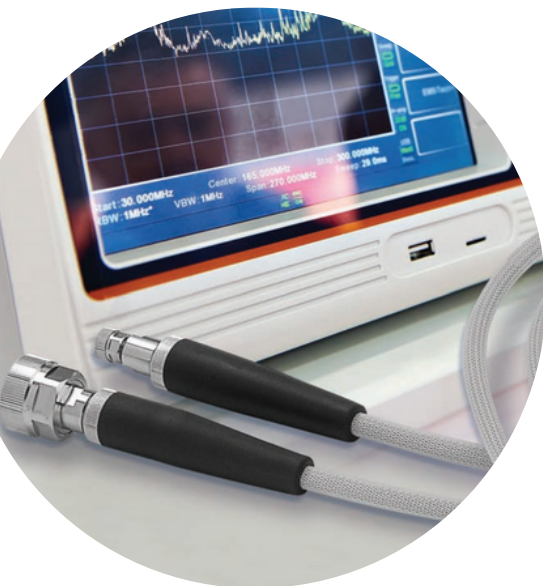


# DynaTest

Cable, Cable Assemblies, and Connectors



Dynawave, a Winchester Interconnect company, developed the DynaTest® series cable assemblies designed to deliver repeatable, precise measurements while lowering your overall total cost. These assemblies offer exceptionally low VSWR and insertion loss characteristics across a broad frequency range. This allows a single cable assembly to be used for the maximum number of measurement requirements. These assemblies are highly flexible yet maintain phase stability to ensure repeatability without recalibration.

DynaTest® assemblies provide unique, high-value features not commonly found on other production test cables. The ruggedized mechanical design and high flexibility of these assemblies offer greater ease of use for test technicians and ensure long service life for your test application. DynaTest® cable assemblies are available through Distribution to support your standard product requirements.

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## Capabilities

- Broadband performance up to 40 GHz
- Repeatability, phase stable performance
- Low insertion loss and VSWR
- 100% RF tested
- Stainless steel connectors
- Hex/knurl coupling nuts facilitate quick mating
- Excellent strain relief at cable-connector junction

# Standard DynaTest Assemblies

DynaTest cable assemblies are available in four standard connector combinations and lengths for rapid availability and ease of ordering.

| Part Number | Length               | Frequency |
|-------------|----------------------|-----------|
| DT-NN-024   | 24 inches (610 mm)   | 18.0 GHz  |
| DT-NN-036   | 36 inches (914 mm)   | 18.0 GHz  |
| DT-NN-048   | 48 inches (1,219 mm) | 18.0 GHz  |

| Part Number | Length               | Frequency |
|-------------|----------------------|-----------|
| DT-NS-024   | 24 inches (610 mm)   | 18.0 GHz  |
| DT-NS-036   | 36 inches (914 mm)   | 18.0 GHz  |
| DT-NS-048   | 48 inches (1,219 mm) | 18.0 GHz  |

| Part Number | Length               | Frequency |
|-------------|----------------------|-----------|
| DT-SS-024   | 24 inches (610 mm)   | 26.5 GHz  |
| DT-SS-036   | 36 inches (914 mm)   | 26.5 GHz  |
| DT-SS-048   | 48 inches (1,219 mm) | 26.5 GHz  |

| Part Number | Length               | Frequency |
|-------------|----------------------|-----------|
| DT-KK-024   | 24 inches (610 mm)   | 40.0 GHz  |
| DT-KK-036   | 36 inches (914 mm)   | 40.0 GHz  |
| DT-KK-048   | 48 inches (1,219 mm) | 40.0 GHz  |

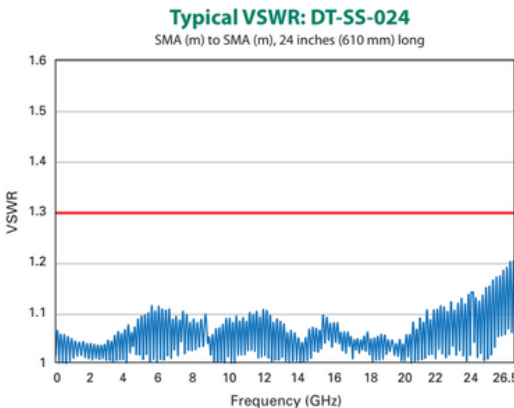
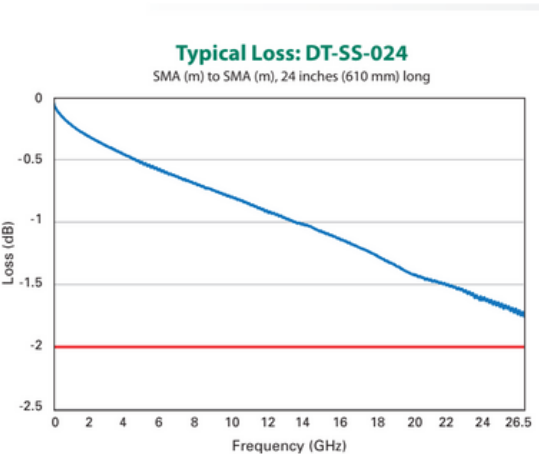
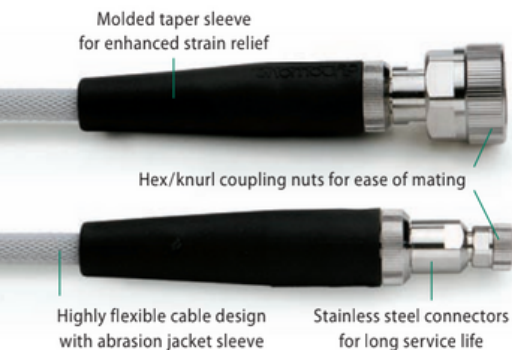
## Custom Length DynaTest Assemblies

DynaTest cable assemblies are also available in different lengths to satisfy specific application requirements. Designate the required connector interface and the length as outlined below.

**DT-XX-XXX**

Cable assembly length in inches  
Example: 72 inches = 072

Connector type:  
NN = N (m) to N (m)  
NS = N (m) to SMA (m)  
SS = SMA (m) to SMA (m)  
KK = 2.92 mm (m) to 2.92 mm (m)



## General Specifications

|                                     |                      |
|-------------------------------------|----------------------|
| Impedance                           | 50 Ohms              |
| Velocity of Propagation             | 76–80%               |
| Temperature Range                   | –45°C to +85°C       |
| Outer Cable Diameter (incl. sleeve) | 0.24 inch (6.10 mm)  |
| Minimum Bend Radius                 | 1.25 inch (31.70 mm) |
| Flexure Life (5x min. bend radius)  | >25,000              |
| Recommended Mating Torque           |                      |
| SMA/2.92 mm                         | 9 in-lbs (1.0 Nm)    |
| N                                   | 23 in-lbs (2.6 Nm)   |

## Material And Finish

|                             |                                     |
|-----------------------------|-------------------------------------|
| Cable Jacket                | Polyurethane                        |
| Outer Cable Abrasion Sleeve | Polyester                           |
| Cable Dielectric            | Fluoroplastic                       |
| Cable Center Conductor      | Copper, Silver-plated               |
| Taper Sleeves               | PVC, black                          |
| Connector Housing           | Stainless Steel<br>Electro-polished |
| Connector Dielectric        | PTFE                                |
| Connector Contacts          | BeCu, gold-plated                   |

## Phase Stability v. Flexure (+/- deg.)

|          |      |
|----------|------|
| 1 GHz    | 1.0° |
| 3 GHz    | 1.2° |
| 6 GHz    | 1.4° |
| 12 GHz   | 1.9° |
| 18 GHz   | 2.3° |
| 26.5 GHz | 3.0° |
| 40 GHz   | 5.2° |

## VSWR and Insertion Loss Specifications

|                                  | N (m) to N (m) |            |            | N (m) to SMA (m) |            |            |
|----------------------------------|----------------|------------|------------|------------------|------------|------------|
|                                  | DT- NN-024     | DT- NN-036 | DT- NN-048 | DT- NN-024       | DT- NN-036 | DT- NN-048 |
| Operating Frequency              | 18 GHz         | 18 GHz     | 18 GHz     | 18 GHz           | 18 GHz     | 18 GHz     |
| VSWR (max)                       |                |            |            |                  |            |            |
| DC-18 GHz                        | 1.30:1         | 1.30:1     | 1.30:1     | 1.30:1           | 1.30:1     | 1.30:1     |
| 18-26.5 GHz                      | NA             | NA         | NA         | NA               | NA         | NA         |
| 26.5-40 GHz                      | NA             | NA         | NA         | NA               | NA         | NA         |
| Intersection Loss<br>(max @25°C) |                |            |            |                  |            |            |
| 1 GHz                            | 0.40 dB        | 0.50 dB    | 0.60 dB    | 0.40 dB          | 0.50 dB    | 0.60 dB    |
| 3 GHz                            | 0.60 dB        | 0.80 dB    | 1.00 dB    | 0.60 dB          | 0.80 dB    | 1.00 dB    |
| 6 GHz                            | 0.80 dB        | 1.10 dB    | 1.40 dB    | 0.80 dB          | 1.10 dB    | 1.40 dB    |
| 12 GHz                           | 1.20 dB        | 1.60 dB    | 2.00 dB    | 1.20 dB          | 1.60 dB    | 2.00 dB    |
| 18 GHz                           | 1.50 dB        | 2.00 dB    | 2.60 dB    | 1.50 dB          | 2.00 dB    | 2.60 dB    |
| 26.5 GHz                         | NA             | NA         | NA         | NA               | NA         | NA         |
| 40 GHz                           | NA             | NA         | NA         | NA               | NA         | NA         |

## VSWR and Insertion Loss Specifications

|                                  | SMA (m) to SMA (m) |            |            | 2.92 mm (m) to 2.92 mm (m) |            |            |
|----------------------------------|--------------------|------------|------------|----------------------------|------------|------------|
|                                  | DT- SS-024         | DT- SS-036 | DT- SS-048 | DT- KK-024                 | DT- KK-036 | DT- KK-048 |
| Operating Frequency              | 26.5 GHz           | 26.5 GHz   | 26.5GHz    | 40 GHz                     | 40 GHz     | 40 GHz     |
| VSWR (max)                       |                    |            |            |                            |            |            |
| DC-18 GHz                        | 1.25:1             | 1.25:1     | 1.325:1    | NA                         | NA         | NA         |
| 18-26.5 GHz                      | 1.30:1             | 1.30:1     | 1.30:1     | NA                         | NA         | NA         |
| 26.5-40 GHz                      | NA                 | NA         | NA         | 1.50:1                     | 1.50:1     | 1.50:1     |
| Intersection Loss<br>(max @25°C) |                    |            |            |                            |            |            |
| 1 GHz                            | 0.40 dB            | 0.50 dB    | 0.60 dB    | 0.63 dB                    | 0.82 dB    | 1.01 dB    |
| 3 GHz                            | 0.60 dB            | 0.80 dB    | 1.00 dB    | 0.94 dB                    | 1.28 dB    | 1.61 dB    |
| 6 GHz                            | 0.80 dB            | 1.10 dB    | 1.40 dB    | 1.27 dB                    | 1.75 dB    | 2.24 dB    |
| 12 GHz                           | 1.20 dB            | 1.60 dB    | 2.00 dB    | 1.77 dB                    | 2.48 dB    | 3.20 dB    |
| 18 GHz                           | 1.50 dB            | 2.00 dB    | 2.60 dB    | 2.18 dB                    | 3.08 dB    | 3.98 dB    |
| 26.5 GHz                         | 2.00 db            | 2.70 dB    | 3.40 dB    | 2.70 dB                    | 3.82 dB    | 4.94 dB    |
| 40 GHz                           | NA                 | NA         | NA         | 3.42 dB                    | 4.85 dB    | 6.27 dB    |

## DynaTest HD Assemblies

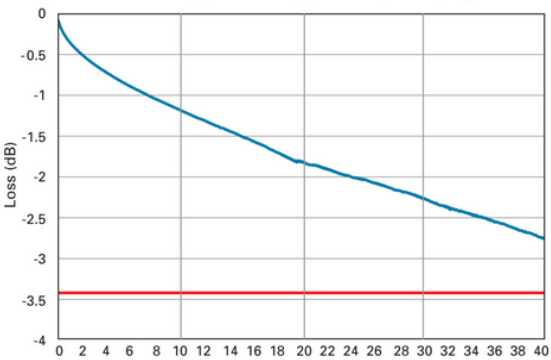
DynaTest HD Cable assemblies are available in two standard connector combinations and lengths for rapid availability and ease of ordering.

| Part Number | Length               | Frequency |
|-------------|----------------------|-----------|
| DTHD-SS-024 | 24 inches (610 mm)   | 26.5 GHz  |
| DTHD-SS-036 | 36 inches (914 mm)   | 26.5 GHz  |
| DTHD-SS-048 | 48 inches (1,219 mm) | 26.5 GHz  |

| Part Number | Length               | Frequency |
|-------------|----------------------|-----------|
| DTHD-KK-024 | 24 inches (610 mm)   | 40.0 GHz  |
| DTHD-KK-036 | 36 inches (914 mm)   | 40.0 GHz  |
| DTHD-KK-048 | 48 inches (1,219 mm) | 40.0 GHz  |

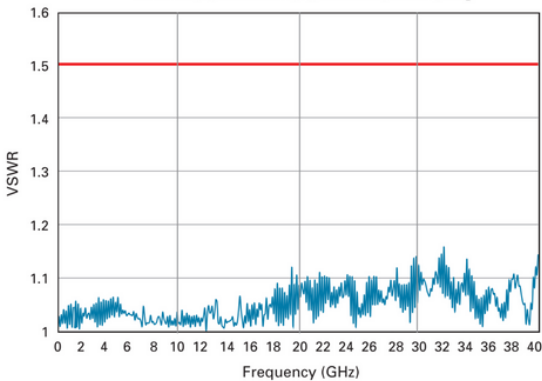
Typical Loss: DTHD-KK-024

2.92 mm (m) to 2.92 mm (m), 24 inches (610 mm) long



Typical VSWR: DTHD-KK-024

2.92 mm (m) to 2.92 mm (m), 24 inches (610 mm) long



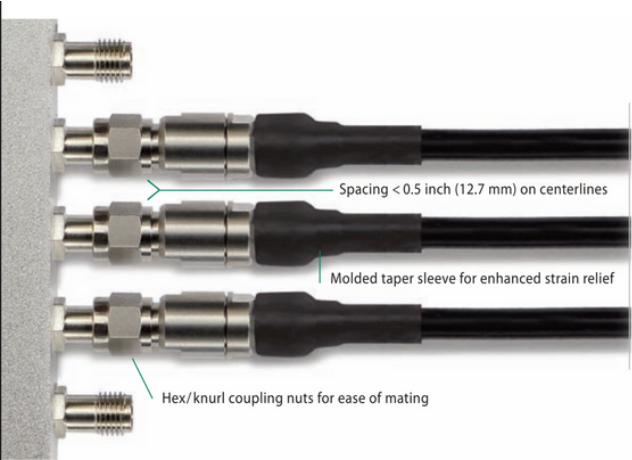
## Custom Length DynaTest Assemblies

DynaTest cable assemblies are also available in different lengths to satisfy specific application requirements. Designate the required connector interface and the length as outlined below.

**DT-XX-XXX**

└─┬─┘  
└─┬─┘ Cable assembly length in inches  
Example: 72 inches = 072

Connector type:  
SS = SMA (m) to SMA (m)  
KK = 2.92 mm (m) to 2.92 mm (m)



## General Specifications

|                                     |                      |
|-------------------------------------|----------------------|
| Impedance                           | 50 Ohms              |
| Velocity of Propagation             | 76–80%               |
| Temperature Range                   | –45°C to +85°C       |
| Outer Cable Diameter (incl. sleeve) | 0.24 inch (6.10 mm)  |
| Minimum Bend Radius                 | 1.25 inch (31.70 mm) |
| Flexure Life (5x min. bend radius)  | >25,000              |
| Recommended Mating Torque           |                      |
| SMA/2.92 mm                         | 9 in-lbs (1.0 Nm)    |
| N                                   | 23 in-lbs (2.6 Nm)   |

## Material And Finish

|                        |                                     |
|------------------------|-------------------------------------|
| Cable Jacket           | Polyurethane                        |
| Cable Dielectric       | Fluoroplastic                       |
| Cable Center Conductor | Copper, Silver-plated               |
| Sleeves                | Polyolefin, black                   |
| Connector Housing      | Stainless Steel<br>Electro-polished |
| Connector Dielectric   | PTFE                                |
| Connector Contacts     | BeCu, gold-plated                   |

## Phase Stability v. Flexure (+/- deg.)

|          |      |
|----------|------|
| 1 GHz    | 1.0° |
| 3 GHz    | 1.2° |
| 6 GHz    | 1.4° |
| 12 GHz   | 1.9° |
| 18 GHz   | 2.3° |
| 26.5 GHz | 3.0° |
| 40 GHz   | 5.2° |

## VSWR and Insertion Loss Specifications

|                                  | SMA (m) to SMA (m) |              |              | 2.92 mm (m) to 2.92 mm (m) |              |              |
|----------------------------------|--------------------|--------------|--------------|----------------------------|--------------|--------------|
|                                  | DTHD- SS-024       | DTHD- SS-036 | DTHD- SS-048 | DTHD- KK-024               | DTHD- KK-036 | DTHD- KK-048 |
| Operating Frequency              | 26.5 GHz           | 26.5 GHz     | 26.5GHz      | 40 GHz                     | 40 GHz       | 40 GHz       |
| VSWR (max)                       |                    |              |              |                            |              |              |
| DC-18 GHz                        | 1.25:1             | 1.25:1       | 1.25:1       | 1.25:1                     | 1.25:1       | 1.25:1       |
| 18-26.5 GHz                      | 1.30:1             | 1.30:1       | 1.30:1       | 1.30:1                     | 1.30:1       | 1.30:1       |
| 26.5-40 GHz                      | NA                 | NA           | NA           | 1.50:1                     | 1.50:1       | 1.50:1       |
| Intersection Loss<br>(max @25°C) |                    |              |              |                            |              |              |
| 1 GHz                            | 0.51 dB            | 0.70 dB      | 0.89 dB      | 0.51 dB                    | 0.70 dB      | 0.89 dB      |
| 3 GHz                            | 0.82 dB            | 1.16 dB      | 1.50 dB      | 0.82 dB                    | 1.16 dB      | 1.50 dB      |
| 6 GHz                            | 1.15 dB            | 1.64 dB      | 2.13 dB      | 1.15 dB                    | 1.64 dB      | 2.13 dB      |
| 12 GHz                           | 1.65 dB            | 2.37 dB      | 3.08 dB      | 1.65 dB                    | 2.37 dB      | 3.08 dB      |
| 18 GHz                           | 2.07 dB            | 2.97 dB      | 3.86 dB      | 2.07 dB                    | 2.97 dB      | 3.86 dB      |
| 26.5 GHz                         | 2.58 db            | 3.70 dB      | 4.82 dB      | 2.58 dB                    | 3.70 dB      | 4.82 dB      |
| 40 GHz                           | NA                 | NA           | NA           | 3.42 dB                    | 4.85 dB      | 6.27 dB      |

# Test & Measurement

## Value you can measure

For dependable, high-performance broadband test cables at a reasonable price, look to the DynaTest® Series test cable assemblies. All products undergo functional performance verification. Fully automated, software-controlled, and networked test stations are used throughout our facility.

Our test capabilities (up to 67.0 GHz) encompass return loss (VSWR), insertion loss, delay, phase and amplitude matching, and TDR measurements. Data collection and product traceability are available to support your needs, and performance criteria are always tailored to meet your most stringent requirements.

Whether you seek a standard solution or custom-designed innovation, comprehensive test data documents accompany every product that ships to detail what and how it was tested. This ensures that all electrical, mechanical, and physical characteristics meet customer specifications when shipped.

DynaTest Assemblies are available for rapid delivery in three standard lengths: 24 inches (609 mm), 36 inches (914 mm), and 48 inches (1,219 mm). These highly flexible phase-stable cables offer excellent strain relief for long service life.



All DynaTest™ cable assemblies are 100% RF tested prior to shipment to ensure compliance to electrical specification.