6 Open the **Commands** menu and select **Run**.

C.7 If prompted by the test software to move the ADP046’s switch to the “noise” position, select “OK” without moving the switch. The switch should remain in the input position. If the test software requests that the switch be moved back to the “input” position (see figure 1 below) just select “OK”.

SwitchCraft connector for output signal

BNC connector for input signal

Switch

Move switch to this position for “INPUT”

Switch position for “NOISE”

**Figure 1: Top View of ADP046**

1. If any tests fail, fix the problem before proceeding.
2. Disconnect from the SLMTest by opening the **Commands** menu and selecting **Disconnect**. When prompted with “Save New Test Data to Database”, **select “NO**” if all tests were previously saved.

**9.0 INSPECTION**

Inspect the finished unit for any obvious defects.

**10.0 RECORDS**

none

**11.0 DISTRIBUTION**

Manufacturing

**12.0 ATTACHMENTS**

Not applicable to this procedure.

**13.0 REVISION HISTORY**

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| --- | --- | --- | --- | --- |
| **DCO #** | **REV** | **DATE** | **INITIALS** | **CHANGES MADE** |
|  | A | 8/16/00 | CBS | Initial Version |
| 231 | B | 4/13/01 | CBS | Updated for MPR001 |
| 1217A | C | 7/6/2009 | DJ/KO | Updated to new processMade document compatible with all analog and digital boards (Including ATEX) |
| 1390 | D | 8/15/13 | NR | Updated for final assembly and test flexibility |
|  |  |  |  |  |