

Application Note

Using a one meter Bulkhead Jumper with the 930XC

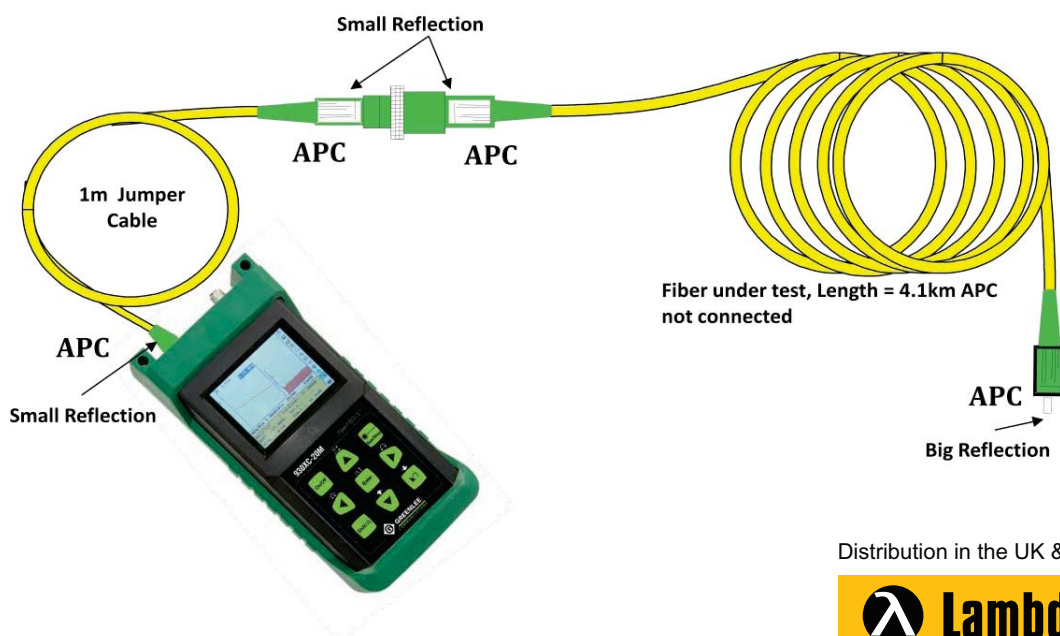
The 930XC OTDR should always be used with a 1m buffer jumper at the bulkhead of the 930XC OTDR.

Benefits of using a 1m Bulkhead Jumper

- Protects the bulkhead finish from contamination and possible damage when connecting to cables and connectors with an unknown level of damage and or contamination.
- If the 1m jumper becomes damaged it can be thrown away and replaced. If the OTDR bulkhead becomes damaged the repair cost is very high for replacement or re-polishing. The OTDR then does not need to be sent back to the factory and remains in use.
- A hybrid 1 m jumper can be used so that any type of field connector can be connected.
- If the 930XC has an angle-physical contact (APC) polished bulkhead the reflection from the OTDR bulkhead will be minimized as opposed to an ultra-physical contact (UPC) or physical contact (PC) bulkhead. The chances of ghosting or artifact pulses is therefore reduced.

Practical Examples

The 930XC with an APC bulkhead and an APC to APC 1m jumper



Mated APC connections have very low reflectivity (<65dB typical)
An open (not connected) APC will have a high reflectivity (~45dB)

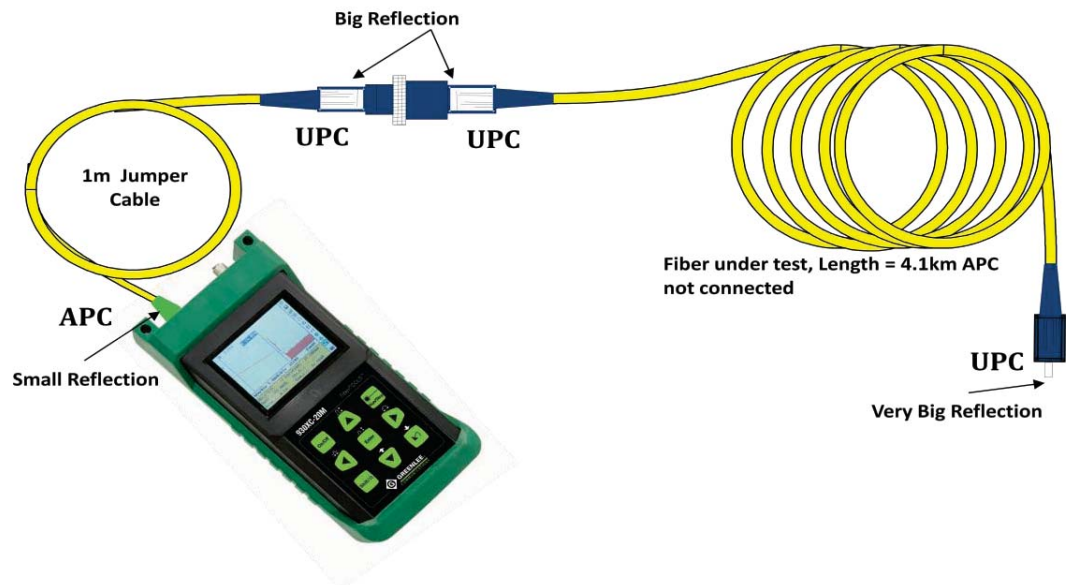
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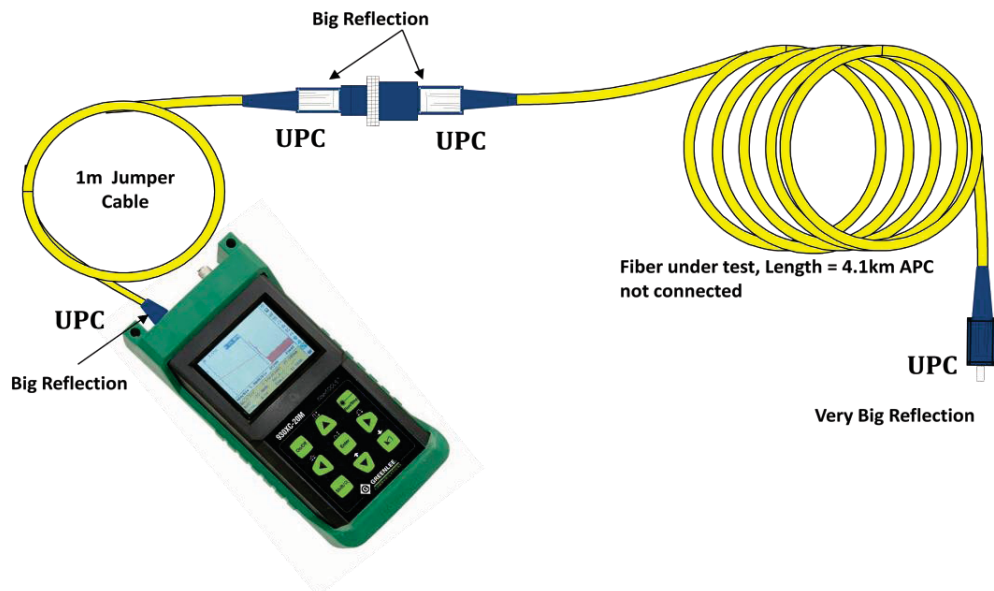
The 930XC with an APC bulkhead and an APC to UPC 1m jumper



Mated UPC connections have high reflectivity ($\sim 45\text{dB}$)

An open (not connected) UPC will have a very high reflectivity ($\sim 14\text{dB}$)

The 930XC with an UPC bulkhead and an UPC to UPC 1m jumper



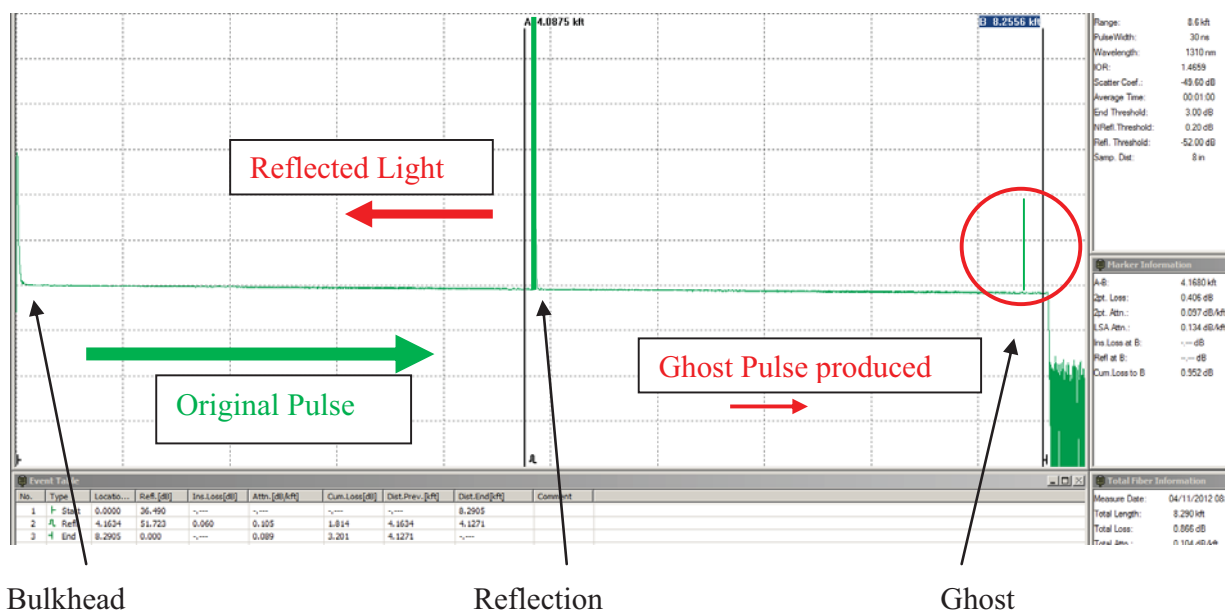
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Ghost Effects

A ghost is a reflection which is really not a reflection but is an artifact of a very high reflection sending light energy back to the OTDR. The light then reflects back off of the highly reflective laser and it then travels down the fiber under test as if it were a laser pulse. Ghosts are always multiples of the highly reflective events. Ghosting can be reduced if the reflection from the bulkhead is minimized.



If there was a high reflection at the bulkhead there would be an immediate ghost produced. The effect of ghosting can be reduced if the reflection from the bulkhead is minimized.

Conclusion/Recommendation

- Most users should order APC (either 20C, 30F or 30P) so that the reflection from the bulkhead can be minimized. This holds true for UPC fiber systems also.
- Most users require SC termination. If they have LC they can order a hybrid cable with SC/APC on one end the LC on the other end with appropriate UPC or APC finish.
- The reflection from the bulkhead and the reflection from the end of the 1m jumper will appear as the same reflection since the resolution is determined by the event deadzone.
- The same end of the 1m jumper cable should always be connected to the OTDR bulkhead. This will preserve the quality of the polish on the ODTR bulkhead.

Notes

- Always clean the connectors prior to mating.
- Always keep the dust cap on the connector when not in use.
- Replace the 1m jumper cable if it is suspected to be bad.
- The reflectivity for a mated UPC is at a minimum -45dB; if it is dirty or damaged it will be much more reflective.
- APC is not available on the 930XC-20M or with 930XC ST type bulkheads.

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Characterisation,
Measurement &
Analysis

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