

# DURATEST™

distributed by  
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GmbH

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## WHEN FAILURE IS NOT AN OPTION AND COST IS A CONSIDERATION.

### DuraTest™: Extra Durable Everyday Test Assemblies

When you need a general purpose test assembly that can be counted on for the long haul and won't bust the budget, you need a DuraTest™ assembly.

DuraTest™ combines:

- The proven toughness of Teledyne Storm cable
- Captivated stainless steel connectors
- Proprietary Hard-To-Hurt™ strain relief technology

Resulting in an **extra durable, precision test assembly** that:

- Has an average flex life of 25,000 flexures
- Is guaranteed for one year

#### FEATURES

- ~ Extended frequency SMA plugs
- ~ Combination hex/knurl type N coupling nuts
- ~ Hard-To-Hurt™ strain relief
- ~ Stainless steel connector bodies

#### ADVANTAGES

- ~ Allows testing to 26.5 GHz
- ~ Easier to tighten, while still able to torque down
- ~ Reduces strain at connector/cable interface
- ~ Reduces interface wear

#### BENEFITS

- ~ One cable for broadband testing
- ~ Reduces fatigue; maintains repeatability
- ~ Extends assembly life; reduces costs
- ~ Extends assembly life; reduces costs



**TELEDYNE**  
**STORM MICROWAVE**  
Everywhereyoulook™

High value microwave and  
electronic interconnect solutions

[www.teledynestorm.com](http://www.teledynestorm.com)

SPECIFICATIONS	DURATEST™
<b>Cable Designator</b>	<b>921</b>
Diameter (in/mm)	0.176/4.47
Operating Frequency (Max, GHz)	26.5
Attenuation–Max @ 2 GHz (dB/ft)	0.17
Attenuation–Max @ 10 GHz (dB/ft)	0.43
Attenuation–Max @ 18 GHz (dB/ft)	0.61
Attenuation–Max @ 26.5 GHz (dB/ft)	0.78
Min Bend Radius (in/mm)	0.875/22.2
Connector Retention (lbs/kg min), straight pull	50/22.7
Operating Temperature Range (°C)	-55 to +110
Flexure (+/- 30° unrestrained pull)	25,000
Concentrated Load (lbs/ linear inch)	100
Typical VSWR (2 SMA straight plugs)	1.15:1 @ 18 GHz 1.25:1 @ 26.5 GHz
Relative Phase Match (optional)	±9° @ 18 GHz

DuraTest™ is RoHS compliant

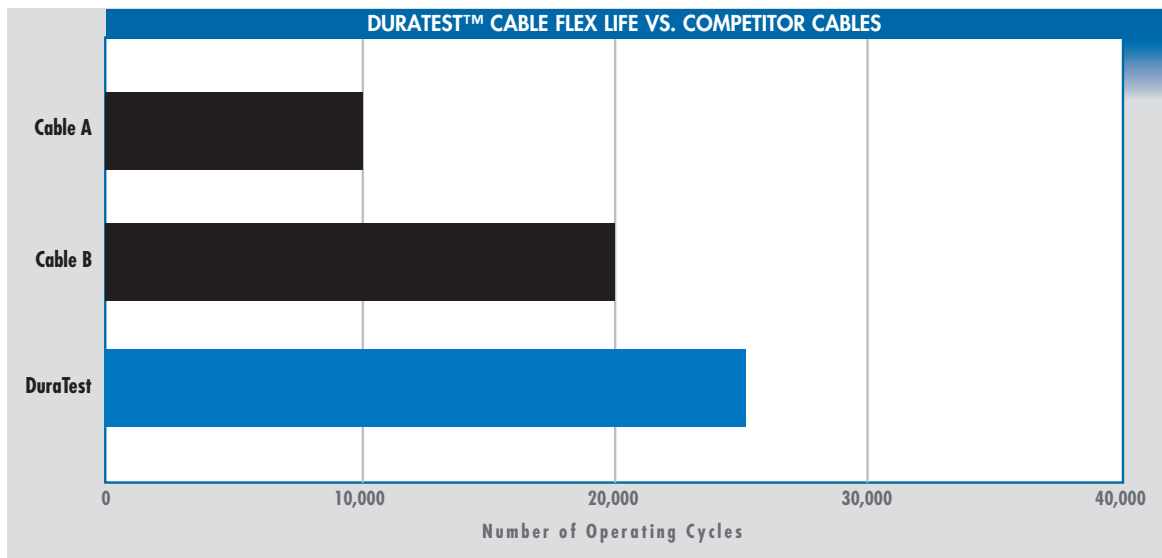
*Specifications subject to change without notice.*



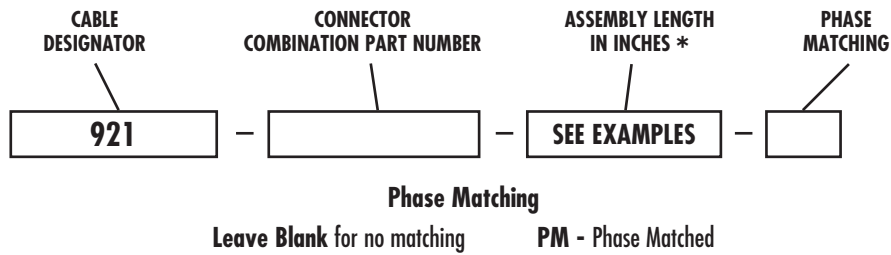
## ■ FLEX LIFE

The DuraTest™ cable design incorporates Storm’s proprietary Hard-To-Hurt™ strain relief technology in order to extend product life under conditions of repeated flexure, especially right behind the connector.

For a look at how the Hard-To-Hurt™ strain relief was developed, see the last page of this brochure.



## ORDERING INFORMATION: Part Number Designation



### EXAMPLES:

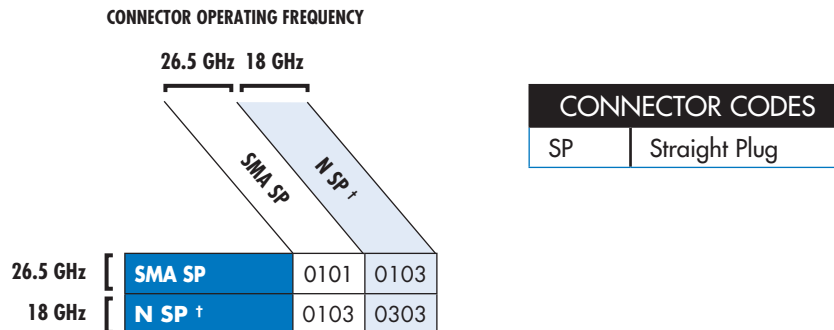
921-0101-048 = DuraTest™, SMA SP to SMA SP (assembly operates to 26.5 GHz), **48 inches**

921-0103-120 = DuraTest™, SMA SP to N SP (assembly operates to 18 GHz), **120 inches**

921-0303-018-PM = Phase Matched DuraTest™, N SP to N SP (assembly operates to 18 GHz), **18 inches**

\* Minimum build length is 18 inches

## CONNECTOR COMBINATION PART NUMBERS



† N plug not provided with interface gasket unless requested.

## ORDERING INFORMATION: DuraTest™ Express

Express assemblies—in the lengths listed below and terminated with either 26.5 GHz SMA-SMA or 18 GHz N-N connector combinations—are available for next-day shipment. Express assemblies cannot be phase matched.

Part Number w/ SMA SP	Length (in/mm)	10 GHz	18 GHz	26.5 GHz
		VSWR, Typical		
		1.10:1	1.15:1	1.25:1
Insertion Loss				
921-0101-024	24.00/609.60	1.00	1.40	1.80
921-0101-036	36.00/914.40	1.40	2.00	2.60
921-0101-048	48.00/1219.20	1.80	2.60	3.40
921-0101-060	60.00/1524.00	2.30	3.20	4.20
921-0101-072	72.00/1828.80	2.70	3.90	4.90
921-0101-084	84.00/2133.60	3.10	4.50	5.70
921-0101-120	120.00/3048.00	4.40	6.30	8.00

Part Number w/ N SP	Length (in/mm)	10 GHz	18 GHz
		VSWR, Typical	
		1.15:1	1.25:1
Insertion Loss			
921-0303-024	24.00/609.60	1.00	1.40
921-0303-036	36.00/914.40	1.40	2.00
921-0303-048	48.00/1219.20	1.80	2.60
921-0303-060	60.00/1524.00	2.30	3.20
921-0303-072	72.00/1828.80	2.70	3.90
921-0303-084	84.00/2133.60	3.10	4.50
921-0303-120	120.00/3048.00	4.40	6.30

# HARD-TO-HURT™ STRAIN RELIEF

## Designing the Hard-To-Hurt™ Strain Relief

Since no industry standard test exists, Teledyne Storm Microwave developed an accelerated life test to evaluate strain relief designs.

The 1st part of the test incorporated a cable flexing device. This flexer is capable of testing up to 6 cables simultaneously.

In use, the connectors are held static and the flexer deflects the cable behind the connectors 30° to the right and 30° to the left.

An integrated counter monitors the number of cycles ( $\pm 30^\circ$  per cycle) that the cables have been flexed.

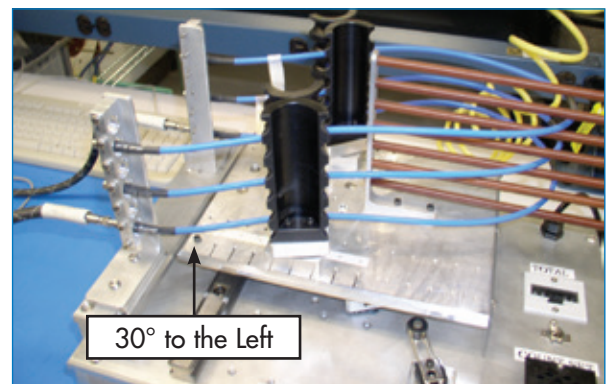
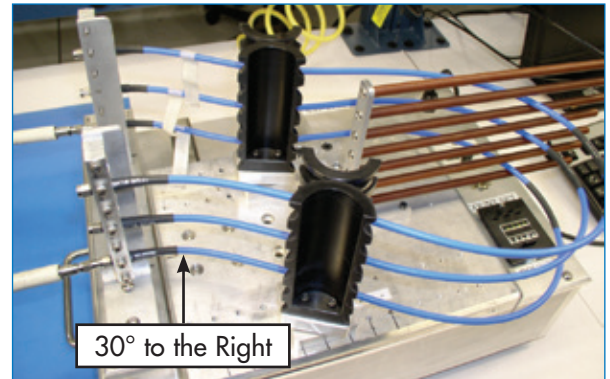
During flexing, the cables are connected to a Network Analyzer and monitored for Insertion Loss and VSWR so the technician knows when the cable is starting to develop instability.

Periodically, the movement is stopped and each cable's performance is measured and recorded.

The flexing is continued until the cable being tested fails to meet the Insertion Loss or VSWR requirements.

To establish an initial design baseline, Teledyne Storm Microwave evaluated cable assemblies with standard strain reliefs.

With that information in hand, alternate strain relief designs and materials were evaluated until the winning Hard-To-Hurt™ design was selected.



*Teledyne Storm Microwave Accelerated Life Testing*



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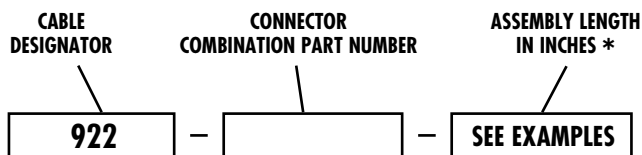
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SPECIFICATIONS		DURATEST™ 150
<b>Cable Designator</b>		<b>922</b>
Diameter (in/mm)		0.154/3.91
Operating Frequency (Max, GHz)		40
Attenuation–Max @ 2 GHz (dB/ft)		0.21
Attenuation–Max @ 18 GHz (dB/ft)		0.66
Attenuation–Max @ 26.5 GHz (dB/ft)		0.81
Attenuation–Max @ 40 GHz (dB/ft)		1.02
Connector Retention (lbs/kg min), straight pull		40/18.1
Flexure (+/- 30° unrestrained pull)		15,000
Concentrated Load (lbs/linear inch)		100
VSWR–Max (2 straight connectors)		1.30:1 @ 40 GHz
Min Bend Radius (in/mm)	Static	0.075/19.05
	Dynamic	1.50/38.10
Operating Temperature Range (°C)		-55 to +110

DuraTest™ is RoHS compliant

*Specifications subject to change without notice.*

### ORDERING INFORMATION: Part Number Designation



#### EXAMPLES:

**922-6565-048** = DuraTest™ 150, SMK SP to SMK SP  
(assembly operates to 40 GHz), **48 inches**

**922-0414-120** = DuraTest™ 150, 3.5 mm SP to 3.5 mm SJ  
(assembly operates to 26.5 GHz), **120 inches**

\* Minimum build length is 24 inches

### CONNECTOR COMBINATION PART NUMBERS

		CONNECTOR OPERATING FREQUENCY							
		26.5 GHz				40 GHz			
		3.5 mm SP	3.5 mm SJ	SMK SP	SMK SP (knurl)	SMK SJ	SMK NMD	2.4 mm SP	2.4 mm NMD
26.5 GHz	3.5 mm SP	0404	0414	0465	0405	0415	0445	0406	0446
	3.5 mm SJ	0414	1414	1465	0514	1415	1445	0614	1446
	SMK SP	0465	1465	6565	0565	1565	4565	0665	4665
40 GHz	SMK SP (knurl)	0405	0514	0565	0505	0515	0545	0506	0546
	SMK SJ	0415	1415	1565	0515	1515	1545	0615	1546
	SMK NMD	0445	1445	4565	0545	1545	4545	0645	4546
	2.4 mm SP	0406	0614	0665	0506	0615	0645	0606	0646
	2.4 mm NMD	0446	1446	4665	0546	1546	4546	0646	4646

CONNECTOR CODES	
SP	Straight Plug
SJ	Straight Jack
NMD	Ruggedized Test Port Connector