HFC Enhance® ISX NODE DFB RETURN PATH TRANSMITTER

1. Overview

Figure #1 illustrates the HEIXxxxx DFB-based Return Path Transmitter.

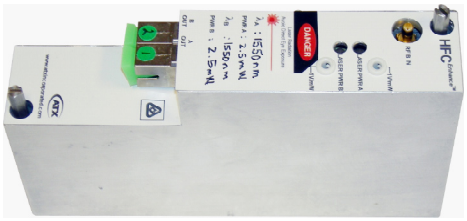

Figure #1 HEIXxxxx DFB Return Path Transmitter

2. Installation of DFB Return Path Transmitter for ISX-3030 750 MHz Node

2.1 Power off the ISX Node.

2.2 Open the ISX Node; locate the Return Path Transmitter that is to be replaced in the optical section of the ISX Node and install the HEIX**** Return Path Transmitter.

2.3 The unit should be installed in the module slots identified as Primary or Secondary Transmitter in the optical section of the ISX Node.

2.4 Secure the HEIX**** Return Path Transmitter by tightening the two captive screws. **Note:** RF connection to the HEIX**** Return Path Transmitter is made at the bottom of the unit through the D-sub connector.

2.5 Reconnect the optical fiber to the Return Path Transmitter output (**Note:** always cap bare/open fiber connectors to prevent dust contamination).

2.6 Power the ISX Node back on. Green LED's on the transmitter indicate the transmitter's laser output power is within nominal range.

2.7 Optical output power can be measured at the 1V/mW test point on the transmitter. Output power is recorded on the transmitter module as is labeled as "**PWR A**".

2.8 When everything is installed and the unit is powered, adjust the levels of the transmitter for optimum RF drive level as detailed in steps 2.9 to 2.12 below.

2.9 The ISX-3030 (750 MHz) Node has a single Reverse Test Point (J7) and a single Reverse Pad location (A8) as shown in Figure #2 below.

2.10 The return path can be optimized by injecting a carrier at a level of the "**Expected Return Carrier Level**(1) **+20 dB**" using a TPA-1 test point probe at the specific node port to be configured.

2.11 Measure and record the injected level at J7 Reverse Test Point located on the RF Tray as shown in Figure #2 below.

2.12 Install a plug-in pad in location A8 Reverse Path Pad that equals the value of: "**Measured Reverse Test Point Level - 2 dBmV**"(2)(3)

2.13 Perform steps 2.9 to 2.12 on each node port as necessary.

3. Installation of DFB Return Path Transmitter for ISX-3040 870 MHz Node

3.11 Leave the ISX Node powered.

3.12 Open the ISX Node; locate the Return Path Transmitter that is to be replaced in the optical section of the ISX Node and remove the transmitter.

3.13 The ISX-3040 (870 MHz) Node features -20 dB Reverse Test Points, Forward Test Points and Reverse Pad locations for each individual port as shown in Figure # 3 below.

3.14 The return path can be optimized by injecting a carrier at the "**Expected Return Carrier Level**(1) **+20 dB**" at the Forward Test Point of the node port to be configured.

3.15 Measure the RF level at the D-sub connector that will accept the HEIX**** Return Path Transmitter. The D-sub connector is located in the optical section of the ISX 3040 Node and is labeled Primary Transmitter or Secondary Transmitter. In a single Return Path Transmitter application only the Primary Transmitter slot will be used. (**Note:** A specialized jumper is required for this level measurement and can be provided by ATX Networks).

3.16 Install a plug-in pad in the corresponding node port's Reverse Path Pad location until the level at the transmitter input D-sub connector in the optical section = +2 dBmV(2).

3.17 Once the desired level is achieved, install the new HEIX**** Return Path Transmitter.

3.18 The unit should be installed in the module slots identified as Primary or Secondary Transmitter in the optical section of the ISX Node.

3.19 Secure the DFB-based Return Path Transmitter by tightening the two captive screws.

3.20 RF connection to the HEIX**** Return Path Transmitter is made at the bottom of the unit through the D-sub connector.

3.21 Reconnect the optical fiber to the Return Path Transmitter output (**Note:** always cap bare/open fiber connectors to prevent dust contamination).

3.22 Green LED's on the transmitter indicate the transmitter's laser output power is within nominal range.

3.23 Optical output power can be measured at the 1V/mW test point on the transmitter. Output power is recorded on the transmitter module as is labeled as "**PWR A**".

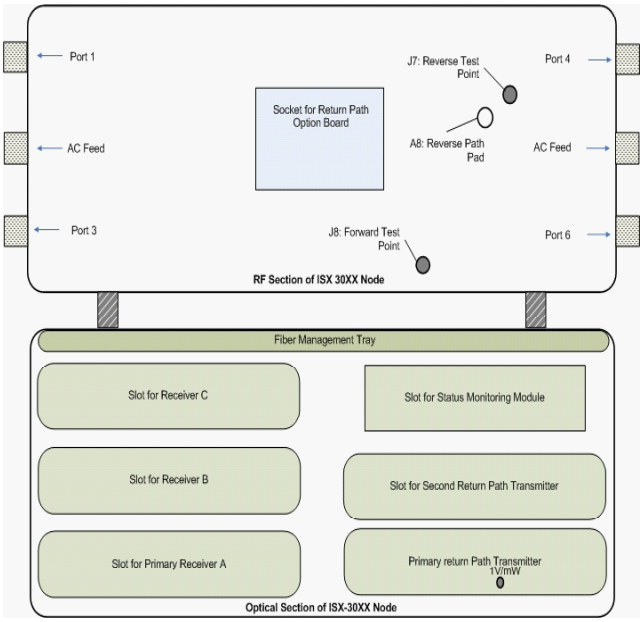

Figure #2 ISX-3030 750 MHz Node

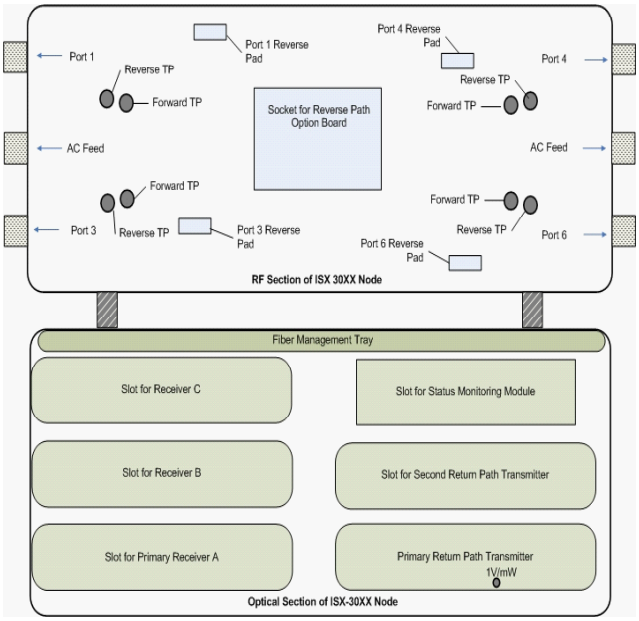

Figure #3 ISX-3040 870 MHz Node

(1) The "Expected Return Carrier Level(s)" is a system specification and should be obtained by appropriate Engineering Staff.

(2) The optimum operating point for the transmitter is selected as the point that is 5 dB above the location where the noise side of the NPR curve crosses 41 dB. The NPR curve is generated using 37 MHz of noise loading and the per carrier power level is calculated assuming that the total power as calculated at the optimum operating point is spread across 6 carriers. Hence, +2 dBmV assumes a total of 6 carriers of loading.

(3) This calculation assumes that this is single return transmitter application only. In the event that two return path transmitters are being used (ie. Primary and Secondary slots are populated) in a redundant fashion, the pad level calculated should be reduced by 4 dB.

Service & Support

Contact ATX Networks

Please contact ATX Technical Support for assistance with any ATX products. Please contact ATX Customer Service to obtain a valid RMA number for any ATX products that require service and are in or out-of-warranty before returning a failed module to the factory.

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Warranty Information

All of ATX Networks' products have a 1-year warranty that covers manufacturer's defects or failures.

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Printed in Canada Rev. 07/10 (ANW0770)