

# AN-115

## Referencing Return Loss Using the MTP Reference Reflector

It is not uncommon for a tester to find themselves attempting to test return loss on an MTP connection, but find themselves unable to reference to the correct location. Sometimes this is due to dust or oil contamination or physical damage on the endface of the fiber, which can be corrected and prevented through proper care and maintenance.

Sometimes, however, the cable will not properly reference because it is terminated with an angled polish. OptoTest equipment requires a 14dB Fresnel reflection to properly reference return loss. For a detailed explanation of the reasons behind the need for a 14dB reference reflection, please read the upcoming Application Note “14dB: What’s in a Reference Reflection?”.



Figure 1: Short APC to PC MTP cable.

Due to the increasing demand to test MTP connectors, OptoTest has begun manufacturing our own solution to allow our customers to test MTP cables as easy as possible—MTP Reference Reflector Cables (RRCs). These six-inch cables are terminated with an MTP-APC connector on one side and an MTP-UPC connector on the other side and can be either male or female and with either singlemode or multimode fiber. They will produce a reliable 14dB reference reflection at the correct position, allowing the tester to streamline their reference process without compromising the quality of their results.

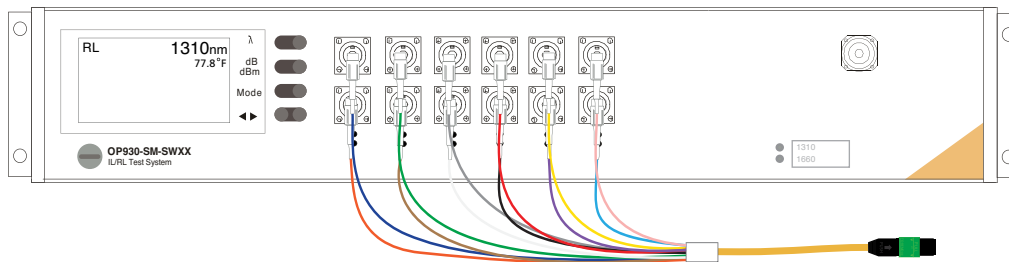


Figure 2: OP930 with MTP fanout reference cable.

## Referencing Return Loss Using the MTP reference Reflector

To properly use the Reference Reflector Cable, connect the angle-polished end of the RRC to the angle-polished end of the reference cable and perform a return loss reference cycle.

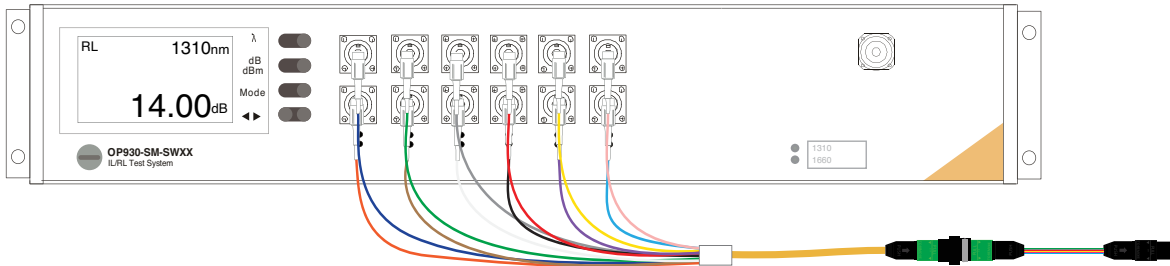


Figure 3: The MTP reference reflector cable provides a large reflection for the OP930 to reference return loss.

Once the return loss reference is completed, disconnect the RRC and connect the device under test.

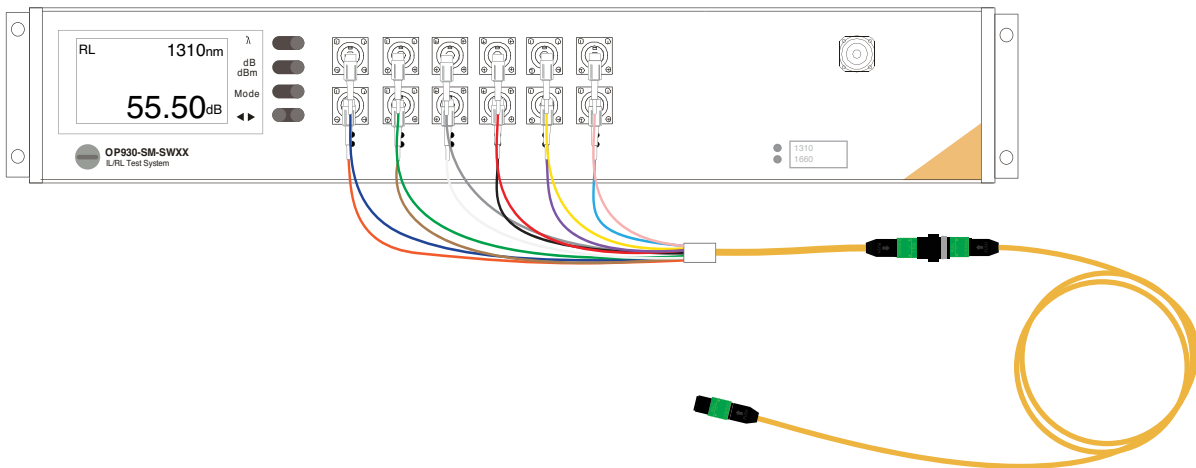


Figure 4: After the RL reference has been completed, the MTP reference reflector can be removed.  
If insertion loss measurements are to be performed, an IL reference can now be performed.