

## V04 OBC Optical Test

ENGINEER: \_\_\_\_\_ **Sonnichsen** \_\_\_\_\_

DATE: **03/09/2005**

### COMMENTS:

**Completed a WHOI prior to UW integration testing**

#### **REQUIREMENTS COVERED:**

**3- 60km Cable Length**

**10 – Reliable out of band system**

**All components met the optical requirement of better than 60km operation at a loss of 0.2dB/km**

### **MARS**

Org: WHOI

Engr: Fritz Sonnichsen

Date: 03/07/05

## V04 OBC Optical Test

### **Purpose of Test:**

This test is a final check on the output of the OBC optical transceivers. Their output power is verified.

### **Required Equipment:**

Completed Subsea Node

Completed Shore Station

Optical Power Meter

5 Volt Power Supply

35dB 1550nm Variable Optical Attenuator

20dB Attenuator

1' fibre jumper

OBC Transceiver Test Cable (See procedure)

Volt Meter

## OB-04 OBC Control Test - procedure

**Warning- DO NOT apply “hot” power connectors to OBC transceivers as they are not diode protected. Attach power connectors first and then apply power.**

### OBC Transmitter Output Test

Connect the devices as shown on the setup-tx page.

You will need a test cable as shown in the diagram

Toggle the OBC transmit wire on and off, via grounding it into the 5V power supply - (note that the ON state for the transmitter is when the transmit lead is grounded).

Observe the optical power output at 1550nm and record it in the data table.

The output should be -3 to +3 dBm

Repeat this test for all four transceivers.

### OBC Receiver Sensitivity Test

Connect the devices as shown on the setup-rc page.

You will need a test cable as shown in the setup-txdiaagram

Add a 20dB attenuator to the optical link

With the VOA attenuate the optical output of the sending transceiver until the 5V signal appears – (note that the ON state for the receiver is when the optical signal is lost)

Observe the optical power output at 1550nm after the attenuator and record it in the data table.

The detectible output should be less than - 30 dBm

Repeat this test for all four transceivers. You will need to connect:

East A transmitter to West A Receiver

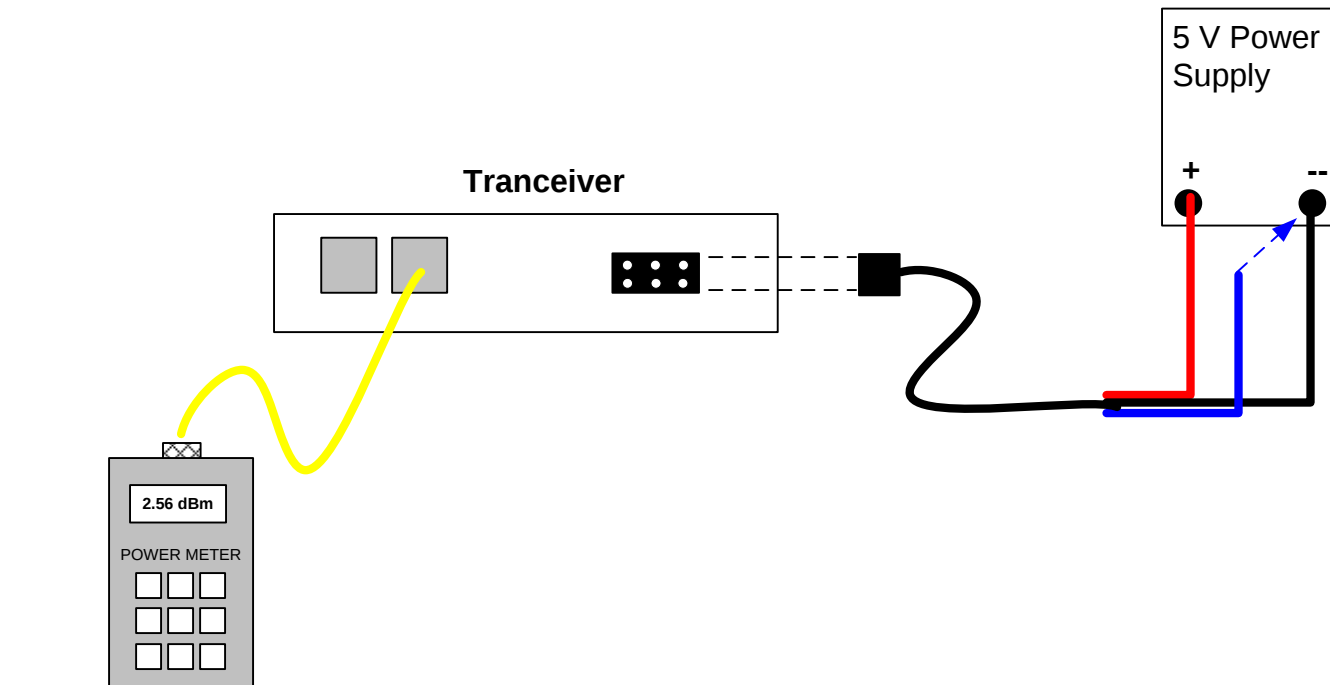
East A receiver to West A transmitter

East B transmitter to West B Receiver

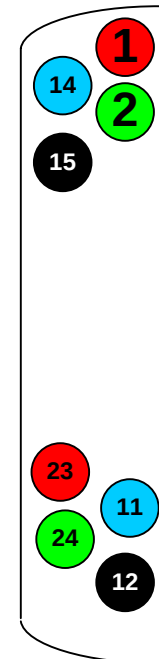
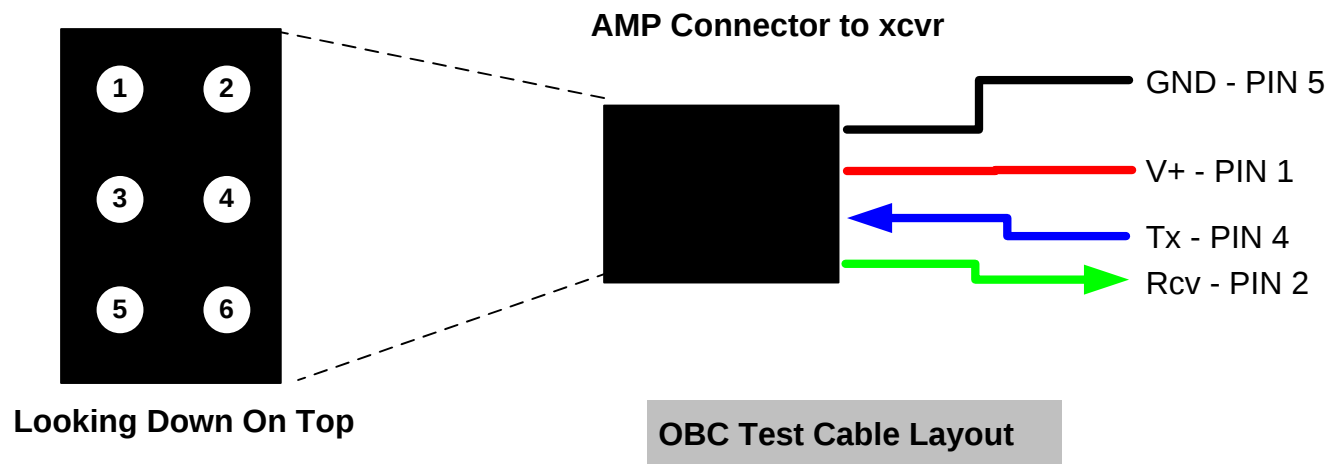
East B receiver to West B transmitter

## V04 OBC Optical Test

### Setup To Test OBC Transmitter Output Power

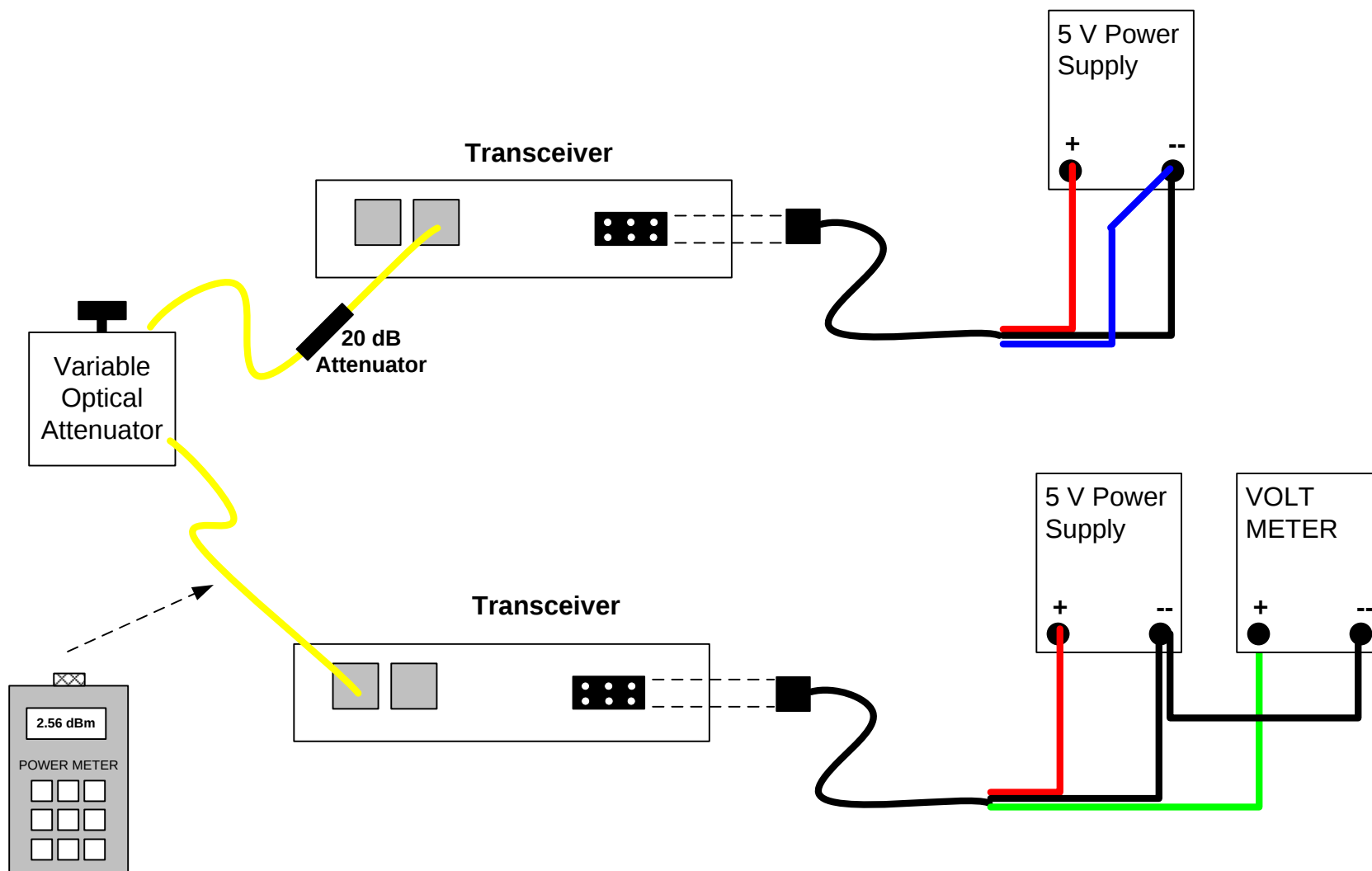


Connector to OBC box – use the pinout shown if you do not want to connect directly via the AMP connector



## V04 OBC Optical Test

### Setup To Test OBC Receiver Sensitivity



## V04 OBC Optical Test

### Data for OBC Optical Test

|       |          |           |      |           |            |
|-------|----------|-----------|------|-----------|------------|
| Date: | 3/9/2005 | Location: | WHOI | Engineer: | Sonnichsen |
|-------|----------|-----------|------|-----------|------------|

#### Transceiver Transmitter Output

|                           |       |
|---------------------------|-------|
| West A Transceiver Output | -2.25 |
| East A Transceiver Output | +0.07 |
| West B Transceiver Output | -1.04 |
| East B Transceiver Output | -0.5  |

#### Transceiver Receiver Sensitivity

|                    |        |
|--------------------|--------|
| West A Transceiver | -44.95 |
| East A Transceiver | -43.7  |
| West B Transceiver | -47.3  |
| East B Transceiver | -47.16 |