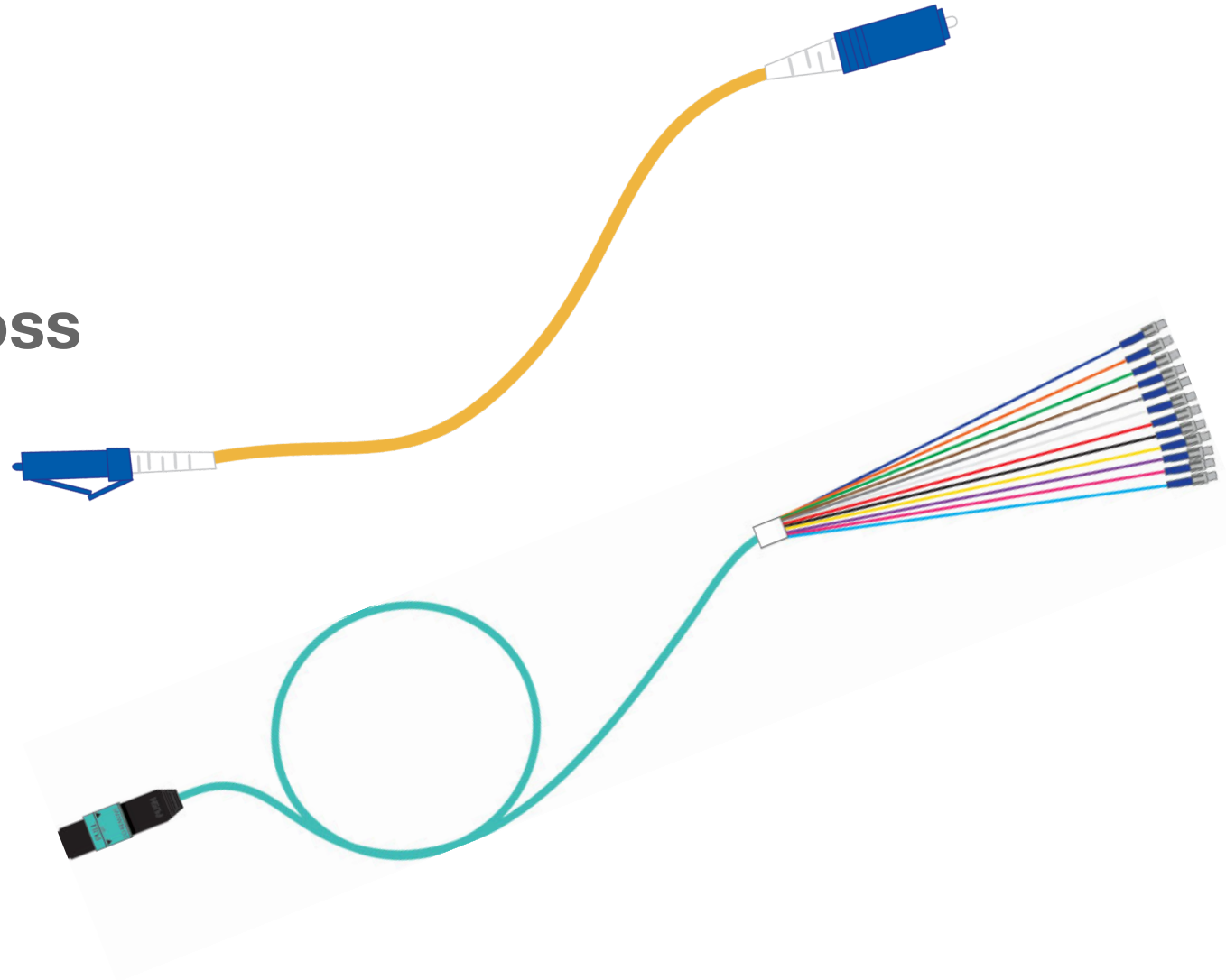
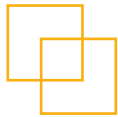


Fiber Optic Training Sessions

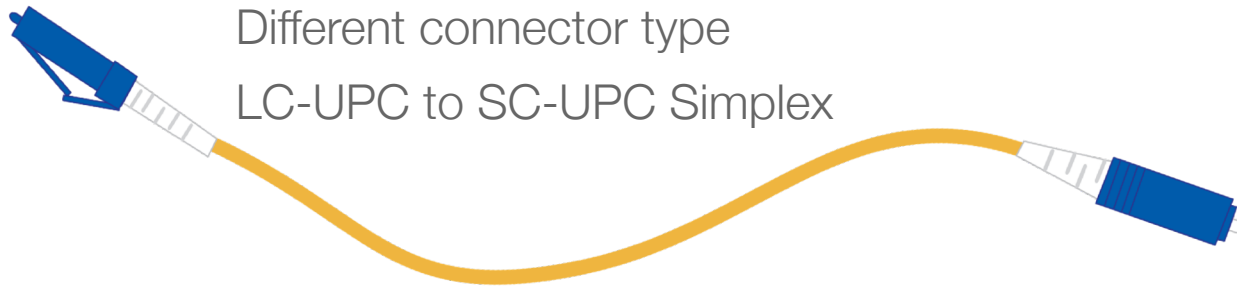
Insertion Loss and Return Loss Testing of Hybrid Cables

March 2019

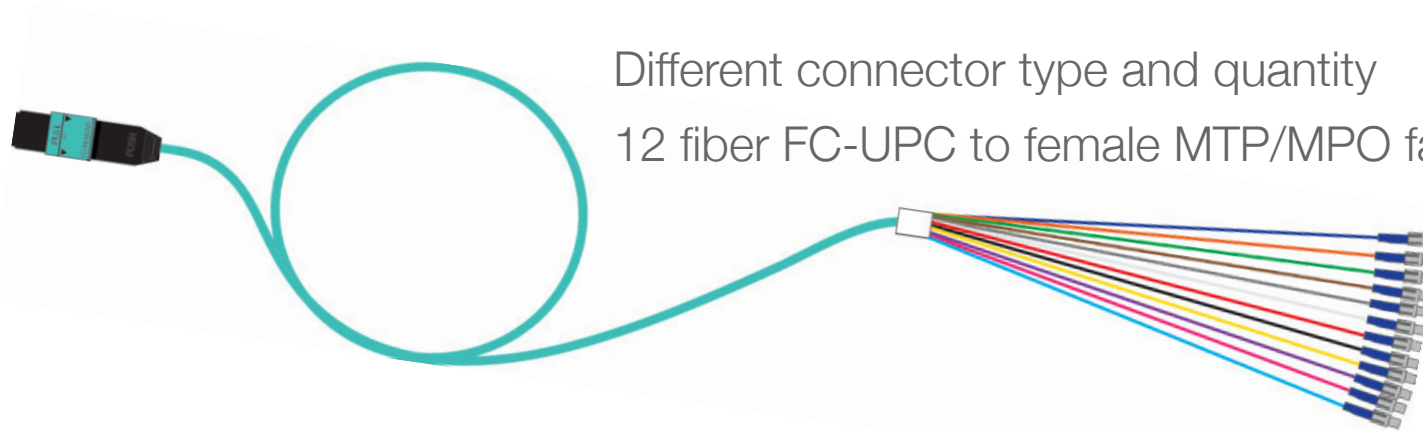


Hybrid Cables

Fiber patch cords terminated with different connectors on each end

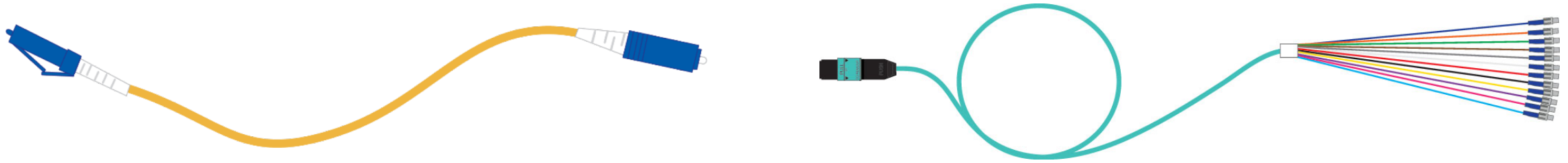


Different connector type
LC-UPC to SC-UPC Simplex



Different connector type and quantity
12 fiber FC-UPC to female MTP/MPO fanout

Testing Challenge



REQUIREMENT:

Insertion loss and return loss testing of each side of the cable

CHALLENGE:

Mating the different connectors to reference cables and detectors

SOLUTION:

1. Reference cables and/or detectors mate to each connector type (double duty)
2. Have twice as many reference cables and/or detectors

Simplex Solution



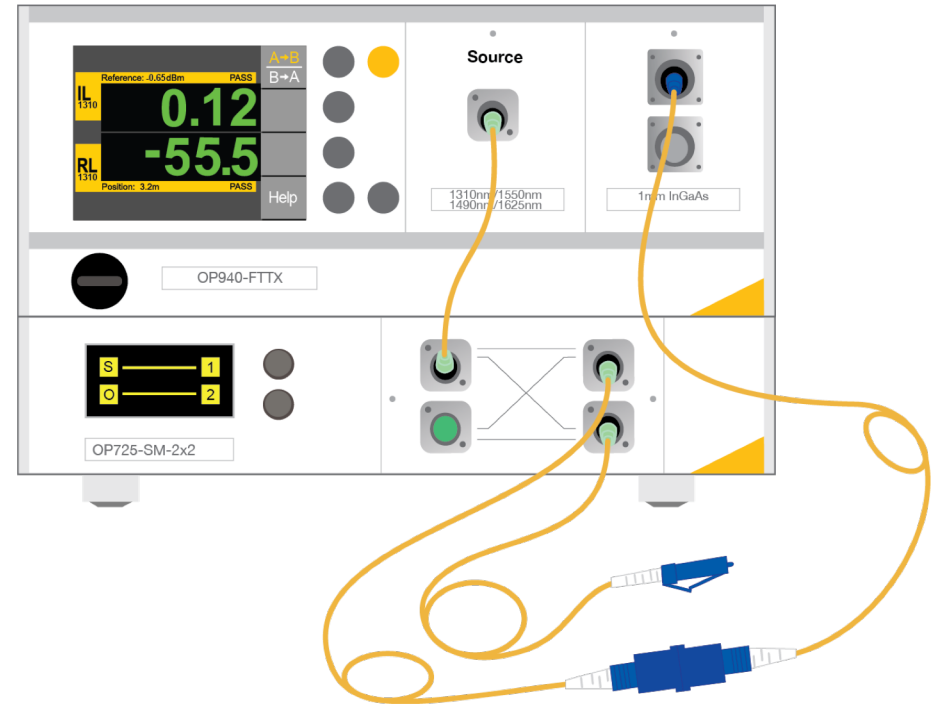
OP940 IL&RL Meter with 2 OPMs + OP725 2x2 Switch

SOLUTION: Twice as many reference cables and detectors

A different adapter on each detector

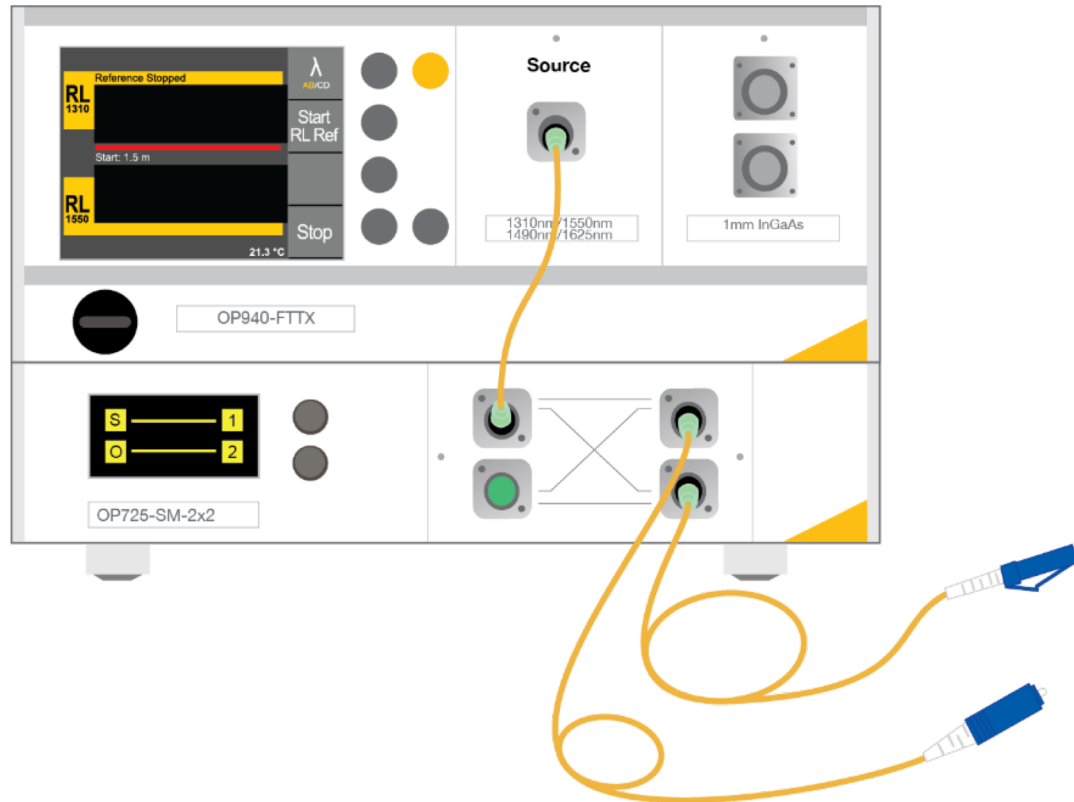
The OP725 switches which reference cable the light goes through

Note: If the different connectors have the same size ferrule (i.e. FC and SC), use one detector with a universal adapter

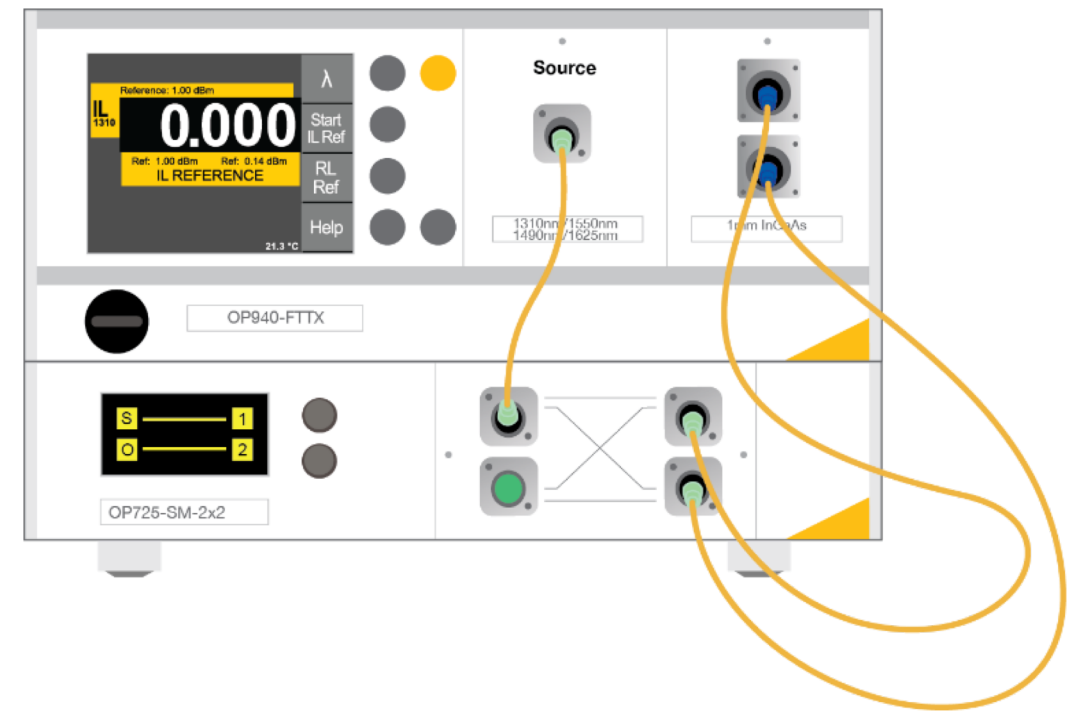


Simplex Solution

Return Loss Reference



Insertion Loss Reference

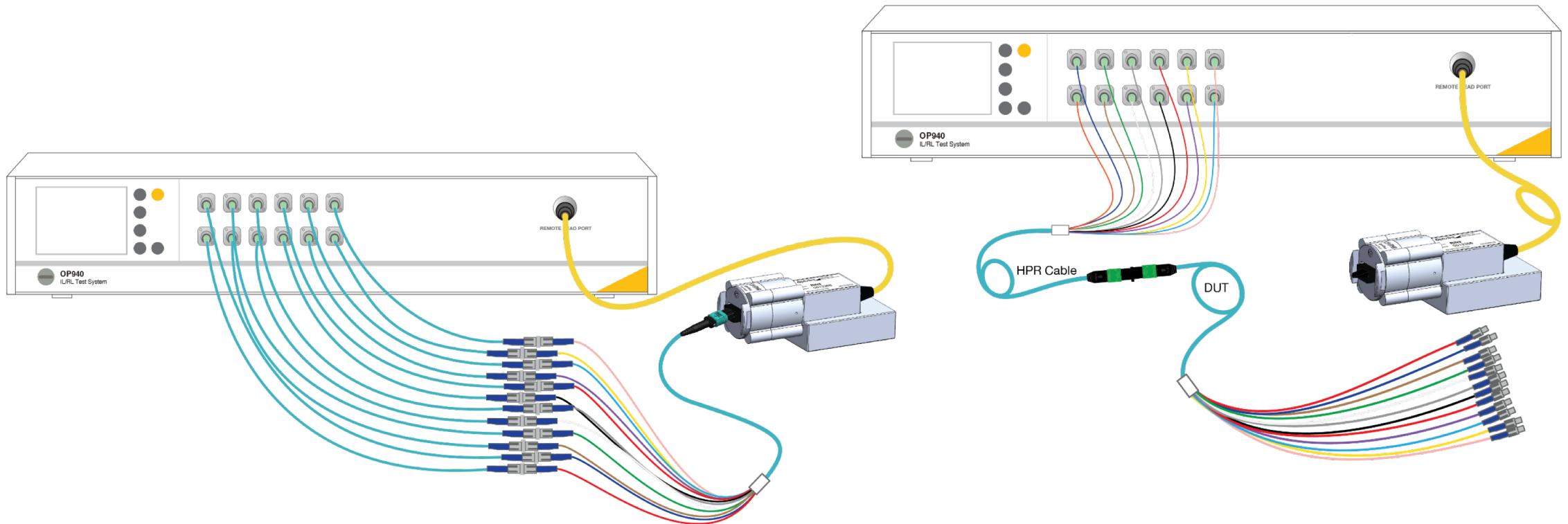


Fanout Solution

OP940 IL&RL Meter with RIN3 + OP-SPHR

SOLUTION: Twice as many reference cables | double duty OPM

Reference cables for the MTP side and the FC side | swap out OPM adapters



Fanout Solution

12ch unit shown, but 24ch unit can have all reference cables connected at once

Capture light from all fibers of the MTP®/MPO connector with OP-SPHR

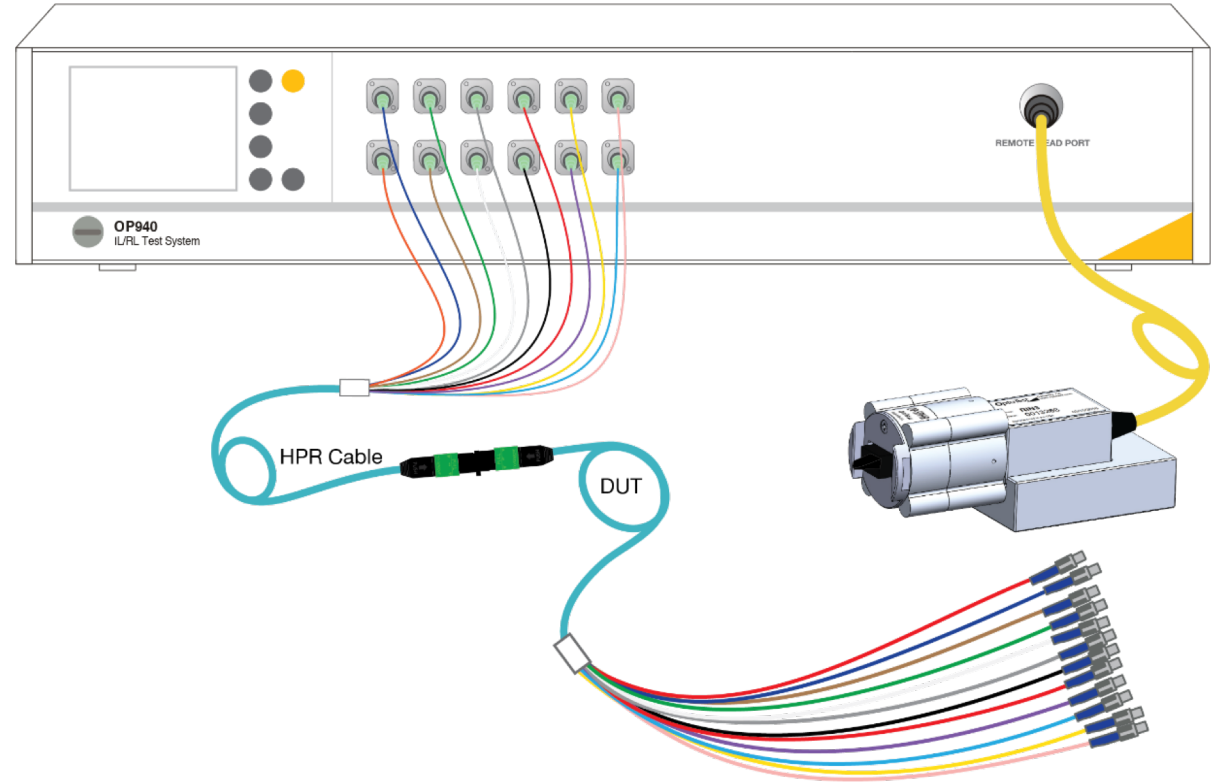
Swap out different adapters for OP-SPHR



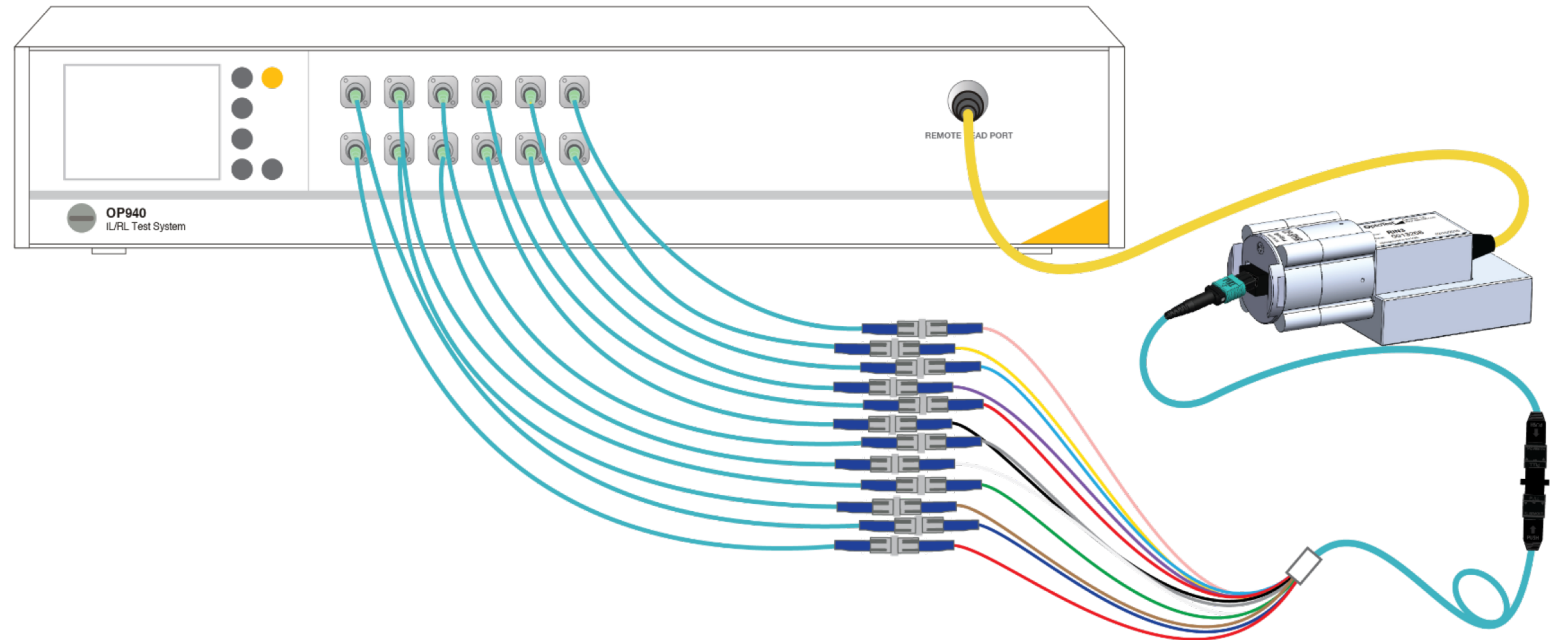
AD-SPHR-25



AD-SPHR-MTP



Alternative Fanout Solution



For total IL

Modification from previous setup:

Receive cable

This setup measures the total IL of the cable instead of each connector

RL is still measured for each connector with RL Scan function

Front and back connectors



For more details, see our Application Note:

AN111 Measuring Insertion Loss and Return Loss on Hybrid Cables

<https://www.optotest.com/an-111-measuring-insertion-lossreturn-loss-on-hybrid-cables/>

Contact us:

+1 (805) 987-1700

sales@optotest.com

engineering@optotest.com

www.optotest.com

