

Jan 2007

TECHNICAL SERVICE BULLETIN from Pyrodigital Consultants, Inc.

## **CABLE TEST FOR LINE LEAKAGE PYRODIGIAL PHASE III SYSTEM NETWORK CABLES**

### **PURPOSE;**

To test your Cables for LEAKAGE between Lines: Normal cable testers, or cable test boxes DO NOT test for leakage between lines; that is any HIGH RESISTANCE leakage between line 1 and 2 (pin 1 and pin 2), between line 1 and 3 (pin 1 and pin 3), and finally between line 2 and 3 (pin 2 and pin 3). Cable testers ONLY test for continuity between XLR pins (correct wiring of the XLR). Most all cable test boxes will only see leakage between lines if it is 1,000 ohms or less. Any Leakage at all between lines can cause communications difficulties and disruption of the data on the System Network, potentially causing missed shots, and /or status problems. Ideally there should be INFINITE resistance between any one of the three lines with respect to the other two lines. The Phase III System Network can tolerate leaks between lines NO LESS THAN 20k ohms, absolute minimum. Recommended would be AT LEAST 10Meg ohms, again ideally infinite resistance (or as high as your ohm meter can read).

**EQUIPMENT REQUIRED;** Basic volt / ohm meter (DO NOT use cable tester for this test, however DO test cables with cable tester for continuity between pins and correct wiring)

### **TEST PROCEDURE;**

- 1) Set ohm meter on HIGHEST SCALE; (verify by measuring resistance of your body by holding meter probe in each hand, your body should show resistance in the Meg ohm range). DO NOT have the meter on the lowest scale (as you would, if you were testing for continuity on both ends of the cable).
- 2) Test ONLY from one end of cable; other end of cable is free and not connected to anything. (NOTE: many cables may be plugged together for this test as long as the last end is free and not connected to anything).
- 3) Connect / touch one probe of meter to pin 1 and other probe to pin 2. Observe resistance (infinite resistance desired, no meter movement) [test for resistance between

lines 1 and 2] (NOTE: depending on type of meter probes it may be convenient to inset probes in to female socket end of XLR connector, or alternatively, test from male XLR end by attaching probe alligator clip to male pin; it does not matter which end of cable you test from as long as the other end is free and not connected to anything).

4) Move meter probe on pin 2 to pin 3. Observe resistance. [test for resistance between lines 1 and 3].

5) Move other meter probe on pin 1 to pin 2. Observe resistance [test for resistance between lines 2 and 3].

6) Repeat test for all cables. (NOTE: again, many cables may be plugged together so as to test many cables at the same time).

#### IF LEAKAGE BETWEEN ANY LINES DETECTED;

7) Usually line leakage problems are in the XLR Connectors. Isolate to one cable and disassemble XLR connectors (both ends) and clean / dry out connectors and inside wiring. Make sure that no loose strands of wire are touching, or can touch any of the other wires. Test cable for leakage between lines again with XLR connectors disassembled and then again after reassembly.

8) If the XLR connectors are not the problem, then it must be the cable itself. Visually inspect the entire cable looking for bad / damaged spots. Using your fingers, feel every inch of the cable and try to locate a “smashed” or “squishy” spot. With the meter connected you may be able to find an intermittent leak or short between lines. You may be able to cut out the bad section and make two shorter, good cables.

9) Remember you would like to have cables with at least 10 Meg ohm isolation between all 3 lines, ideally greater than 20 Meg ohms, or as high as your meter can test for (infinite, no detection with no meter movement).