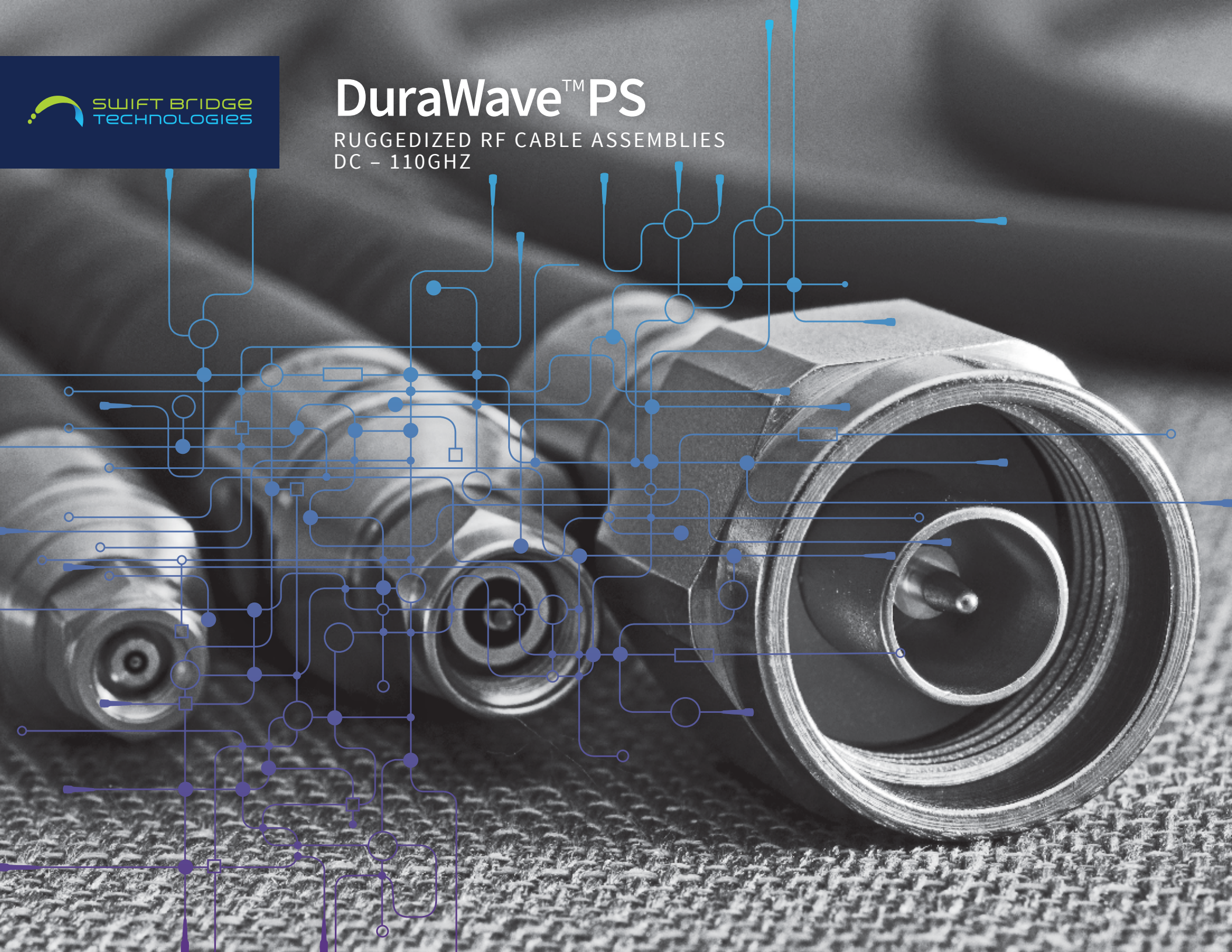
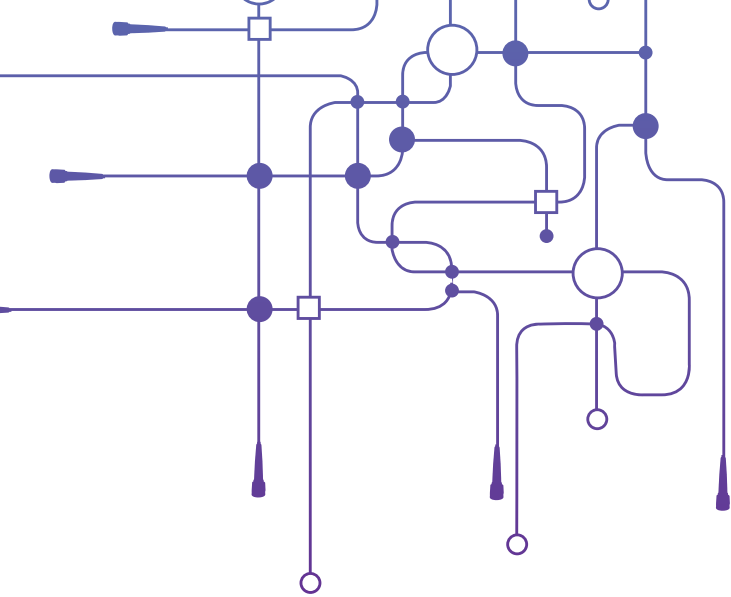




DuraWave™ PS

RUGGEDIZED RF CABLE ASSEMBLIES
DC - 110GHZ





DuraWave™ PS RUGGEDIZED RF CABLE ASSEMBLIES

DuraWave™ PS RF cable assemblies utilize a rugged armored construction and are designed for on-site/outdoor field testing, harsh production environments and the testing laboratory. The cable construction employs crush and torque resistant armoring. This construction results in excellent phase and insertion loss stability with flexure. Molded flex reliefs distribute cable stresses away from the connector and prevent excessive bending of the cable. DuraWave™ PS cables are designed to offer maximum flexibility and are jacketed with a weather resistant material rated for 125°C continuous use. Cable assemblies are available with a broad range of ruggedized connectors in both male and female versions.

MEASUREMENT QUALITY

The excellent phase and amplitude stability of DuraWave™ PS RF Cable Assemblies ensures accurate and repeatable measurements on the DUT (device under test). All cable assemblies are 100% tested to assure S-parameters and stability with flexure meet or exceed their specified performance.

FREQUENCY, GHz	TYPICAL INSERTION LOSS AT MAX FREQUENCY, dB	TYPICAL RETURN LOSS THRU MAX FREQUENCY, dB	¹ TYPICAL PHASE STABILITY W/ FLEXURE (± deg)	¹ GUARANTEED PHASE STABILITY W/ FLEXURE (± deg)	TYPICAL AMPLITUDE STABILITY W/ FLEXURE (± dB)	GUARANTEED AMPLITUDE STABILITY W/ FLEXURE (± dB)
PS18	-2.0	-20	2.5	5.0	0.05	0.15
PS26	-2.3	-20	3.5	7.0	0.05	0.15
PS33	-2.6	-20	4.5	8.5	0.05	0.15
PS40	-2.8	-20	6.0	10.0	0.05	0.15
PS50	-4.8	-17	9.0	12.0	0.05	0.15
PS70	-6.2	-17	10.0	16.0	0.05	0.15
PS110	-6.5	-15	3.0	---	0.05	---

NOTE 1: PS18 - PS70 Data is for a 1 meter cable assembly with connectors. PS110 is for a 12" cable assembly with connectors.

NOTE 2: Phase and amplitude stability measured after wrapping 180° around 1.0" diameter mandrel

¹ SBT sought to better simulate the actual use model of RF cables utilized in the test and measurement market. In actual use, the RF cable is calibrated or normalized in one position then the distal end is disconnected and reconnected after moving the cable into a new position. SBT's quality inspection procedures specify that upon normalization, the cable is disconnected from port 2 of the VNA, wrapped 360° around a 4.5" diameter mandrel and reconnected to port 2 of the VNA; maximum phase and IL change is measured at this point. Therefore phase and insertion loss stability is measured in transmission rather than reflection which simulates actual use more closely. SBT utilizes one wrap in the preferred direction of cable lay since RF cables have a preferred direction in which they coil; normally the user will follow the natural direction of lay rather than forcing the cable to bend or coil "unnaturally".

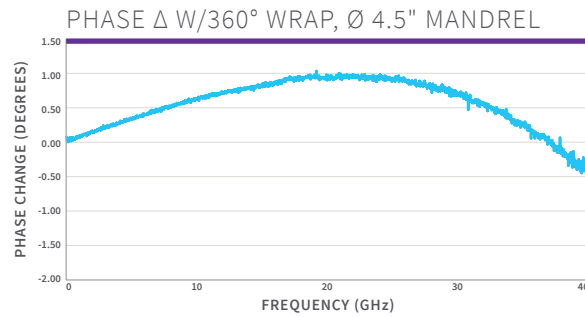
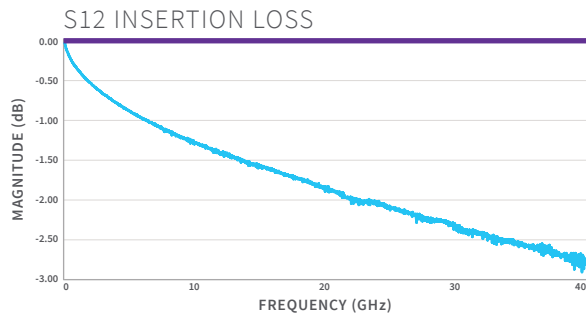
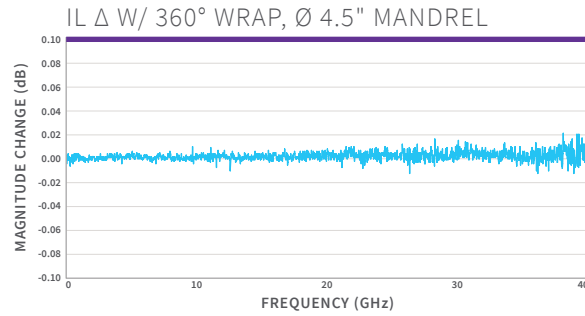
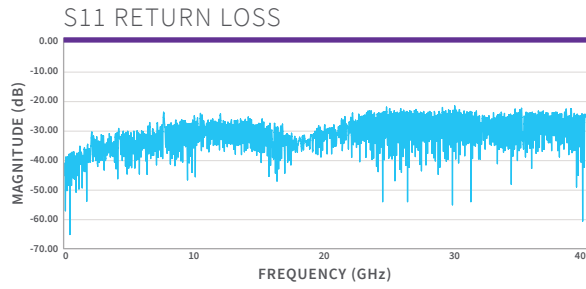
PHASE/TIME DELAY MATCHING

Upon request, phase or time delay matching can be specified for DuraWave™ PS RF cable assemblies. According to the user's requirements for their application, cable assemblies may be specified to meet absolute or relative matching values.

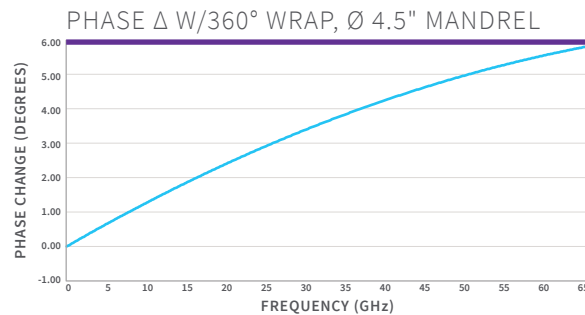
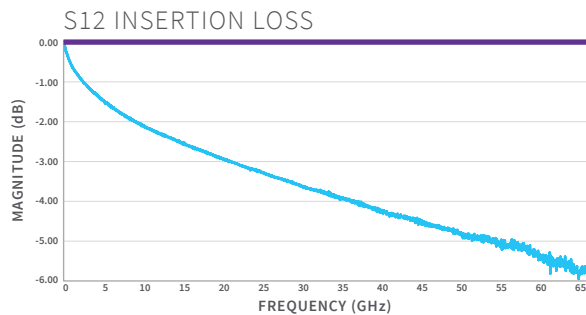
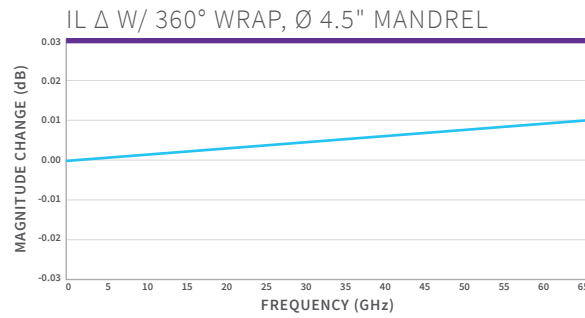
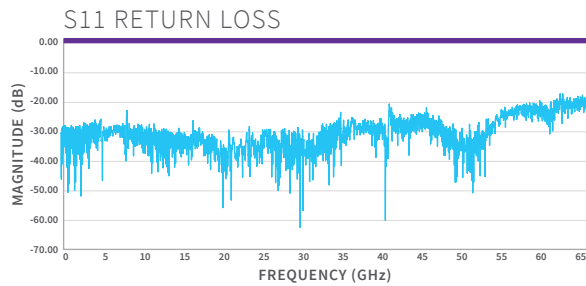
- **Absolute matching** is when one or more cable assemblies conform to a specific time delay target value within some tolerance (±) value.

- **Relative or Differential matching** is when the time delays of two or more assemblies conform to a specified delay range. Relative or differential matching ensures consistent matching within a set of cables, but an assembly from one set may not necessarily be matched with cable assemblies in another set. Swift Bridge Technologies addresses this by uniquely labeling the cables within a matched pair or set. Time delay matching within 1 ps available.

DC-40GHz: 2.92mm (m) to 2.92mm (m) Cable Assembly, 1 meter | SN 1731005 | Sample Data



DC-70GHz: 1.85mm (m) to 1.85mm (m) Cable Assembly, 1 meter | Sample Data



- For use with:
- Field Analyzers
 - TDR Oscilloscopes
 - Portable Analyzers
 - Vector Network Analyzers
 - Scalar Network Analyzers
 - Spectrum Analyzers
 - Test Rack Systems
 - Automated Test Equipment

Durawave™ PS

CABLE SPECIFICATIONS

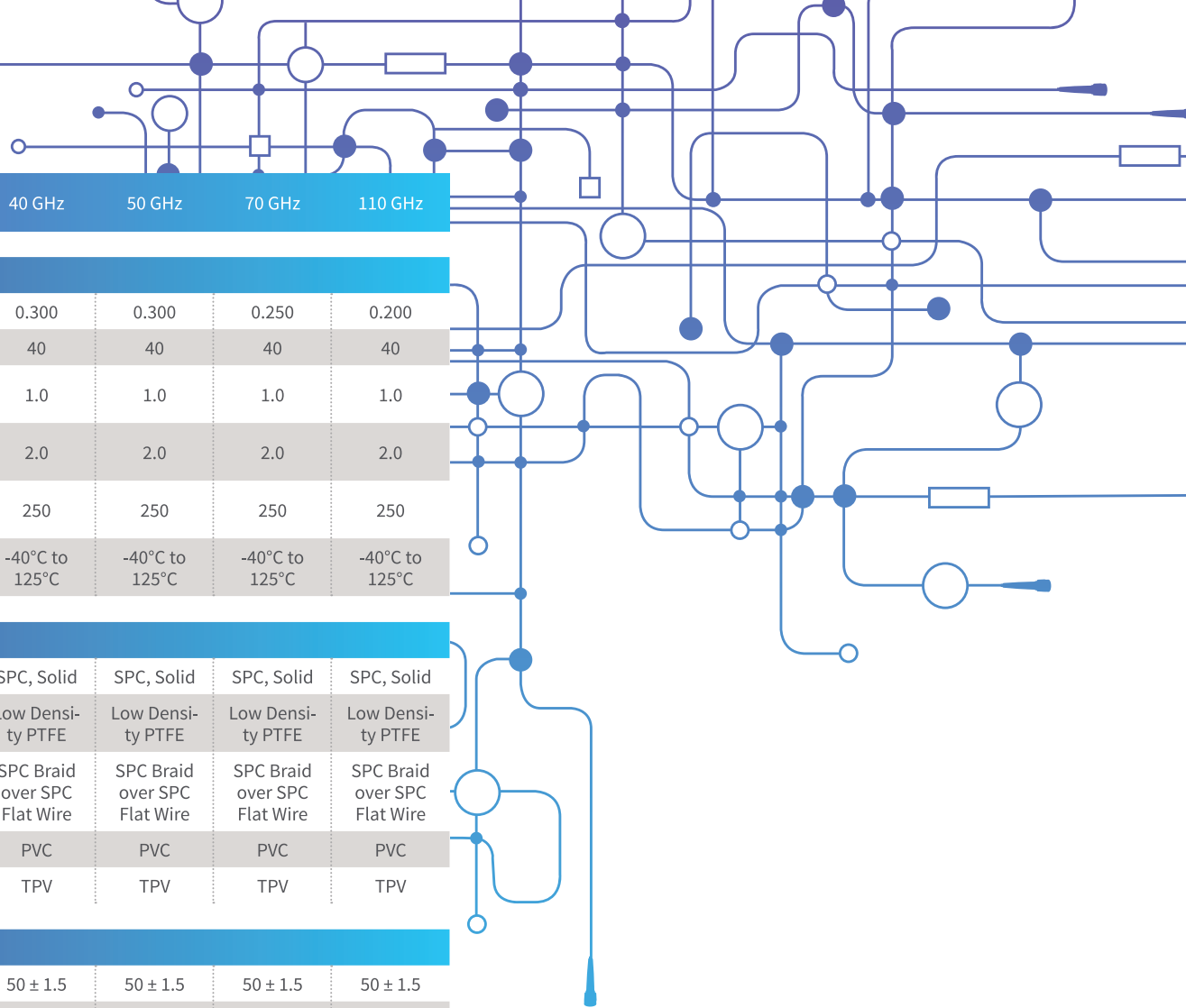
MAXIMUM OPERATING FREQUENCY	18 GHz	26 GHz	33 GHz	40 GHz	50 GHz	70 GHz	110 GHz
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MECHANICAL CHARACTERISTICS							
Outer Cable Diameter, inch	0.300	0.300	0.300	0.300	0.300	0.250	0.200
Tensile Pull (continuous), lbs	40	40	40	40	40	40	40
Minimum Cable Bend Radius (static), in	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Minimum Cable Bend Radius (dynamic), in	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Crush Resistance, lbs per linear inch	250	250	250	250	250	250	250
Temperature Range	-40°C to 125°C	-40°C to 125°C	-40°C to 125°C	-40°C to 125°C	-40°C to 125°C	-40°C to 125°C	-40°C to 125°C

CONSTRUCTION							
Center Conductor	SPC, Solid	SPC, Solid	SPC, Solid	SPC, Solid	SPC, Solid	SPC, Solid	SPC, Solid
Dielectric	Low Density PTFE	Low Density PTFE	Low Density PTFE	Low Density PTFE	Low Density PTFE	Low Density PTFE	Low Density PTFE
Shield Conductor	SPC Braid over SPC Flat Wire	SPC Braid over SPC Flat Wire	SPC Braid over SPC Flat Wire	SPC Braid over SPC Flat Wire	SPC Braid over SPC Flat Wire	SPC Braid over SPC Flat Wire	SPC Braid over SPC Flat Wire
Outer Jacket	PVC	PVC	PVC	PVC	PVC	PVC	PVC
Flex Relief	TPV	TPV	TPV	TPV	TPV	TPV	TPV

ELECTRICAL CHARACTERISTICS							
Impedance, ohms	50 ± 1.5	50 ± 1.5	50 ± 1.5	50 ± 1.5	50 ± 1.5	50 ± 1.5	50 ± 1.5
Typical Velocity of Propagation, %	78	78	78	78	78	76	74
Capacitance (nominal), pf/ft	26	26	26	26	26	27	28
Shielding Effectiveness thru 20 GHz, db	>90	>90	>90	>90	>90	>90	>90
Temperature Phase Stability, GHz and 20°C - 35°C	200ppm	200ppm	200ppm	200ppm	125ppm	125ppm	125ppm
¹ Flexure Phase Stability	±2.5	±3.5	±4.5	±6	±9	±10	±10
Typical Return Loss, dB, thru max <i>f</i>	≤ -20	≤ -20	≤ -20	≤ -20	≤ -17	≤ -17	≤ -15
Typical Attenuation, dB, @ max <i>f</i> (1m cable w/ connectors)	2.0	2.3	2.6	2.8	4.8	6.2	6.5 ²

² Test data for a 12" long assembly



CONNECTOR SPECIFICATIONS

SPECIFICATIONS	N	SMA	3.5mm	2.92mm	2.4mm	1.85mm	1.0mm
FREQUENCY RANGE (GHz)	DC-18	DC-26.5	DC-33	DC-40	DC-50	DC-70	DC-110
NOMINAL IMPEDANCE (ohms)	50	50	50	50	50	50	50
RECOMMENDED MATING TORQUE	12-15 in·lbs	8-10 in·lbs	8-10 in·lbs	8-10 in·lbs	8-10 in·lbs	8-10 in·lbs	3.5-4.5 in·lbs
CONNECTOR DURABILITY (min. mate/demate cycles)	>500	>500	>500	>500	>500	>500	>500

MATERIALS OF CONSTRUCTION		N	SMA	3.5mm	2.92mm	2.4mm	1.85mm	1.0mm
CONNECTOR BODY COMPONENTS	303 SS ⁶	●	●	●	●	●	●	●
CENTER CONTACT	BeCu ⁵	●	●	●	●	●	●	●
DIELECTRIC	PTFE ⁴ or Fluoro-polymer	●	●	●	●	●	●	●
SEALS, GASKETS, O-RINGS	Silicone Rubber ³	●	●	●	●	●	●	●

FINISH		N	SMA	3.5mm	2.92mm	2.4mm	1.85mm	1.0mm
CONNECTOR BODY COMPONENTS	Passivated ¹	●	●	●	●	●	●	●
CENTER CONTACT	Gold ²	●	●	●	●	●	●	●

¹ Passivated per ASTM-A-987 and AMS-QQ-P-35 | ² Gold plating, minimum 50µin, per ASTM-B-488, Type 2, Code C, Class 1, over 50µin minimum of nickel per AMS-QQ-N-290, Class 1 | ³ Silicone rubber per ZZ-R-765 and MIL-R-5847 Class 2 A&B, Grades 50-70 | ⁴ PTFE per ASTM-D-1710, Type 1, Grade 1, Class A | ⁵ Beryllium copper per ASTM-B-196, Alloy C17300, ASTM Temper TD04 | ⁶ Corrosion resistant Type 303 Stainless Steel, non-magnetic, per ASTM-A-484 and ASTM-A-582



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