

UTiPHASE™

位相安定型 高周波ケーブルアッセンブリ
UFP088Dシリーズ 0.05GHz ~ 70GHz
UFP205Aシリーズ 0.05GHz ~ 26.5GHz

INTRODUCTION

カーライル社の高周波用フレキシブル同軸ケーブル《UTiFLEX®》は、防衛・宇宙・テストアプリケーションの分野において、長年に亘りその厳しい要求に応え続けてきました。

今回提案する新製品《UTiPHASE™》は、従来の《UTiFLEX®》のすべての特性を有しています。またカーライル独自の誘電体は、PTFEの潜在的な問題点である温度変化による誘電率低下を改善、熱位相安定化を実現しました。

APPLICATIONS

- Commercial and military phased-array radars
- Synthetic aperture radars
- Thermal test sets
- Any RF/microwave system operating at or near room temperature
- Commercial and military aerospace SATCOM and TCAS (Traffic Collision Avoidance System)

Features

Linear thermal phase performance
Naturally ruggedized with sturdy concentric core
Vertically integrated
Typical velocity of propagation 80%
Universally configurable with standard connectors and armor

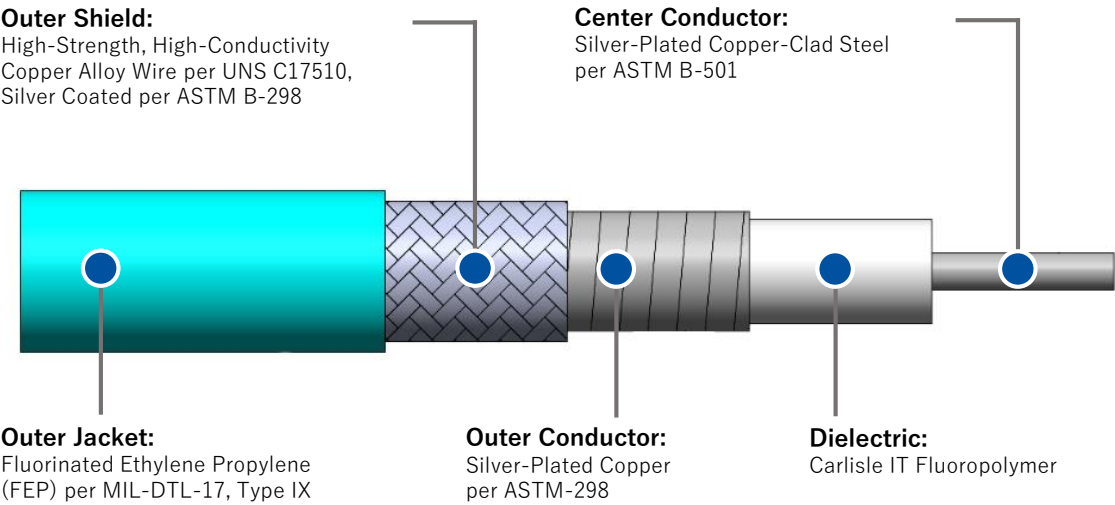
Benefits

• Minimizes system phase variation • Increases accuracy • Eliminates PTFE “knee”
• Improved reliability • Improved crush-resistance
• Controlled fluoropolymer performance • Reliable delivery
• Excellent insertion loss • Drop-in replacement for many competing cables
• Proven UTiFLEX® assembly reliability and performance • Reduced lead-time using existing assembly hardware and techniques



UFP088D シリーズ

Cable Construction



Mechanical / Physical Properties

Temperature Range (° C)	-65 / 165
Center Conductor Diameter [inch(mm)]	0.0201 (0.51)
Dielectric Diameter [inch(mm)]	0.057 (1.45)
Outer Conductor Diameter [inch(mm)]	0.0650 (1.65)
Outer Shield Diameter [inch(mm)]	0.077 (1.96)
Jacket Diameter [inch(mm)]	0.088 (2.24) ± 0.004 (0.10)
Jacket Wall Thickness [inch(mm)]	≥ 0.004 (0.102)
Weight [grams/ft (grams/m)]	≤ 4.5 (14.8)
Min Static Bend Radius [inch(mm)]	0.250 (6.35)
Dynamic Flex Life (Cycles)	1,000
Center Conductor Strands	1

Environmental Properties

Where applicable after each test, the assembly shall show no damage, insertion loss and VSWR shall remain within the specified limits, and connector interface dimensions remain within the specified limits of MIL-PRF-39012.	
Thermal Shock	MIL-STD-202, Method 107, 20 Cycles, -65 to 165 ° C (cable and SMA connectors only)
Stress Crack Resistance	MIL-DTL-17, Paragraph 4.8.17
Cold Bend Test	MIL-DTL-17, Paragraph 4.8.19

UFP088D シリーズ

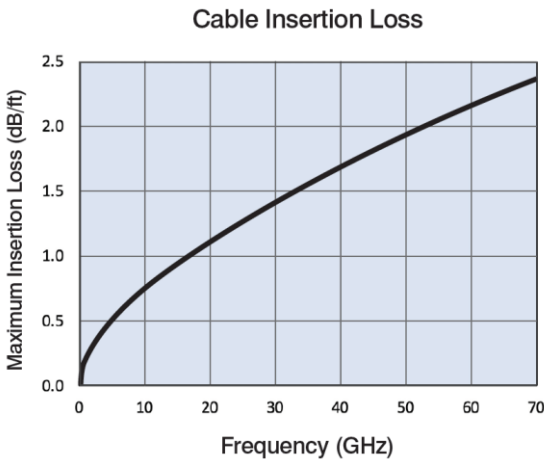
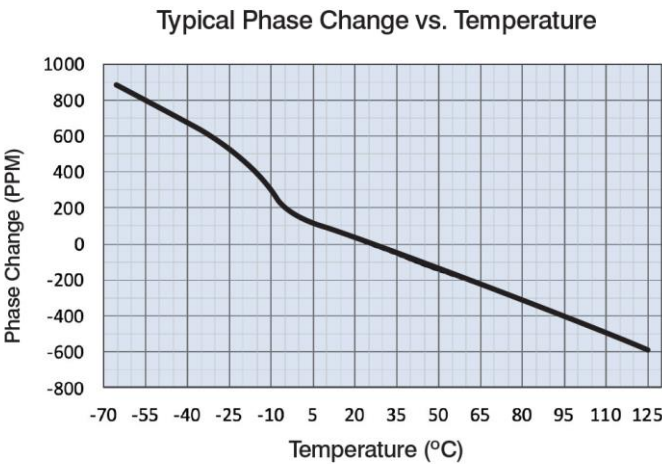
Electrical Properties

Impedance (Ohms)	50
Velocity of Propagation (%)	80
RF Shielding (dB) at 1 GHz	≥ 90
Capacitance [pF/Ft (pf/m)]	25.46 (83.53)
Maximum Frequency (GHz)	70
Corona Extinction Voltage (VRMS @ 60Hz)	1500
Dielectric Withstanding Voltage (VRMS @ 60Hz)	5000
Insertion Loss Stability (% Change)	≤ 5
K1 for Ft(m) : K2 for Ft(m)	21.02 (0.689) : 0.87 (0.029)

Maximum Attenuation and VSWR, at 20° C and Sea Level

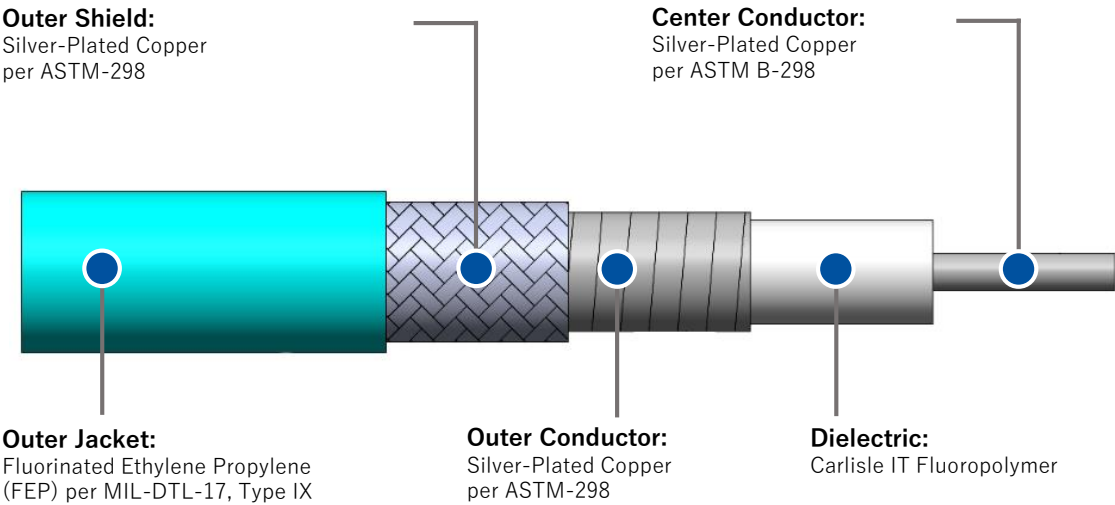
Frequency (GHz)	Attenuation [dB/100ft (dB/m)]	VSWR
1	22 (0.72)	≤ 1.25:1
10	76 (2.49)	≤ 1.25:1
26.5	132 (4.33)	≤ 1.25:1
40	168 (5.51)	≤ 1.25:1
60	216 (7.09)	≤ 1.25:1
70	237 (7.78)	≤ 1.35:1

Electrical Performance



UFP205A シリーズ

Cable Construction



Mechanical / Physical Properties

Temperature Range (° C)	-65 / 125
Center Conductor Diameter [inch(mm)]	0.0571 (1.45)
Dielectric Diameter [inch(mm)]	0.155 (3.49)
Outer Conductor Diameter [inch(mm)]	0.1630 (4.14)
Outer Shield Diameter [inch(mm)]	0.179 (4.55)
Jacket Diameter [inch(mm)]	0.205 (5.21) ± 0.005 (0.13)
Jacket Wall Thickness [inch(mm)]	≥ 0.008 (0.203)
Weight [grams/ft (grams/m)]	≤ 20.6 (67.6)
Min Static Bend Radius [inch(mm)]	0.500 (12.70)
Center Conductor Strands	1

Environmental Properties

Where applicable after each test, the assembly shall show no damage, insertion loss and VSWR shall remain within the specified limits, and connector interface dimensions remain within the specified limits of MIL-PRF-39012.	
Thermal Shock	MIL-STD-202, Method 107, 20 Cycles, -65 to 125 ° C (cable and SMA connectors only)
Stress Crack Resistance	MIL-DTL-17, Paragraph 4.8.17, except at 125° C
Cold Bend Test	MIL-DTL-17, Paragraph 4.8.19

UFP205A シリーズ

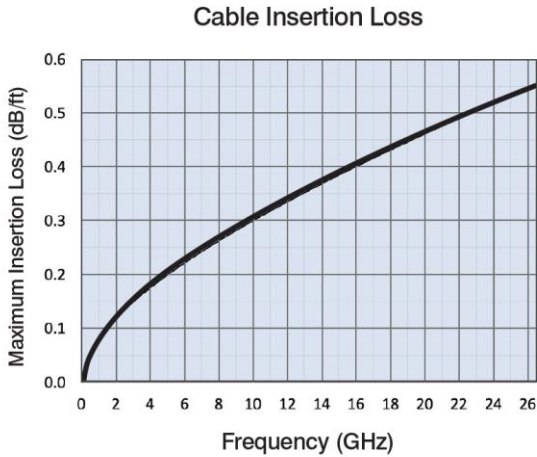
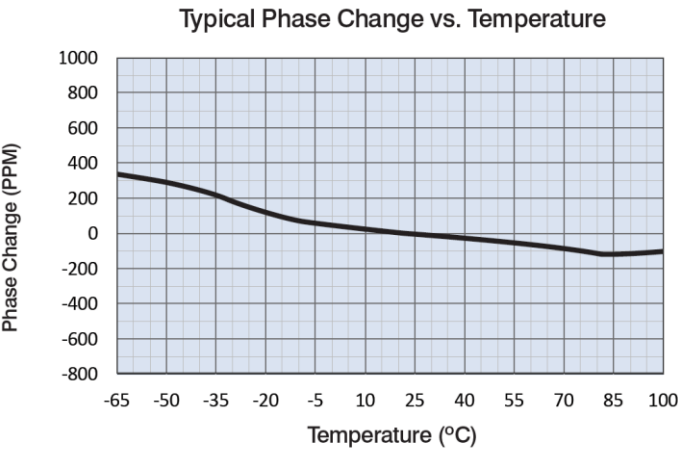
Electrical Properties

Impedance (Ohms)	50
Velocity of Propagation (%)	83.5
RF Shielding (dB) at 1 GHz	≥ 100
Capacitance [pF/Ft (pf/m)]	24.39 (80.03)
Maximum Frequency (GHz)	26.5
Corona Extinction Voltage (VRMS @ 60Hz)	2000
Dielectric Withstanding Voltage (VRMS @ 60Hz)	5000
Insertion Loss Stability (% Change)	≤ 5
K1 for Ft(m) : K2 for Ft(m)	7.52 (0.246) : 0.63 (0.021)

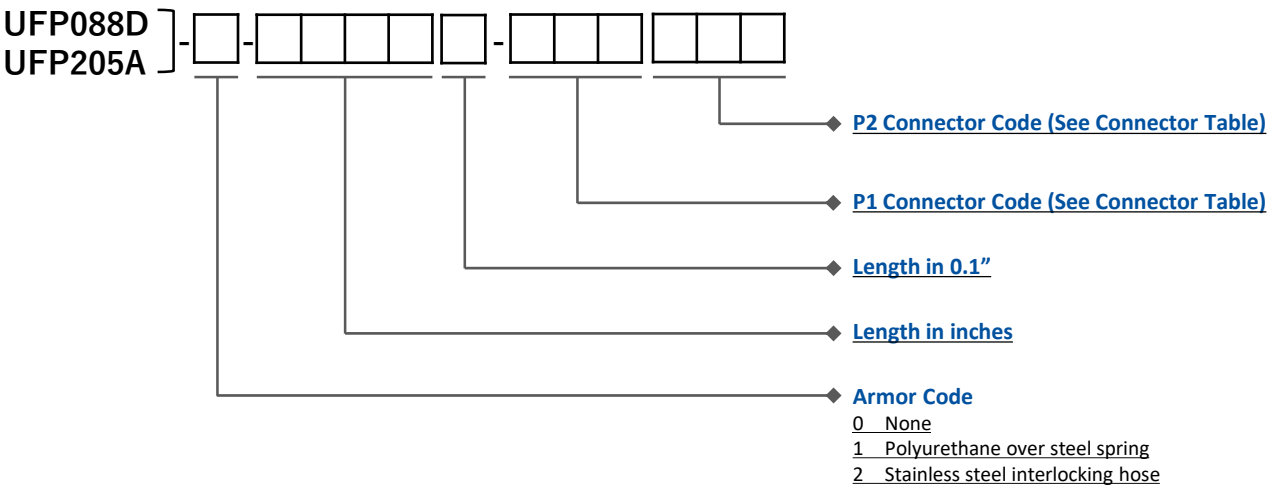
Maximum Attenuation and VSWR, at 20° C and Sea Level

Frequency (GHz)	Attenuation [dB/100ft (dB/m)]	VSWR
0.5	6 (0.20)	≤ 1.20:1
1	9 (0.30)	≤ 1.20:1
5	20 (0.66)	≤ 1.20:1
10	31 (1.02)	≤ 1.20:1
18	44 (1.44)	≤ 1.20:1
26.5	56 (1.84)	≤ 1.25:1

Electrical Performance



Part Numbering Key



参考例：
UFP088D-0-0197-300310 (UFP088D cable assembly, no armor, 19.7" in length, SMA plug by SMA jack)
UFP205A-0-0360-30050U (UFP205A cable assembly, no armor, 36" in length, SMA plug by PN Plug)

Connector Options 《UFP088D》

Series	Max Frequency	Types (CODES)
SMA	18 GHz	Plug (300), Jack (310), Right-Angle Plug (380), Bulkhead Jack (320)
SMP	40 GHz	Jack (F10), Bulkhead Plug (F3M), Bulkhead Jack (F90)
SSMA	40 GHz	Plug (G00), Right-Angle Plug (G80)
1.85 mm	70 GHz	Plug (C00), Bulkhead Jack (C20)
2.4 mm	50 GHz	Plug (100)
2.92 mm	40 GHz	Plug (200)
SMPPM	65 GHz	Right-Angle Jack (Q90)

Connector Options 《UFP205A》

Series	Max Frequency	Types (CODES)
SMA	18 GHz	Plug (300), Jack (310), Right-Angle Plug (380), Bulkhead Jack (320)
PN	18 GHz	Plug hex/knurl (50U), Jack (510), Bulkhead Jack (520), 4-Hole Flange Jack (550)
N	12.4 GHz	Plug hex/knurl (70U), Jack (710)
PC 3.5 mm	26.5 GHz	Plug (000), Jack (010)
PTNC	18 GHz	Plug hex/knurl (60U), Jack (610)
PC 7 mm	18 GHz	Universal (400)
BNC	6 GHz	Plug (804)