

# SPPTM Coaxial Cables

ISO 9001 Certified

## *In-Building, Low Loss, Low PIM, Plenum Rated Cable Assemblies*

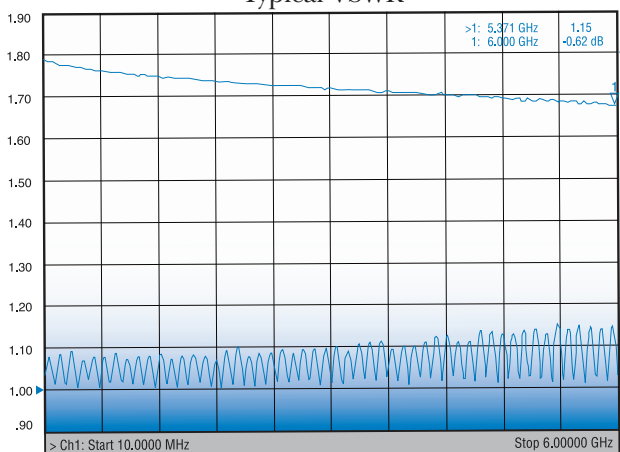
- *Excellent PIM (typically -160 dBc) for optimum system performance*
- *UL910 plenum rated satisfying building code requirements*
- *Super flexible for ease of installation*
- *Corrugated copper outer conductor providing greater than 100dB shielding*
- *Wideband low VSWR  
Maximum 1.25:1 up to 3 GHz  
Maximum 1.35:1 up to 6 GHz  
covering all in-building technologies*
- *Durable FEP outer jacket is suitable for outdoor use*



*SPP-250, SPP-375, SPP-500 50 Ohm low loss low PIM coaxial cable assemblies*

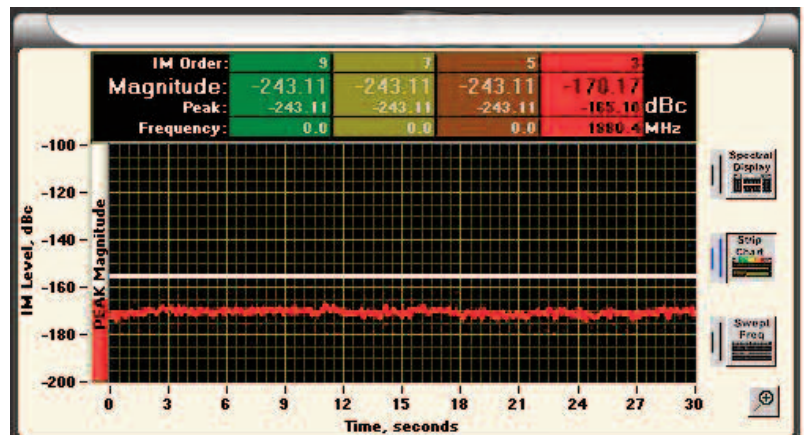
- Standard assemblies in 1, 2 and 3 meter lengths with popular connector combinations
- 100% tested for static and dynamic PIM, VSWR and Insertion Loss
- Custom length assemblies are available
- 10 year Times Microwave warranty

Typical VSWR

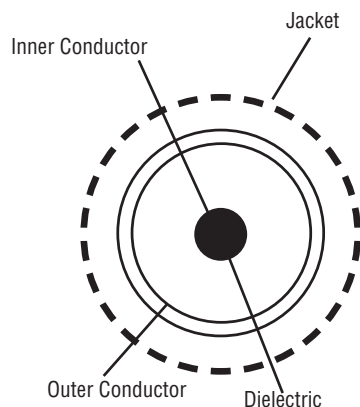


SPP250NMN1.0M

Dynamic PIM Test Results



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## Cable Construction

**Inner Conductor:** Solid bare copper

**Dielectric:** Tape wrapped low density PTFE

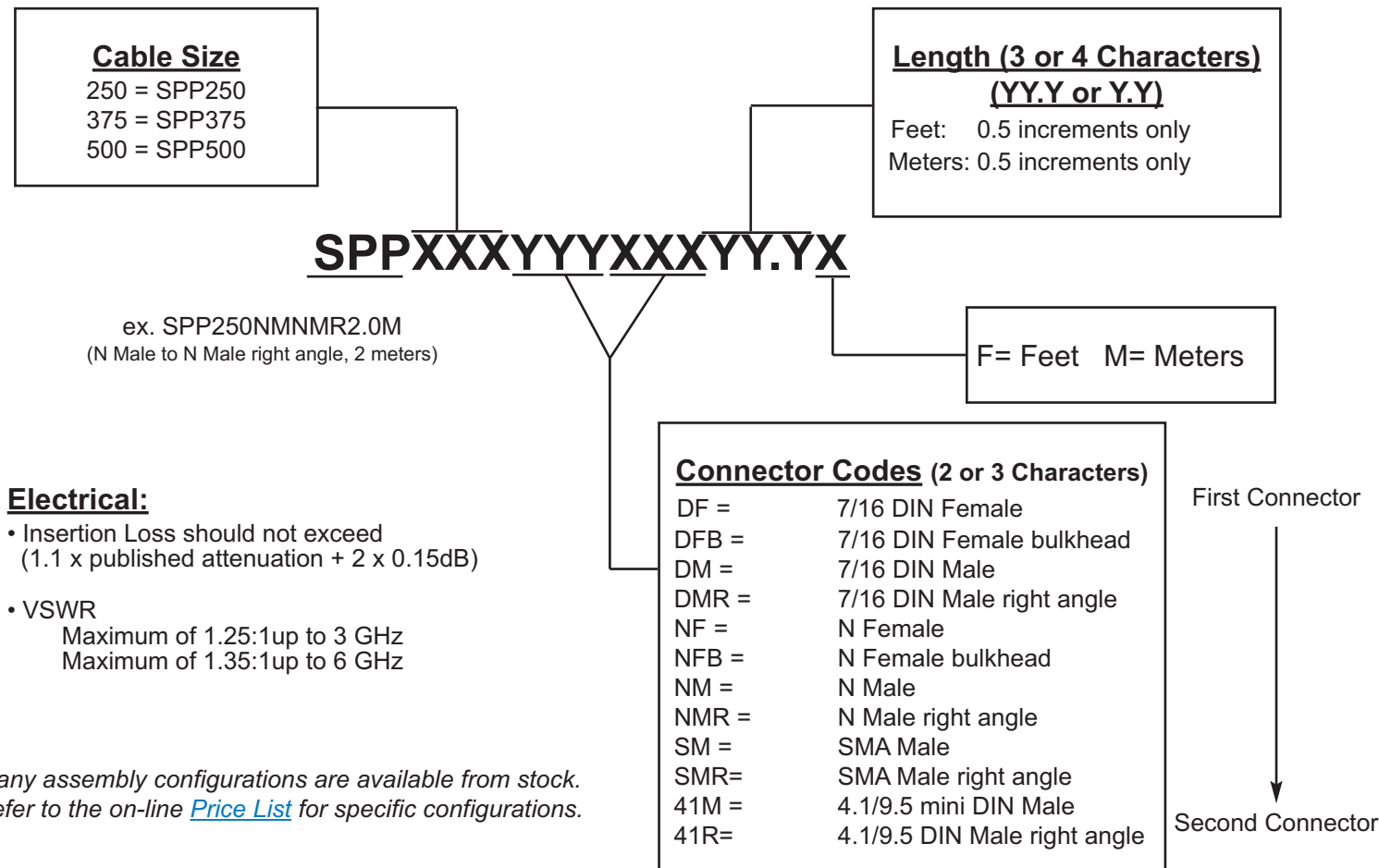
**Outer Conductor:** Seam welded corrugated copper tube

**Jacket:** Extruded FEP

Physical Specifications	SPP-250	SPP-375	SPP-500
Cable Stock Codes:	15314	15318	15319
Jacket: Extruded FEP; OD: in(mm)	0.280 (7.1)	0.402 (10.2)	0.500 (13.4)
Outer Conductor: Corrugated Copper Tube; OD: in(mm)	0.250 (6.3)	0.380 (9.6)	0.472 (12.1)
Dielectric: LD PTFE OD: in(mm)	0.190 (4.8)	0.285 (7.1)	0.370 (9.4)
Center Conductor: Solid BCCAI; OD: in(mm)	0.068 (1.7)	0.100 (2.7)	0.136 (3.5)
Bend Radius: in(mm)	1.25 (32)	1.38 (35)	1.50 (38)
Bending Moment: ft-lbs (N-m)	0.8 (1.0)	1.7 (2.0)	2.0 (2.4)
Tensile Strength: lb (kg)	150 (68.2)	175 (79.5)	210 (95.5)
Flat Plate Crush Strength: lb/in (kg/mm)	100 (1.8)	100 (1.8)	110 (2.0)
Weight: lbs/1000 ft (kg/km)	66 (78)	115 (127)	200 (167)
Environmental Specifications			
Installation Temperature Range °C/°F	-55/+200 (-67/+392°)	-55/+200 (-67/+392°)	-55/+200 (-67/+392°)
Storage Temperature Range °C/°F	-55/+200 (-67/+392°)	-55/+200 (-67/+392°)	-55/+200 (-67/+392°)
Operating Temperature Range °C/°F	-55/+200 (-67/+392°)	-55/+200 (-67/+392°)	-55/+200 (-67/+392°)
Electrical Specifications			
Velocity of Propagation: %	76%	76%	76%
Impedance: Ohms	50 Ohms	50 Ohms	50 Ohms
Capacitance: pF/ft (pF/m)	27.0 (8.2)	27.5 (8.4)	29.0 (8.8)
Inductance: μH/ft (uH/m)	0.067 (0.22)	0.067 (0.22)	0.069 (0.23)
Shielding Effectiveness: dB	>100	>100	>100
Passive Intermodulation (PIM): dBc	<-160	<-160	<-160
Center Conductor DC Resistance: Ohms/1000 ft/(km)	3.0 (9.84)	1.30 (4.26)	0.82 (2.70)
Shield DC Resistance: Ohms/1000 ft (km)	2.00 (6.56)	1.52 (4.98)	1.00 (3.28)
Attenuation & Average Power @ MHz	dB/100 ft (dB/100m) kW	dB/100ft (dB/100m) kW	dB/100ft (dB/100m) kW
450	3.8 (12.4) 0.97	2.8 (9.2) 2.01	2.3 (7.5) 2.50
900	5.4 (17.7) 0.68	3.7 (12.1) 1.41	3.3 (10.8) 1.75
2000	8.3 (27.2) 0.46	5.7 (18.7) 0.93	5.1 (16.7) 1.15
5800	14.8 (48.5) 0.26	10.3 (33.8) 0.53	9.2 (30.2) 0.65
Connectors (solder body) (Connectors with BLK suffix packed 100 pieces per bulk pack)			
N Male Straight	TC-SPP250-NM-LP (3190-2833BLK)	TC-SPP375-NM-LP (3190-2951)	TC-SPP500-NM-LP (3190-2946)
N Male Right Angle	TC-SPP250-NM-RA-LP (3190-2834BLK)	-	-
N Female	TC-SPP250-NF-LP (3190-2851BLK)	-	TC-SPP500-NF-LP (3190-3011)
N Female Bulkhead	TC-SPP250-NF-BH-LP (3190-2835)	-	-
7-16 DIN Male Straight	TC-SPP250-716M-LP (3190-2853BLK)	TC-SPP375-716M-LP (3190-2940)	TC-SPP500-716M-LP (3190-2945)
7-16 DIN Female Straight	TC-SPP250-716F-LP (3190-3002BLK)	-	-
7-16 DIN Male Right Angle	TC-SPP250-716M-RA-LP (3190-2854BLK)	-	-
SMA Male Straight	TC-SPP250-SM-LP (3190-2947)	-	-
4.1/9.5 mini DIN Male Straight	TC-SPP250-4195M-LP (3190-3014)	-	-
Connectors (Field Installable, non solder)			
N Male Right Angle	EZ-SPP250-NM-RA-LP (3190-2965)	-	-
7-16 DIN Male Right Angle	EZ-SPP250-716M-RA-LP (3190-2966)	-	-
Tools			
Strip Tool	ST-SPP-250 (3192-154)	ST-SPP-375 (3192-167)	ST-SPP-500 (3192-168)
Debur Tool	DBT-U (3192-001)	DBT-U (3192-001)	DBT-U (3192-001)
Cutting Tool	CCT-01 (3190-1544)	CCT-01 (3190-1544)	CCT-01 (3190-1544)

# SPP™ Coaxial Cables













## Smart Part Number Key for SPP Low PIM Jumpers



	SPP250NMNM1.0M	NM/NM	1 meter; SPP-250-LLPL; N-male; N-male; Plenum rated jumper assembly
	SPP250NMNM2.0M	NM/NM	2 meter; SPP-250-LLPL; N-male; N-male; Plenum rated jumper assembly
	SPP250NMNM3.0M	NM/NM	3 meter; SPP-250-LLPL; N-male; N-male; Plenum rated jumper assembly
	SPP250DMDM1.0M	DM/DM	1 meter; SPP-250-LLPL; 7/16 DIN male; Plenum rated jumper assembly
	SPP250DMDM2.0M	DM/DM	2 meter; SPP-250-LLPL; 7/16 DIN male; Plenum rated jumper assembly
	SPP250DMDM3.0M	DM/DM	3 meter; SPP-250-LLPL; 7/16 DIN male; Plenum rated jumper assembly
	SPP25041M41M1.0M	41M/41M	1 meter; SPP-250-LLPL; 4.1/9.5 mini DIN male; Plenum rated jumper assembly
	SPP25041M41M2.0M	41M/41M	2 meter; SPP-250-LLPL; 4.1/9.5 mini DIN male; Plenum rated jumper assembly
	SPP25041M41M3.0M	41M/41M	3 meter; SPP-250-LLPL; 4.1/9.5 mini DIN male; Plenum rated jumper assembly
	SPP250DM41M1.0M	DM/41M	1 meter; SPP-250-LLPL; 4.1/9.5 mini DIN male; 7/16 male; Plenum rated jumper assembly
	SPP250DM41M2.0M	DM/41M	2 meter; SPP-250-LLPL; 4.1/9.5 mini DIN male; 7/16 male; Plenum rated jumper assembly
	SPP250DM41M3.0M	DM/41M	3 meter; SPP-250-LLPL; 4.1/9.5 mini DIN male; 7/16 male; Plenum rated jumper assembly
	SPP250NM41M1.0M	NM/41M	1 meter; SPP-250-LLPL; 4.1/9.5 mini DIN male; N male; Plenum rated jumper assembly
	SPP250NM41M2.0M	NM/41M	2 meter; SPP-250-LLPL; 4.1/9.5 mini DIN male; N male; Plenum rated jumper assembly
	SPP250NM41M3.0M	NM/41M	3 meter; SPP-250-LLPL; 4.1/9.5 mini DIN male; N male; Plenum rated jumper assembly



# SPP™ Coaxial Cables

 iBwave SPP375NMNM1.0M	NM/NM	1 meter; SPP-375-LLPL; N-male; N-male; Flexible jumper assembly
 iBwave SPP375NMNM2.0M	NM/NM	2 meter; SPP-375-LLPL; N-male; N-male; Flexible jumper assembly
 iBwave SPP375NMNM3.0M	NM/NM	3 meter; SPP-375-LLPL; N-male; N-male; Flexible jumper assembly
 iBwave SPP375DMDM1.0M	DM/DM	1 meter; SPP-375-LLPL; 7/16 male; 7/16 male; Flexible jumper assembly
 iBwave SPP375DMDM2.0M	DM/DM	2 meter; SPP-375-LLPL; 7/16 male; 7/16 male; Flexible jumper assembly
 iBwave SPP375DMDM3.0M	DM/DM	3 meter; SPP-375-LLPL; 7/16 male; 7/16 male; Flexible jumper assembly
 iBwave SPP500NMNM1.0M	NM/NM	1 meter; SPP-500-LLPL; N-male; N-male; Flexible jumper assembly
 iBwave SPP500NMNM2.0M	NM/NM	2 meter; SPP-500-LLPL; N-male; N-male; Flexible jumper assembly
 iBwave SPP500NMNM3.0M	NM/NM	3 meter; SPP-500-LLPL; N-male; N-male; Flexible jumper assembly
 iBwave SPP500DMDM1.0M	DM/DM	1 meter; SPP-500-LLPL; 7/16 male; 7/16 male; Flexible jumper assembly
 iBwave SPP500DMDM2.0M	DM/DM	2 meter; SPP-500-LLPL; 7/16 male; 7/16 male; Flexible jumper assembly
 iBwave SPP500DMDM3.0M	DM/DM	3 meter; SPP-500-LLPL; 7/16 male; 7/16 male; Flexible jumper assembly

## About **TIMES MICROWAVE SYSTEMS**

Times Microwave Systems, was founded in 1948 as the Times Wire and Cable Company. Today, the company specializes in the design and manufacture of high performance flexible, semi-flexible and semi-rigid coaxial cable, connectors and cable assemblies. With over 60 years of leadership in the design, development, and manufacture of coaxial products for defense microwave systems, Times Microwave Systems is the acknowledged leader, offering high tech solutions for today's most demanding applications.

Cable assemblies from Times Microwave Systems are used as interconnects for microwave transmitters, receivers, and antennas on airframes, missiles, ships, satellites, and ground based communications systems, and as leads for test and instrumentation applications.

As a highly specialized and technically focused company, Times Microwave Systems has been able to continually meet the challenges of specialty engineered transmission lines for both the military and commercial applications, drawing upon our:

- Thousands of unique cable and connector designs
- Exceptional RF and microwave design capability
- Precise material and process controls
- Unique in-house testing capabilities including RF shielding/leakage, vibration, moisture/vapor sealing, phase noise and flammability
- Years of MIL-T-81490, MIL-C-87104, and MIL-PRF-39012 experience
- ISO 9001 Certification

In 2010, Times Microwave Systems introduced its Times-Protect™ line of lightning and surge protection solutions to address the challenging needs of wireless systems in the 21st century.

With over 60 years of Times Microwave Systems aerospace cable and connector technology experience and unparalleled design expertise, Times Microwave Systems' staff of Field Applications Engineers can help to provide the right solution for your interconnect applications.



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