11-500A and 20-805 Analog AES Input Test Procedure

Overview:
This document explains the procedure for testing whether or not the 0 to 10 volt drive signal from the PC137A or RBD147 interface unit is working properly.

Equipment needed:
DVM and BNC adaptor cable

The 11-500A and 20-805 (in the AES mode) both have a gain of 200:1
The Analyzer scale factor is 1.7. This means that the ratio between eV and DC voltage is 1.7 to 1. For example, a 1000eV electron requires 588.823 DC volts to be collected.

To calculate what the Analog or Input voltage should be for a particular eV, use the following formula:

Analog or Input voltage = eV divided by 1.7 divided by 200.

Example: 2000 eV divided by 1.7 = 1776.47 divided by 200 = 5.8823 volts on the Analog or Input cable.

Procedure:
1. Turn the power off on the 11-500A or 20-805 analyzer control.
2. Remove the Analog (11-500A) or Input (20-805) cable and connect it to a DVM.
3. Set up an elastic peak alignment with a lower limit of 100 and an upper limit of 100.
4. Acquire the alignment and measure the voltage on the Analog or Input cable. The voltage should be .294 volts DC.
5. Set up an elastic peak alignment with a lower limit of 2000 and an upper limit of 2000.
6. Acquire the alignment and measure the voltage on the Analog or Input cable. The voltage should be 5.88 volts DC.

If the Analog or Input voltage is correct, then the D/A on the PC137A or RBD147 is working properly.