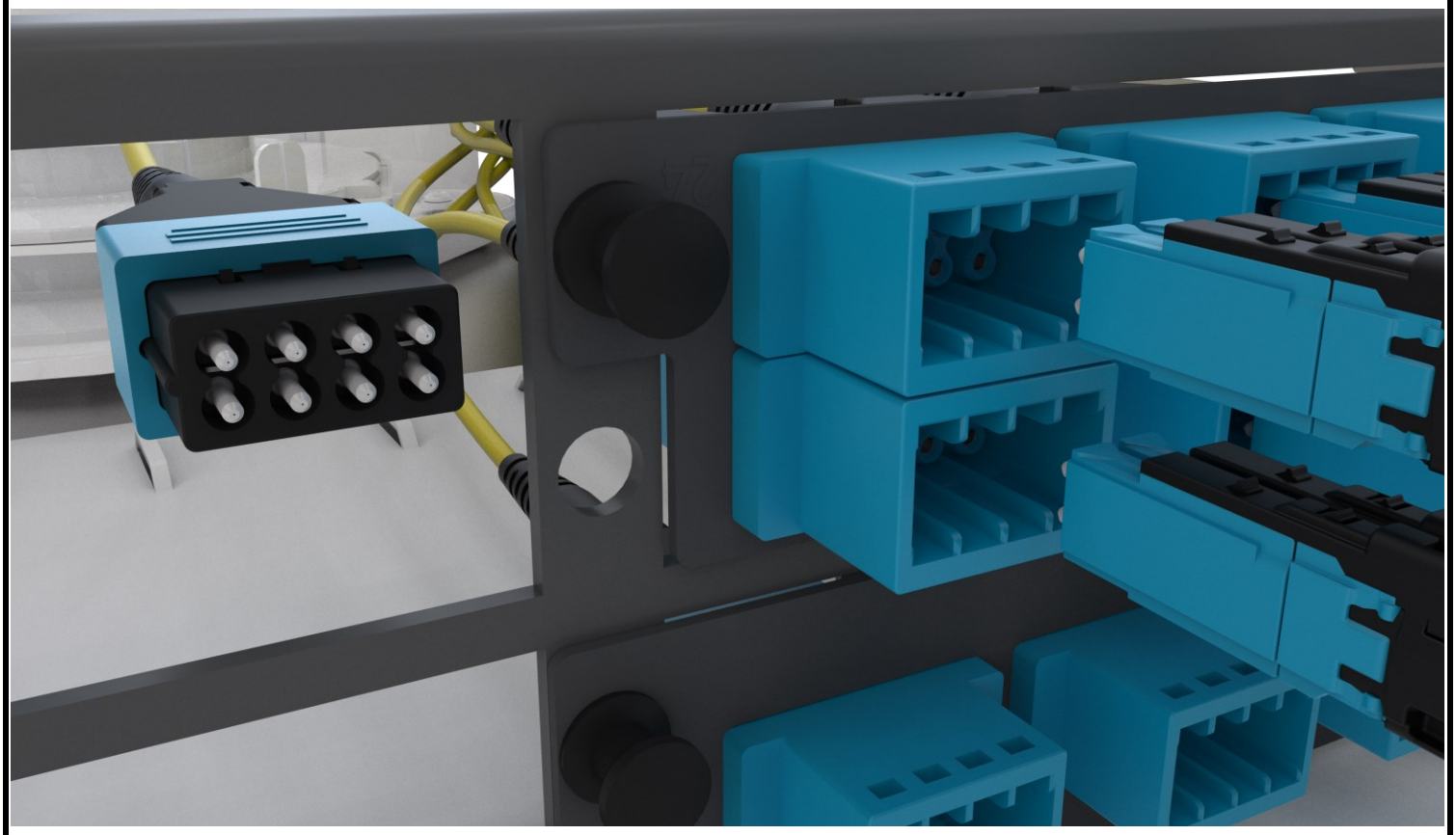


Available Video

A video at that walks through the procedure described in this document is available at:

Legrand accl*AIM*™/MDC Field Testing, Cleaning, & Inspection - YouTube

(See QR code below.)

Cleaning MDC and accl*AIM* Connectors During Installation

All MDC and accl*AIM* connectors should be properly cleaned using an approved cleaning device prior to installation into couplers; the OPTIPOP connector reel cleaner is recommended. Refer to Appendix for recommended cleaning instructions. Although MDC cleaners are available from Legrand under PN MDC-CLEANER and they include a guide cap for cleaning connector plugs, it is recommended to reserve the use of the MDC cleaner to cleaning of pairs of ferrules in installed accl*AIM* connectors through a coupler if and only if they fail inspection during preparation for testing of the installed cable plant.

Testing and Inspection

As application speeds demand more of fiber cable plants, testing has become a critical step in the installation process. It's of pinnacle importance to choose the correct tester, ensure the tester has been properly maintained and calibrated, as well as ensuring the proper setup for the tester. Failure to follow the guidance in this document can result in substandard performance of the cable plant and denial of warranty coverage.

Referencing is a critical step in the testing process that must be performed properly to ensure the accuracy of all results that follow. When new connectors reach the market, tester manufacturers need time to develop adapters that allow a one-cord reference. In the absence of those adapters, the test method illustrated here, a modified version of the three-cord reference method defined in ANSI/TIA-526-14 and ANSI/TIA-526-7 and referenced in ANSI/TIA-568.3, **MUST** be used. Take care to ensure proper system polarity at each step in the process.

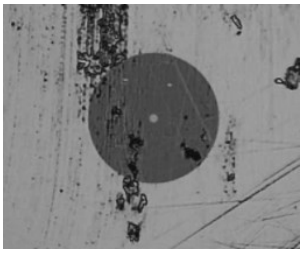
Before you Begin:

All connectors should be properly cleaned using an approved cleaning device. Refer to Appendix for recommended cleaning procedures. All connectors should be viewed with an inspection probe or patch cord microscope, preferably with pass/fail analysis in accordance with IEC 61300-3-35, low resolution method or better. The LC and SC connectors should be inspected prior to plugging them into any ports on the tester or into couplers. All ferrules of MDC and accl*AIM* connectors should be inspected either prior to plugging them into couplers or through the coupler after insertion (if an adapter/tip is available for the inspection probe that supports inspection of MDC or accl*AIM* connectors inside the coupler). If no inspection is possible, take special care in the cleaning process. Only test reference cords (TRC) that are clean and free of defects should be used. Always clean connectors each time you are reconnecting to a new connector. TRCs should be left free of excessive bends or pinching during deployment.

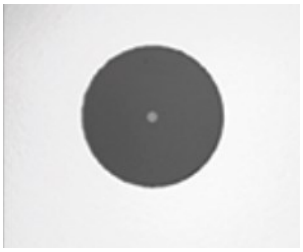
Cleaning Note: MDC cleaners are available from Legrand under PN MDC-CLEANER. Although they include a guide cap for cleaning connector plugs, it is recommended to reserve the use of the MDC cleaner to cleaning of pairs of ferrules in already-installed accl*AIM* connectors through a coupler if and only if they fail inspection. The OPTIPOP connector reel cleaner is recommended for all other cleaning.

Inspection Note: All ferrules of MDC and accl*AIM* connectors are 1.25mm ferrules and should be compatible with available universal 1.25mm ferrule adapters/tips for an inspection probe or patch cord microscope.

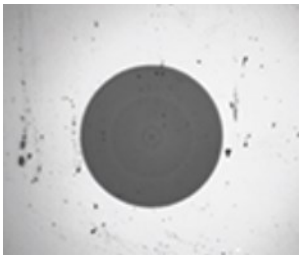
Tip: MDC to MDC couplers are available from Legrand under PN MDC-TEST-ADPT-D and are included in MDC-TEST-KIT-OS2 and MDC-TEST-KIT-OM4 test kits (see Appendix). These couplers are dual-channel, so if an adapter/tip is available for the inspection probe that supports inspection of MDC connectors inside the coupler, two MDC connectors can be inspected side by side through the coupler.



Clean Again/Replace Cord



Acceptable



Clean Again

Note: Test reference cords (TRC) may vary depending on the manufacturer of the cords and/or tester. This document assumes the transmit side of each end of the tester is SC and the receive side is fitted with the LC adaptor so an SC to LC test reference cord is used. Additionally, the exact process to reference the unit may vary. Please consult the tester manufacturer for guidance. For purposes of this diagram cords A, B, C, & D are the same cord in each figure even though the drawn lengths differ. **See Appendix for available, supplemental Legrand Test Kits and Test Reference Cords.**

Step 1: Connect the main and remote units directly using only one SC to LC TRC between them as shown in figure 1. Set the reference on the tester. **After this step, if the SC connector is removed from the transmit side of the tester the referencing process shall be started over from step 1.**

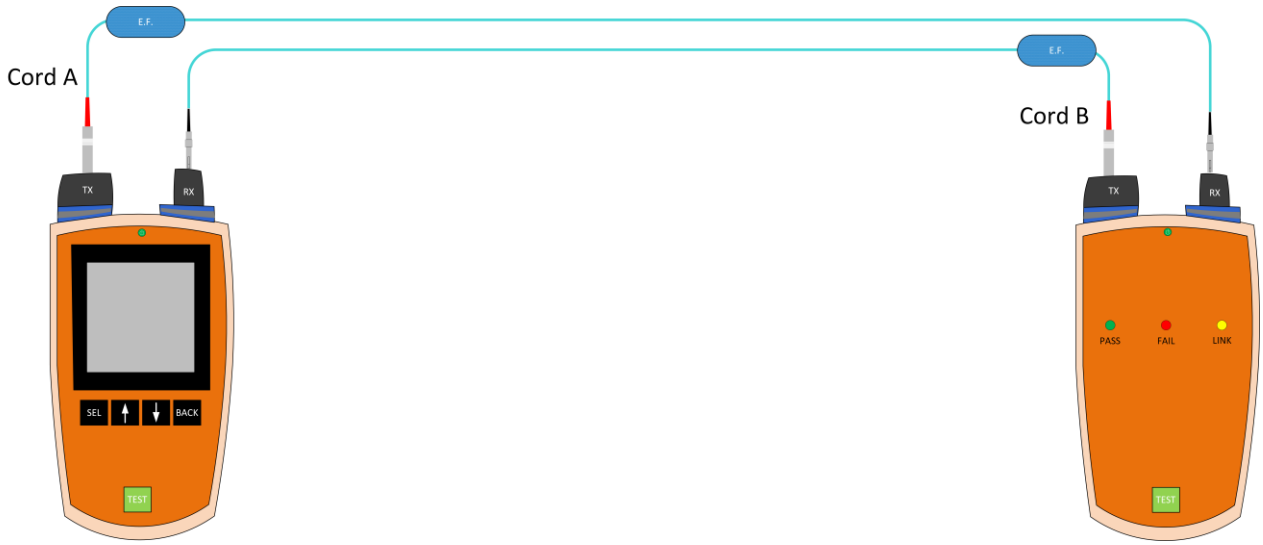


Figure 1

Step 2: Disconnect the receive side (LC) from both the main and remote units as shown in Figure 2. Reconnect the units as shown in figure 3 by inserting an LC to LC TRC to the receive port and coupling with the SC to LC TRC from the transmit port via a separate coupler. Perform a test to ensure the added TRCs are acceptable. Result should be 0.15 dB* or less for multimode fiber and 0.25 dB* or less for single-mode. Save the TRC check test result as "TRC 1 XX-XX-XX YY:YY" (XX-XX-XX= date, YY:YY=time). Again, set the reference on the tester.

* 0.15 dB for multimode fiber and 0.25 dB for single-mode are suggested pass/fail limits. If the cabling standard or application standard that you are testing to requires a lower limit for test cord-to-test cord loss allowance (e.g., 0.10 dB for multimode fiber and 0.20 dB for single-mode), that limit should be applied.

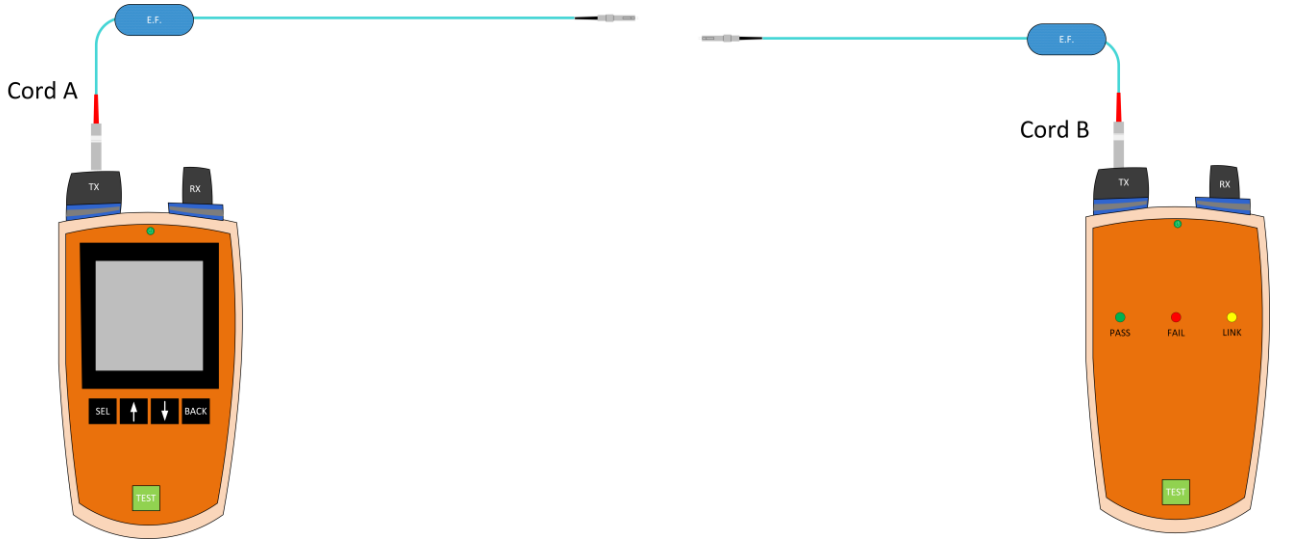


Figure 2

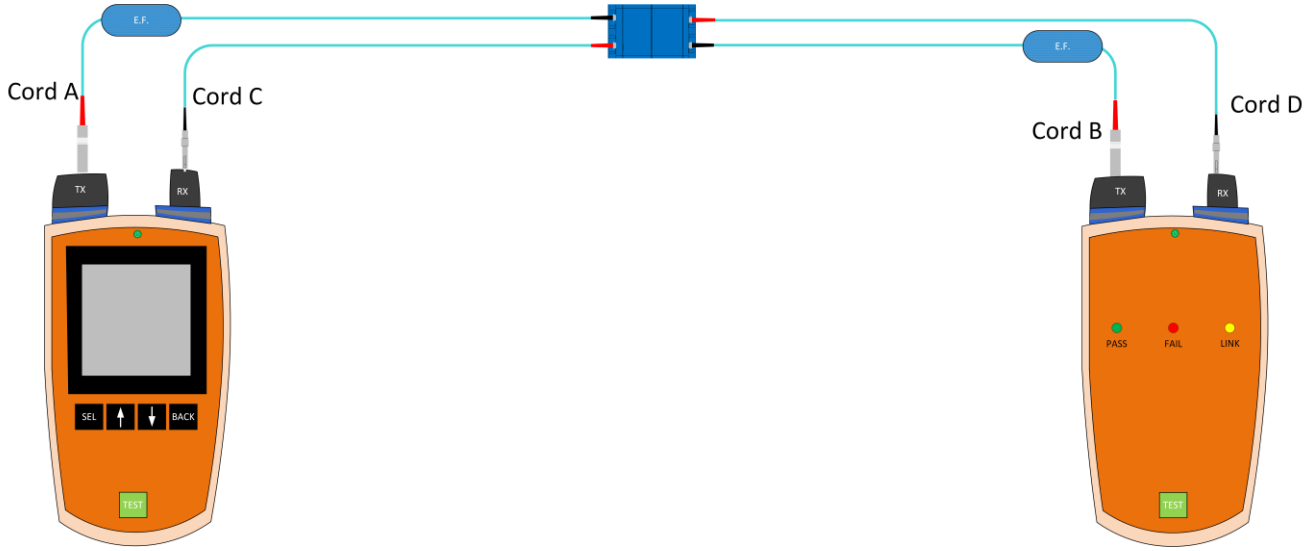


Figure 3

Step 3: Disconnect the LC connections as shown in figure 4. Using another LC to LC TRC and coupler, insert the substitution cord to connect the main to remote as shown in figure 5. Perform another test to ensure the substitution cord is within specification. Result should be 0.10 dB or less for multimode fiber and 0.20 dB or less for single-mode. Save the TRC check test result as “TRC 2 XX-XX-XX YY:YY” (XX-XX-XX= date, YY:YY=time). Again, set the reference on the tester.



Figure 4

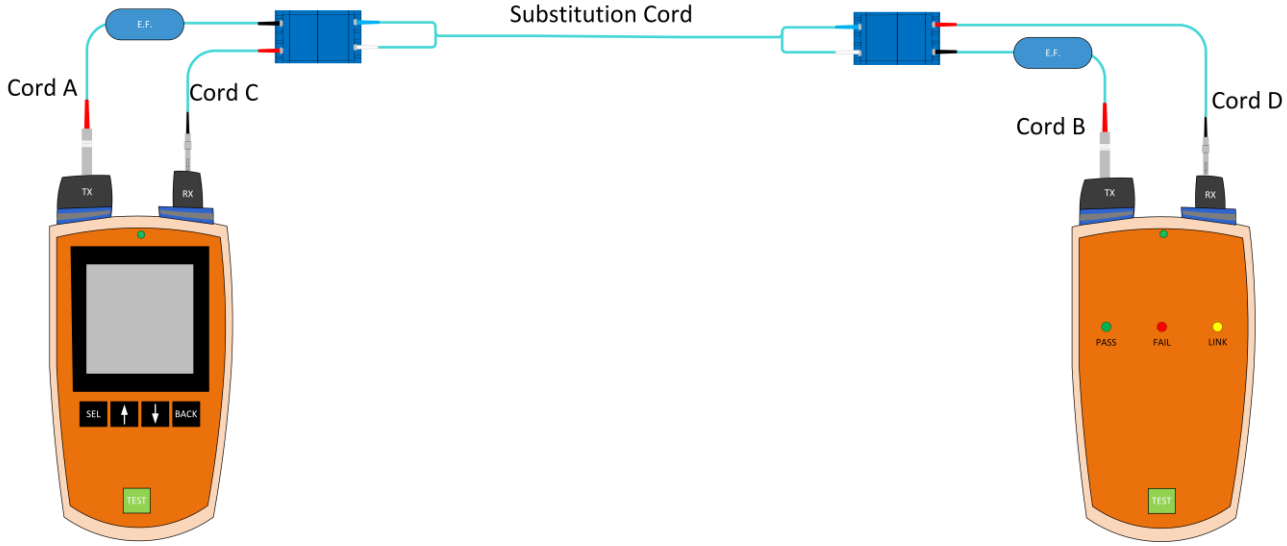


Figure 5

Step 4: Remove the substitution cord, returning the assembly to what is shown in figure 4. Insert a pair of LC to MDC TRCs and couple the entire assembly as shown in figure 6. It may be necessary to perform a polarity reversal on the MDC end of Breakout B to achieve the configuration shown (Note: the visible polarity indicators on the connector). Perform a final test to validate the setup. Results should be 0.15 dB* or less for multimode fiber and 0.25 dB* or less for single-mode. Save the TRC check test result as "TRC 3 XX-XX-XX YY:YY" (XX-XX-XX= date, YY:YY=time).

* 0.15 dB for multimode fiber and 0.25 dB for single-mode are suggested pass/fail limits. If the cabling standard or application standard that you are testing to requires a lower limit for test cord-to-test cord loss allowance (e.g., 0.10 dB for multimode fiber and 0.20 dB for single-mode), that limit should be applied.

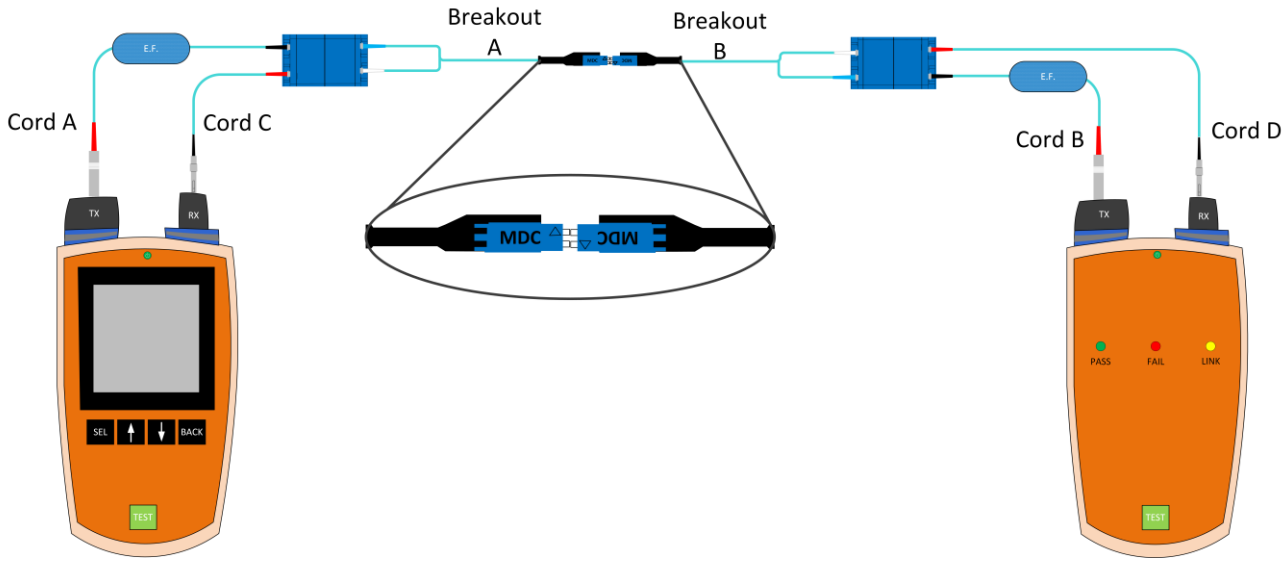


Figure 6

Step 5: The tester is now set to give the most accurate readings available for this connector. Disconnect the MDC to MDC mate and plug each of those MDC connectors into their respective end as shown in figure 7, test, and save per device procedures. It may be necessary to perform a polarity reversal on the MDC end of Breakout B to achieve the correct polarity.

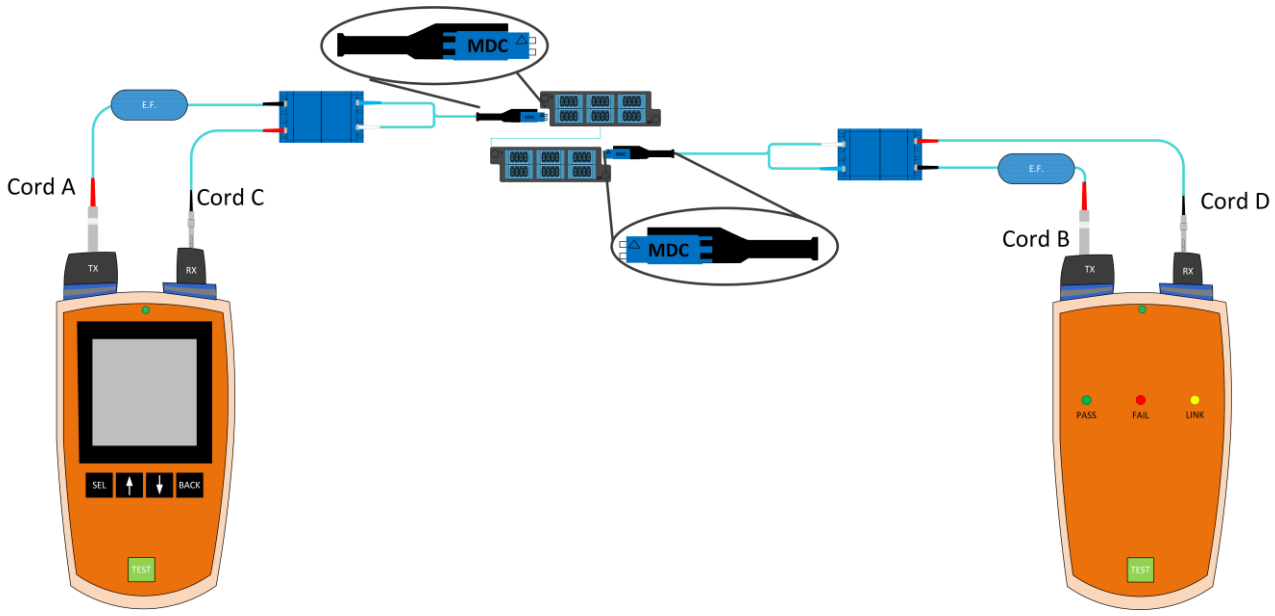


Figure 7

When testing, please consider the following:

- If the SC connector is removed from the transmit port, the unit ***shall*** be re-referenced (step 1).
- If the unit is powered down, perform the TRC verification step shown in step 4 and ensure the values are 0.15 dB or less for multimode fiber and 0.25 dB or less for single-mode.
- Every 300 tests perform the TRC verification step shown in step 4 and ensure the values are 0.15 dB or less for multimode fiber and 0.25 dB or less for single-mode.
- It is a critical step to get the loss in the TRC verification in step 3 as low as possible before performing the last reference step (0.10 dB or less for multimode fiber and 0.20 dB or less for single-mode). It is possible for the pair of LC to MDC TRCs to outperform the LC to LC substitution cord resulting in an optimistic test being performed. Take special care during this step to ensure there are no sharp bends and the connectors are as clean as possible.
- If consistent negative losses occur, perform the TRC verification in step 4 again. If a negative loss is observed in this step, re-perform the reference in step 3 and then the TRC verification in step 4. If the negative losses persist, perform the entire referencing process from step 1 again. For low-loss installed cabling, especially on shorter cabling, it is nevertheless possible for negative losses to persist in the final measurement due to various sources of measurement uncertainty.
- If your tester measures length in addition to loss, to ensure the highest level of accuracy of length results and any cabled fiber attenuation allowance calculations factored into loss test limits it may be important to input accurate TRC length information into the tester, including the length of the substitution cord used in step 3. The length of the substitution cord should be twice the length of the LC to MDC TRCs.

Consult with the tester manufacturer for specific guidance.

See Legrand's approved tester list for specific warranty requirements if applying for the applications assurance warranty

APPENDIX

Available Legrand Test Kits and Test Reference Cords

Legrand accl*AIM* / MDC Test Kits

Part Number	Description	Quantity
Single-mode OS2 Kit: MDC-TEST-KIT-OS2 *Contents:*		
L4-352LN2QYB1002M	LC-MDC OS2 2-meter breakout cords (Used in Steps 4 & 5)	2
MDC-TEST-ADPT-D	MDC dual-channel blue feedthrough adapter (Used in Step 4 & potentially Step 5)	2
LC-TEST-ADPT-D	LC duplex blue feedthrough adapters (Used in Step 3 & potentially Step 2)	2
L4-3535N2QY21004M	LC-LC OS2 4-meter substitution cord (Used in Step 3)	1
71602027	Legrand accl*AIM*/MDC Field Testing, Cleaning, & Inspection Reference	1

Multimode OM4 Kit: MDC-TEST-KIT-OM4 *Contents:*		
L4-012JN2EAB1002M	LC-MDC OM4 2-meter breakout cords (Used in Steps 4 & 5)	2
MDC-TEST-ADPT-D	MDC dual-channel blue feedthrough adapter (Used in Step 4 & potentially Step 5)	2
LC-TEST-ADPT-D	LC duplex blue feedthrough adapters (Used in Step 3 & potentially Step 2)	2
L4-0101N2EA21004M	LC-LC OM4 4-meter substitution cord (Used in Step 3)	1
71602027	Legrand accl*AIM*/MDC Field Testing, Cleaning, & Inspection Reference	1

Additional Legrand Test Reference Cords

Part Number	Description
L4-3035N2QY11002M	SC-LC Simplex, OS2 2-meter Test Reference Cord (Used in all Steps)
L4-3535N2QY11002M	LC-LC Simplex, OS2 2-meter Test Reference Cord (Used in Steps 2-5)
L4-0101N2EA11002M	LC-LC Simplex, OM4 2-meter Test Reference Cord (Used in Steps 2-5)

All components are available for individual sale or as replacement

Note: All OM4 cords are appropriate for use with OM3 / OM4 / OM5 cabling

Introductory Cleaning Instructions

US Conec IBC™ Brand Cleaner MDC | OPTIPOP Fiber Optic Cassette Cleaning Tool

Safety Precautions

- Though our device is deemed safe, improper usage or handling can still inflict injury to others.
- IBC™ Brand Cleaner MDC is designed to clean MDC connectors. Neither US Conec nor Legrand are liable for damage caused in attempt to apply this device to other applications.
- OPTIPOP Fiber Optic Cassette Cleaning Tool is designed for multiple connector types. Neither US Conec nor Legrand are liable for damage caused in attempt to apply this device to other applications.
- Review all tool / device instructions provided by US Conec before use. **http://www.usconec.com**

1. Notes on Usage

- *Although the IBC™ Brand Cleaner MDC includes a guide cap for cleaning connector plugs, it is recommended to reserve the use of this cleaner to cleaning of pairs of ferrules in installed* accl*AIM connectors through a coupler if and only if they fail inspection during preparation for testing of the installed cable plant.*
- Do not attempt to disassemble as this can cause damage to the device and void the warranty
- Do not re-use cleaning cloth as this will eliminate its cleaning ability and void warranty
- Do not touch the cleaning cloth as this will cause contamination
- Do not pull the cleaning cloth, use only the device body
- Do not use this cleaner when the cloth is empty, as this can cause damage to the connector

2. Enquiries and Further Information

US Conec Ltd. P.O. Box 2306 Hickory, NC 28603-2306 USA
Tel: 828-323-8883 **Fax:** 828-326-8808 **Toll Free:** 800-769-0944
Email: customerservice@usconec.com **Website:** http://www.usconec.com

Cleaning Tools

Legrand P/N	US Conec P/N	NTT-AT P/N	Description
MDC-CLEANER	22046	-	IBC™ Brand Cleaner MDC
-	6338	ATC-RE-01	OPTIPOP Fiber Optic Cassette Cleaning Tool (Single Slot - No Label)

Cleaning Instructions

For IBC™ Brand Cleaner MDC, refer to the user manual: **https://bit.ly/2XZXjUY**

For OPTIPOP Fiber Optic Cassette Cleaning Tool refer to special instructions located on the next page

How to Clean Infinium accl*AIM* and MDC Connectors

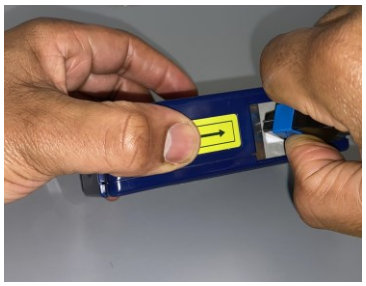
Step 1:
Open the shutter by gripping the lever. The shutter will open and a new section of cleaning tape will be available.



Step 2:
Depress the ferrules flat onto the cleaning tape using the same pressure as a writing pen, ensuring all ferrules are in contact with the tape. For accl*AIM* connectors, rotate the connector to a 15°angle. Move the connector from left to right. Ensure all ferrules travel in a non-overlapping path.



MDC Connector



accl*AIM* Connector

Step 3:
Release the lever to close shutter



Caution!

- Only use OPTIPOP R refills manufactured by NTT-Advanced Technology. Failure to use NTT- Advanced Technology manufactured replacement refills may void the warranty.
- DO NOT reuse cleaning tape as this may cause cross contamination and cause permanent damage.
- A new refill is needed when the lever becomes difficult to depress.
- Do no leave the cassette in temperatures exceeding 60°C/140°F for extended periods.
- OPTIPOP R cassettes are warranted for manufacturer and material defects only. Abusive, neglect or use for unintended purposes are not covered in the warranty.