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Loss Through Fiber Optic Taps

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The purpose of this paper is to explain Garland Technology's passive fiber TAPs loss specifications.

First, I want to define what I mean by a mated pair. A mated pair is two fibers terminated (ie., both are male LC terminated) and they are connected together with a fiber optic coupler. **Example:** If we have a switch and a router connected to one another with two fiber optic cables and a coupler connecting those two fiber optic cables together that would represent one mated pair in the system (I am not counting the connections to the router or the switch).

A fiber optic tap it consists of the splitters; the splitters are terminated with LC or MTP® connectors and then connected to a coupler. The user connects their equipment to the couplers that exist on our TAP to complete the connection. Note that coming in the network port your light traverses one mated pair then travels through the splitters and traverses one more mated pair to exit the TAP on the other network port or the monitor port.

One could advertise the loss through their passive fiber optic TAPs in a few different ways - some more accurate/honest than others.

1) We could provide the loss number through our splitters.
Loss numbers for TAPs have been advertised that are just that – the loss through the splitter. But this doesn't take into account the two mated pairs that exist in the system as mentioned above.

2) We could provide the loss number through our splitters *plus* what we think the loss number will be through *one* mated pair.
The idea here is that you have the hypothetical switch and router connected to one another with two fiber optic cables with a coupler in between them. When you disconnect the coupler (one mated pair) and connect to the TAP you only introduced one additional mated pair and the fiber optic splitter loss.

3) We could provide the loss number through our splitters *plus* what we think the loss number will be through *two* mated pairs.
The idea here is that the switch and router are connected to one another without a coupler in between them (one continuous fiber). Therefore you have introduced two mated pairs and the fiber optic splitter.

Note above that I made the word **think** in red. I did that to emphasize that we cannot guarantee what the loss is through the mated pair. It is the loss that you could obtain assuming you have properly terminated fibers plugged into our TAP. We use Zirconium sleeved LC couplers on both our multi-mode and single-mode LC couplers – which is the best on the market.

The same argument above can be used with our MTP® terminated TAPs.

Garland advertises the loss through our TAPs assuming you introduce one mated pair. Our light loss measurement standard is based on Option 2 found described document.

However, for customers that add two mated pairs we provide you the estimated loss through the mated pair that you should add.

Summary: In order to achieve the loss numbers we advertise the customer must make sure they plug in quality terminated fibers into our TAP - and they are clean. When you are trying to determine how much loss you are introducing into the network you must take into account if you are introducing one or two mated pairs.

Remember, if you are disconnecting two fibers from a coupler and introducing our TAP, just use our advertised loss since you are only adding one mated pair. If you do not have a coupler you are removing, then add our loss through our TAP and the mated pair we list at the bottom of the Specification Table..

Please note: That the way we test and the way you, the customer tests will always produce slightly different results. Your test setup, personnel, and test equipment will differ from ours. Opto-electronics is not like electronics where test results are relatively easy to repeat.

Regards,
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