

Ultra Low Loss, Triple Shielded, DC~18 GHz Pre-Connectorized Cable Sets, HF18G Series

- Ultra Low Loss 0.25 dB/feet @18GHz
- Phase Stable with temperature
- Triple-Shielded, better than -90dB shielding

APPLICATIONS

- Radars, EW Systems for lowest loss and phase stability.
- Conform to airborne needs of temp. cycling, vibration etc.
- Applications needing ultra phase stable cables
- Test cables for Hi-Vacuum chambers

FEATURES

- Ultra Low Loss in DC~18 GHz range (much lower loss than solid PTFE dielectric cable)
- Loss, VSWR & Phase are stable with bending
- High temperature dielectric & jacketing for harsh environment application (up to + 150°C)
- Superior Shielding Effectiveness over -90 dB



EQUIVALENT TO: Semflex LA290
H&S Sucoflex 106 • Radiall SHF8M

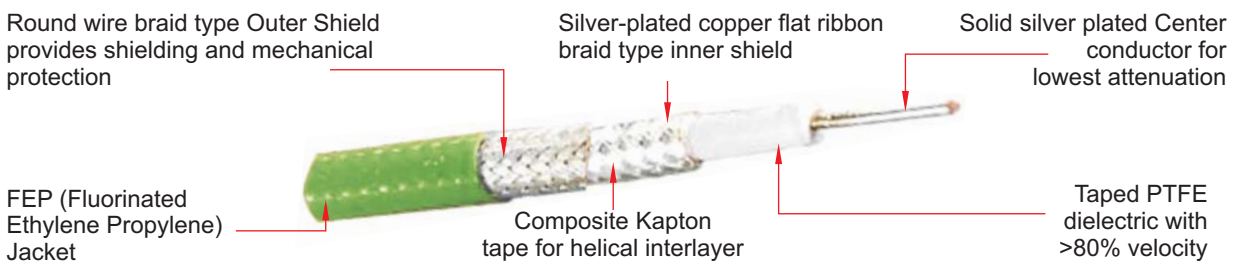
Physical and Mechanical Specifications

Dimensions	inches	mm
Jacket	0.228	7.62
Min. Bending Radius	1.5	38.2
Weight	0.113 Kg/m	
Temperature Range	-55° ~ + 150°C	
Electrical Specifications		
Impedance	50 ohms	
Velocity of Propagation	> 83 %	
Shielding Effectiveness	better than -90dB	
Capacitance	23.9 pF/foot	
Cut-off Frequency	18 GHz	

Attenuation and Power Handling Data

Frequency	Insertion Loss		Av Power Watts
	dB/100ft	dB/100m	
500 MHz	3.7	12.1	2400
1 GHz	5.2	17.0	1700
2 GHz	7.5	24.5	1200
4 GHz	10.7	35.1	820
8 GHz	13.2	44.1	500
12 GHz	16.5	55.4	450
18 GHz	20.4	68.1	330

Imported Ultra Low Loss, Triple Shielded Hi-Power Cable details



Ordering Codes Description

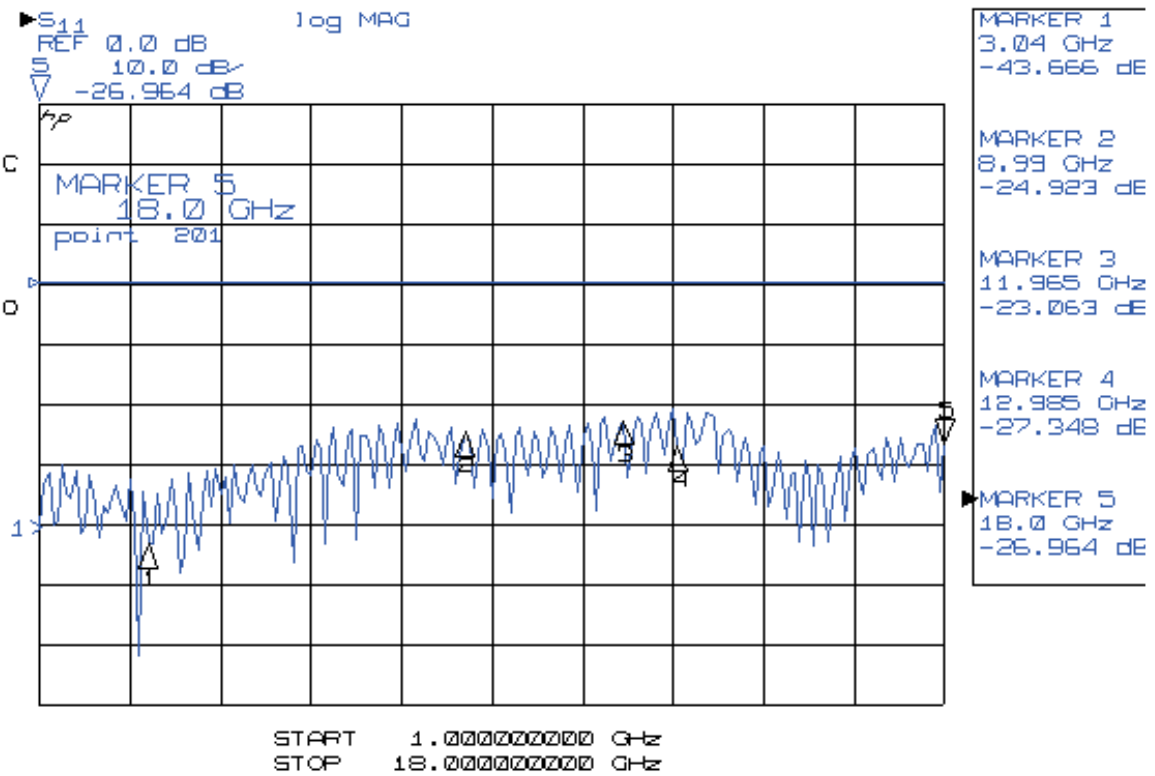
HF18G - (Length) (Connector 1) (Connector 2)
 □ □ - □ (□ / □) - □ (□ / □) - □
L L 1 2 3 1 2 3 U

L L	Length	0.5 = 0.5 ; 1 = 1.0 ; 2 = 2.0
1	Connector Series	SMA = SMA
2	Male/Female Designator	M = Male
3	Orientation of Connector	ST = Straight
U	Unit of Length	M = Meter ; F = Feet ; I = Inch

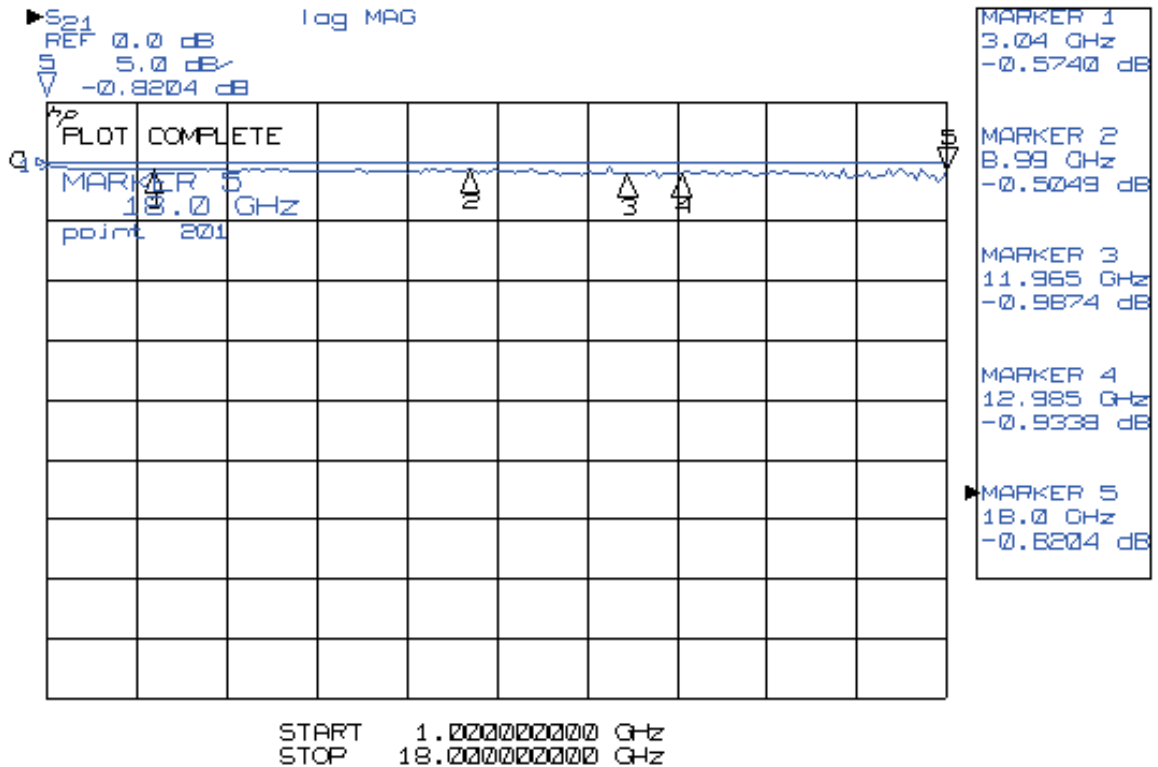
1 meter cable set with SMA (Male) on both sides = HF18G-1.0-SMA(M/ST)-SMA(M/ST)-M

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S11 Plot of 1m HF18G Pre-connectorized cable set with SMA(M) on both sides



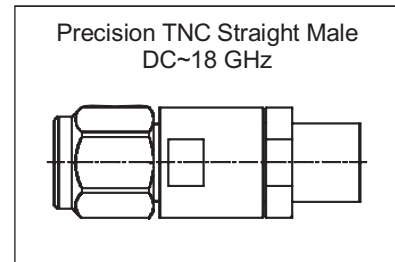
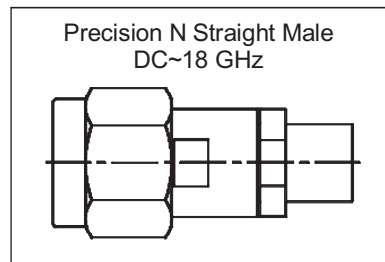
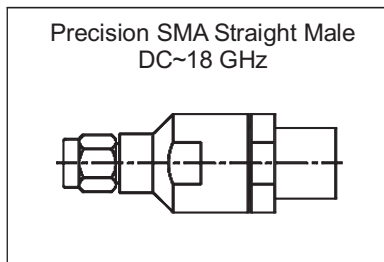
S21 Plot of 1m HF18G Pre-connectorized cable set with SMA(M) on both sides



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Connectors for Ultra Low Loss & Phase Stable Cable Assemblies



Connectors Specifications

Specifications	SMA Connectors	N Connectors	TNC Connectors
Outer Conductor	Stainless Steel, Passivated	Stainless Steel, Passivated	Stainless Steel, Passivated
Center Conductor	BeCu, Gold Plated	BeCu, Gold Plated	BeCu, Gold Plated
Insulation	PTFE	PTFE	PTFE
Gaskets	Silicone Rubber	Silicone Rubber	Silicone Rubber
Nominal Impedance	50Ω	50Ω	50Ω
Frequency range	DC~18 GHz	DC~18 GHz	DC~18 GHz
Mating & Unmating	500 Operations min	500 Operations min	500 Operations min
Vibration	As per MIL-STD202, method 204, test condition D		
Mechanical Shock	As per MIL-STD202, method 213, test condition I		
Thermal Shock	As per MIL-STD202, method 107, test condition B		
Corrosion	As per MIL-STD202, method 101, test condition B		
Humidity	As per MIL-STD202, method 106		
Temperature Cycle	As per MIL-STD202, method 102A, test condition C		

Cable Set Ordering Codes (Other lengths and Connectors are available on request)

Ordering Code	Length	Insertion Loss (dB) Typical						
		1.5 GHz	3 GHz	6 GHz	9 GHz	12 GHz	13.5 GHz	18 GHz
SMA (Male) Straight - SMA (Male) Straight (DC to 18 GHz)								
HF18G-1.0-SMA(M/ST)-SMA(M/ST)-M	1m	0.28	0.40	0.57	0.72	0.81	0.88	1.03
HF18G-2.0-SMA(M/ST)-SMA(M/ST)-M	2m	0.46	0.67	0.97	1.21	1.39	1.50	1.76
HF18G-5.0-SMA(M/ST)-SMA(M/ST)-M	5m	1.02	1.50	2.16	2.70	3.10	3.34	3.94
N (Male) Straight - N (Male) Straight (DC to 18 GHz)								
HF18G-1.0-N(M/ST)-N(M/ST)-M	1m	0.31	0.43	0.60	0.75	0.84	0.91	1.06
HF18G-2.0-N(M/ST)-N(M/ST)-M	2m	0.49	0.70	1.00	1.24	1.42	1.53	1.79
HF18G-5.0-N(M/ST)-N(M/ST)-M	5m	1.05	1.53	2.19	2.73	3.13	3.37	3.97
TNC (Male) Straight - TNC (Male) Straight (DC to 18 GHz)								
HF18G-1.0-TNC(M/ST)-TNC(M/ST)-M	1m	0.33	0.48	0.62	0.77	0.86	0.93	1.08
HF18G-2.0-TNC(M/ST)-TNC(M/ST)-M	2m	0.52	0.73	1.02	1.26	1.44	1.55	1.81
HF18G-5.0-TNC(M/ST)-TNC(M/ST)-M	5m	1.07	1.55	2.21	2.75	3.15	3.39	4.00

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Specifications for Ultra Low Loss, Triple Shielded Pre-Connectorized Cable Sets, DC~18 GHz

Length Connector 1 Connector 2

- Should be flexible and routable.
- Cable should conform to MIL-C-17; Connectors should conform to MIL-PRF-39012.

Cable Specifications

- Impedance : 50 ohms
- Frequency : DC~18 GHz
- Velocity of Propagation : $\geq 80\%$
- Shielding Effectiveness : better than -90 dB
- Power Handling : > 1200 Watts Average @ 2 GHz
> 500 Watts Average @ 10 GHz
> 360 Watts Average @ 18 GHz
- Insertion Loss : < 0.08 dB/feet @ 2 GHz
< 0.18 dB/feet @ 10 GHz
< 0.25 dB/feet @ 18 GHz
- VSWR : < 1.35 @ (DC~11 GHz, for straight connectors)
< 1.40 @ (11~18 GHz, for straight connectors)
- Inner Conductor : Solid Silver Plated Copper
- Dielectric : Taped PTFE
- Inner Shield : Flat Silver Plated Copper Strip
- Outer Shield : Silver-Plated Copper round Braid
- Jacket : Fluorinated Ethylene Propylene (FEP)
- Overall diameter : ≤ 8.6 mm
- Bend Radius : ≤ 45 mm (1.7 in)
- Temp. Range : -55° ~ + 150°C

Connector Specifications (SMA)

- Outer Conductor : Stainless Steel, Passivated
- Center Conductor : Beryllium Copper, Gold Plated
- Insulation : PTFE
- Frequency Range : DC~18 GHz
- Should meet test conditions of MIL-STD-202 for vibration, mechanical shock, thermal shock, corrosion, humidity, temperature cycling

Connector Specifications (N)

- Outer Conductor : Stainless Steel, Passivated
- Center Conductor : Beryllium Copper, Gold Plated
- Insulation : PTFE
- Frequency Range : DC~18 GHz
- Should meet test conditions of MIL-STD-202 for vibration, mechanical shock, thermal shock, corrosion, humidity, temperature cycling

Connector Specifications (TNC)

- Outer Conductor : Stainless Steel, Passivated
- Center Conductor : Beryllium Copper, Gold Plated
- Insulation : PTFE
- Frequency Range : DC~18 GHz
- Should meet test conditions of MIL-STD-202 for vibration, mechanical shock, thermal shock, corrosion, humidity, temperature cycling