

# FLATPHASE™

## 100 SERIES



### THE NEWEST EVOLUTION OF OUR PHASE STABLE CABLES



Best in class phase stability vs. temperature makes **FlatPhase™** the **preferred option** when you need flat phase.

Our proprietary foamed fluoropolymer dielectric **avoids the typical PTFE knee** to deliver a flatter phase response.

#### You can expect:

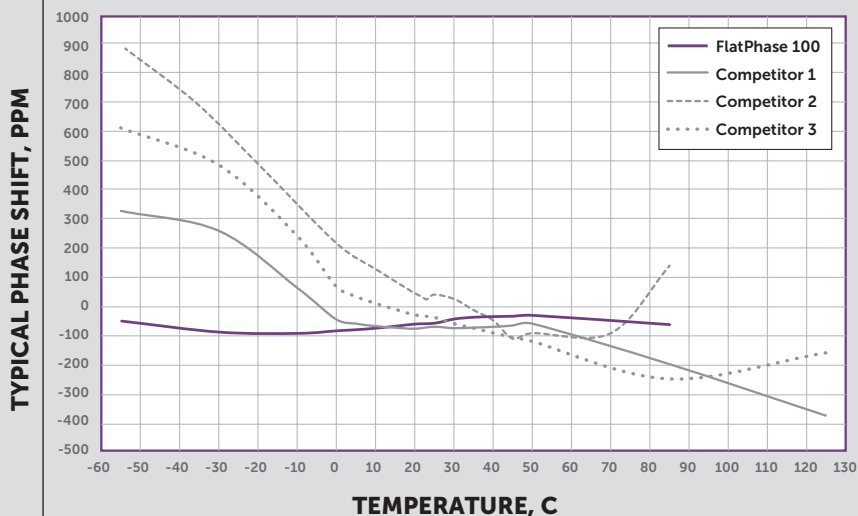
- An extremely effective lab cable designed for fewer calibrations
- A cable that withstands large temperature swings
- Another high quality Storm cable with exceptional performance

Any application that has an environment with **extreme temperature fluctuations** or **stress inducing elements** will effectively benefit from the robust properties of FlatPhase™.

Uses in aircrafts and ground vehicles see immediate benefits after switching from PTFE dielectric cables.

**FlatPhase™ 100**  
2.068 dB/ft nom @ 50 GHz

PHASE SHIFT vs. TEMPERATURE IN PPM –  
FLATPHASE™ 100 vs. COMPETITORS, 5 GHz



**TELEDYNE**  
**STORM MICROWAVE**  
Everywhere you look™

High value microwave and  
electronic interconnect solutions.

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# FLATPHASE™ SPECIFICATIONS

SPECIFICATIONS		FLATPHASE™ 100
<b>Cable Designator</b>		<b>950</b>
Diameter (in/mm)		0.094 / 2.39
Operating Frequency (Max, GHz)		50
Attenuation–Nom @ 2 GHz (dB/ft)		0.355
Attenuation–Nom @ 10 GHz (dB/ft)		0.835
Attenuation–Nom @ 18 GHz (dB/ft)		1.153
Attenuation–Nom @ 26.5 GHz (dB/ft)		1.433
Attenuation–Nom @ 32 GHz (dB/ft)		1.596
Attenuation–Nom @ 40 GHz (dB/ft)		1.815
Attenuation–Nom @ 50 GHz (dB/ft)		2.068
Power Handling -- Avg Power in Watts @ 1 GHz		140
Phase Stability vs. Temp -- ppm (nom/tolerance)	-55°C	-46 / 100
	+20°C	-56 / 100
	+85°C	-58 / 100
Phase Stability vs. Flexure† (@ 50 GHz, nom)		±17.1°
Shielding Effectiveness–Min‡ (dB @ 1 GHz)		> -90
Typical VSWR (2 straight connectors)		1.37 to 50 GHz
Min Bend Radius (in/mm)	Static	0.47 / 11.9
	Dynamic	0.94 / 23.9
Connector Retention to 50 GHz, pull (lbs/kg)		25 / 11.3
Velocity of Propagation (%)		80.7
Weight (grams/ft & /m)		4.71 / 15.45
Operating Temperature Range (°C)		-55 to +125

† ± 360 degree bends around a 20 x cable OD mandrel.

‡ Subject to connector choice.

*Specifications subject to change without notice.*

## FLATPHASE™ FEATURES & BENEFITS

### FEATURES

~ Foamed fluoropolymer dielectric

~ Helically wrapped SPC primary shield

~ Fully captivated connectors

~ Combination hex/knurl coupling nuts

### ADVANTAGES

~ Increased phase stability

~ Insertion loss stability during flexure

~ Reduced cable loss

~ Reduced leakage

~ Increased connector retention

~ Easier to tighten, while still able to torque

### BENEFITS

~ Meet difficult phase requirements over a large range of temperatures

~ Exceed challenging dynamic application requirements

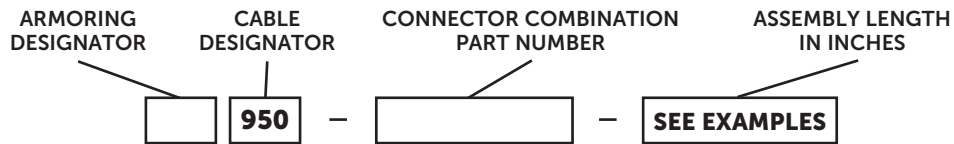
~ Meet challenging system gain or signal-to-noise requirements

~ Improved system performance

~ Reduced chance of degradation after install or use

~ Reduced fatigue, increased repeatability

# FLATPHASE™ ORDERING INFORMATION: PART NUMBER DESIGNATION



**Armoring Designator: A** - Armored (silicone jacket)

[ NOTE: Leave blank when no armoring is required. Standard FEP jacket is applied.]

## FLATPHASE™ 100

CONNECTOR OPERATING FREQUENCY

	18 GHz	26.5 GHz	40 GHz			50 GHz		
CONNECTOR COMBINATION PART NUMBERS	SMA RAP	SMA SP	SMK (2.92 mm) SP	SMK (2.92 mm) RAP	SMK (2.92 mm) SJ	2.4 mm SP	2.4 mm SJ	
18 GHz	SMA RAP	2121	0121	0521	2125	1521	0621	1621
26.5 GHz	SMA SP	0121	0101	0105	0125	0115	0106	0116
40 GHz	SMK (2.92 mm) SP	0521	0105	0505	0525	0515	0506	0516
	SMK (2.92 mm) RAP	2125	0125	0525	2525	1525	0625	1625
50 GHz	SMK (2.92 mm) SJ	1521	0115	0515	1525	1515	0615	1516
	2.4 mm SP	0621	0106	0506	0625	0615	0606	0616
	2.4 mm SJ	1621	0116	0516	1625	1516	0616	1616

CONNECTOR CODES	
SP	Straight Plug
RAP	Right-Angle Plug
SJ	Straight Jack

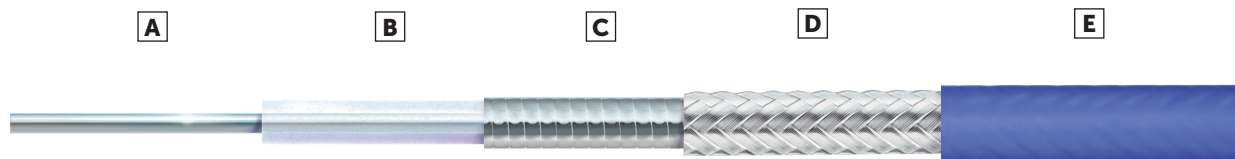
### EXAMPLES:

950-0515-018 = **Unarmored** FlatPhase 100 **with standard FEP jacket** SMK (2.92mm) SP to SMK (2.92mm) SJ (assembly operates to 40 GHz), **18 inches**

A950-0606-024 = **Armored** FlatPhase 100 **with silicone jacket** 2.4mm SP to 2.4mm SP (assembly operates to 50 GHz), **24 inches**

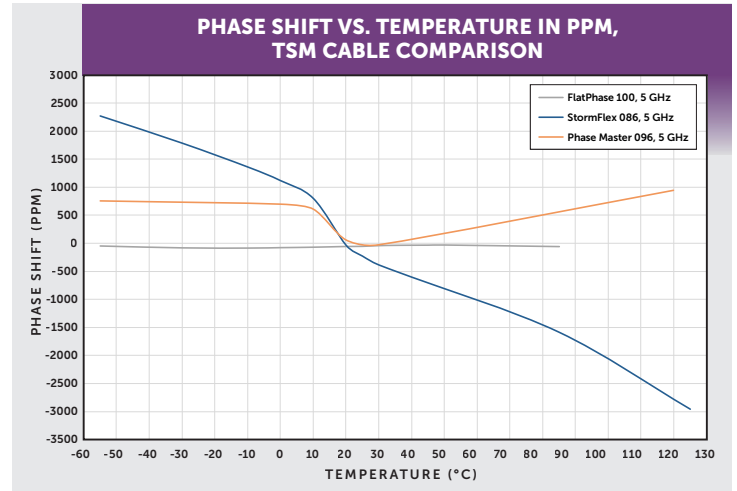
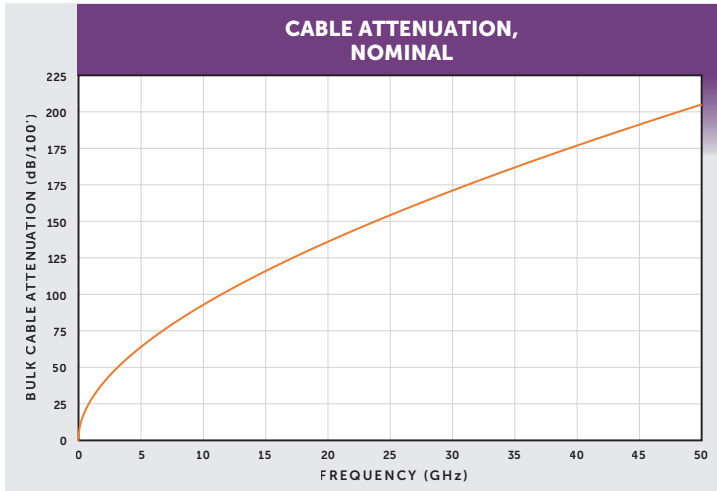
Please consult Teledyne Storm Microwave for other available connector styles.

## FLATPHASE™ CABLE CONSTRUCTION



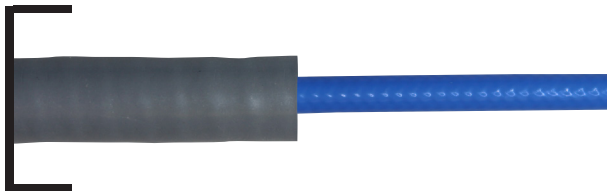
- A** Silver-plated copper center conductor
- B** Foamed fluoropolymer
- C** Helically wrapped SPC flat wire shield
- D** Silver-plated copper round wire braid
- E** Extruded blue FEP jacket

### FLATPHASE™ COMPARATIVE DATA ANALYSIS



### ARMORING OPTION FOR FLATPHASE™ 100

#### ARMORED – Silicone Jacket Armoring Designator: A



Design for both inside and outside environments where the application requires more cut and crush resistance. This armor option is extremely flexible and light while still providing protection. The cable is covered with a stainless steel flat wire spiral, fiberglass braid, and silicone jacket.

Temperature: -55° C thru +125° C

**Diameter: FlatPhase™ 100 –0.276"/7.00 mm**