


# SC/UPC and SC/APC Field Installable Success

At Multilink, we value the end result of our products and the success of our customers. Our equipment is regularly checked for proper functionality to deliver quality and all our products are inspected before leaving our facility. Connector stability in the field is a priority for us. With this in mind, we performed 3rd party testing (per Telcordia GR-326 & 1209 CORE) to provide the highest guarantee of quality. The following tests are designed to assure minimal insertion and return loss through a variety of extreme situations for Field Installables. Two facilities were utilized in the testing and the differences in the facility testing is noted in the following data.

## Performance Testing

Maintaining a minimal insertion loss and return loss is key to providing the quality we expect from our products. Approved third party testing facilities provided the evaluations below to specify the average insertion and return loss at ambient conditions. We are proud of the performance of our SC/UPC and SC/APC Field Installables.

### Performance Testing

**Insertion Loss and Return Loss Result**

| Test Type | Maximum Deviation | |
|---|---|---|
| **Connector** | **IL Requirement** | **RL Requirement** |
| SC/UPC | ≤0.5dB | ≤5dB |
| SC/APC | ≤0.5dB | ≤5dB |

## Thermal Age Testing

The Multilink Field Installables are designed to meet specified requirements under extreme conditions. To test their ability to withstand the high heat levels or frigid temperature levels in some regions, these connectors were placed in a chamber and exposed to air temperatures of -40C° up to 85C°. These evaluations were set for a specified number of days and then immediately tested for insertion loss and return loss.

### Thermal Age Test per Telcordia GR-326 & 1209 Core *for the 7 day evaluation*

**Insertion Loss and Return Loss Result**

| Test Type | Thermal Age 1550 nm | | | | | |
|---|---|---|---|---|---|---|
| **Connector: Conditions** | **Insertion Loss (Pre-Test)** | **Insertion Loss (Post-Test)** | **Change (Average)** | **Return Loss (Pre-Test)** | **Return Loss (Post-Test)** | **Change (Average)** |
| SC/UPC : 85C°, 7 days | 0.23 | 0.33 | 0.10 | -51.6 | -51.2 | 0.4 |
| SC/APC : 80C°, 4 days | 0.27 | 0.25 | 0.02 | -57.3 | -58.0 | 0.72 |
| SC/APC : -40C°, 4 days | 0.26 | .025 | 0.01 | -54.9 | -55.2 | 0.34 |

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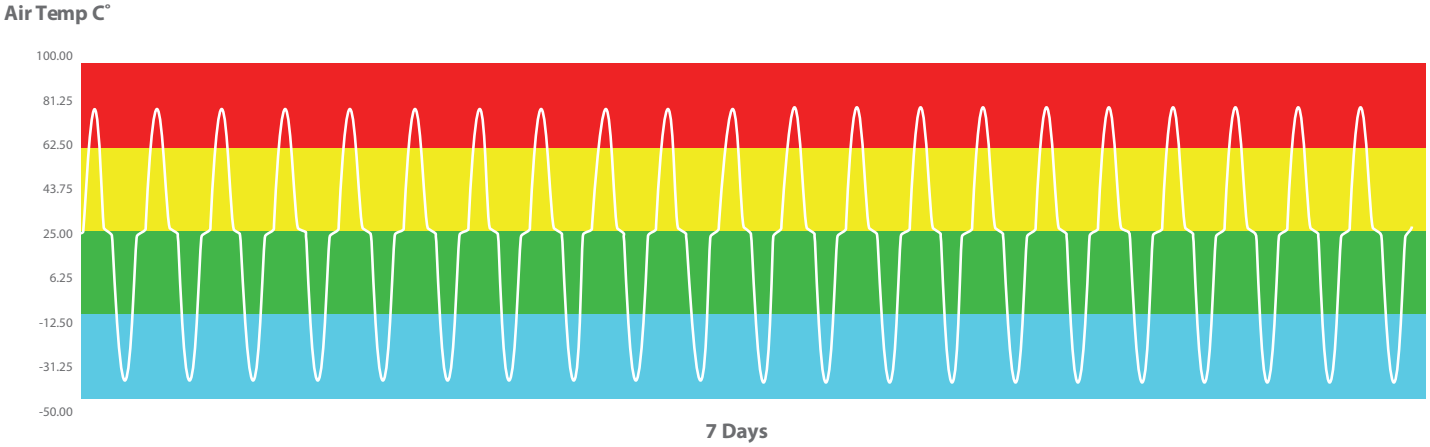
## Thermal Cycle Testing

Field Installable Connectors are exposed, not only to extreme heat in the field, but extreme cold as well. To measure insertion and return loss in our Field Installables throughout the thermal cycle for our SC/APC installables, the following 7-day, 21 cycle test was completed. For our SC/APC installables, a 4 day, 12 cycle test was completed. Temperatures ranging from -40C° to 80C° throughout the cycles produced minimal insertion and return loss. The results speak for themselves.

### Thermal Cycle Test per Telcordia GR-326 & 1209 Core *for the 7 day evaluation*

**Insertion Loss and Return Loss Result**

| Test Type | Thermal Cycle 1550 nm | | | | | |
|---|---|---|---|---|---|---|
| **Connector: Conditions** | **Insertion Loss (Pre-Test)** | **Insertion Loss (Post-Test)** | **Change (Average)** | **Return Loss (Pre-Test)** | **Return Loss (Post-Test)** | **Change (Average)** |
| SC/UPC: -40C° to 75C°, 7 days | 0.25 | 0.31 | 0.06 | -52.3 | -51.2 | 1.1 |
| SC/APC: -40C° to 80C°, 4 days | 0.28 | 0.26 | 0.02 | -54.9 | -54.7 | 0.15 |



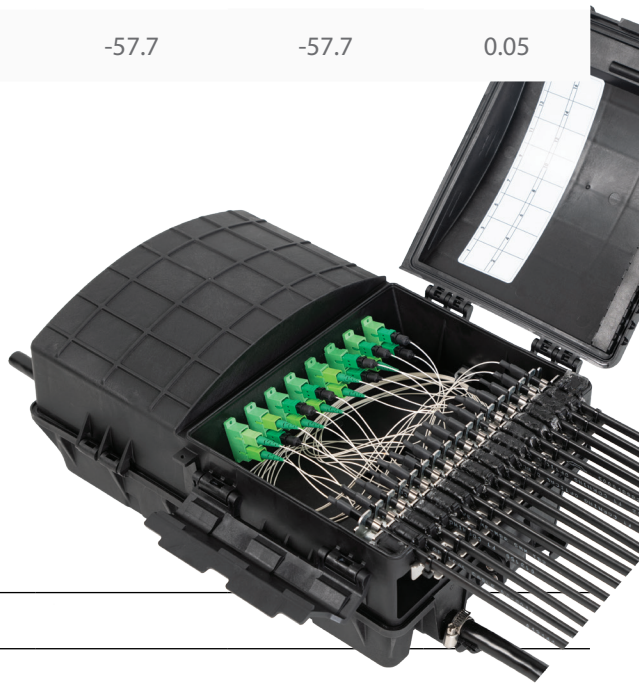
## Humidity Age Testing

Moisture is an issue for any cable connection if it is not properly designed. Multilink's Field Installables are equipped to meet standards through humidity testing. Samples evaluated for insertion loss and return loss were tested through a humidity period of 4 days (SC/APC) at 70C° or 7 days (SC/UPC) at 75C°, both at 95% RH. The average humidity in tropical regions is between 77%-88%.

### Humidity Age Test per Telcordia GR-326 & 1209 Core *for the 7 day evaluation*

**Insertion Loss and Return Loss Result**

| Test Type | Humidity Age 1550 nm | | | | | |
|---|---|---|---|---|---|---|
| **Connector: Conditions** | **Insertion Loss (Pre-Test)** | **Insertion Loss (Post-Test)** | **Change (Average)** | **Return Loss (Pre-Test)** | **Return Loss (Post-Test)** | **Change (Average)** |
| SC/UPC: 75C°, 95%, 7 days | 0.23 | 0.29 | 0.06 | -52.4 | -51.4 | 1.0 |
| SC/APC: 70C°, 95%, 4 days | 0.26 | 0.23 | 0.03 | -57.7 | -57.7 | 0.05 |



## Vibration Testing

As with all extreme conditions in the field, earthquakes, nearby explosions and strong winds can give any Field Installable a good shake. For testing, insertion loss and return loss is determined after a 2 hour/per axis (X, Y, and Z) vibration period is completed. Samples are then removed and evaluated.

### Vibration Test per Telcordia GR-326 & 1209 Core *for the 7 day evaluation*

**Insertion Loss and Return Loss Result**

| Test Type | Vibration Period 1550 nm | | | | | |
|---|---|---|---|---|---|---|
| **Connector: Conditions** | **Insertion Loss (Pre-Test)** | **Insertion Loss (Post-Test)** | **Change (Average)** | **Return Loss (Pre-Test)** | **Return Loss (Post-Test)** | **Change (Average)** |
| SC/UPC | 0.23 | 0.22 | 0.01 | -51.9 | -51.9 | 0.0 |