

# L2-PTMTM-20M-HF

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LDF2-50 SureFlex® Jumper with interface types TNC Male and TNC Male, 20M



## Product Classification

<b>Product Type</b>	Wireless transmission cable assembly
<b>Product Brand</b>	HELIAX®
<b>Product Series</b>	LDF2-50

## General Specifications

<b>Body Style, Connector A</b>	Straight
<b>Body Style, Connector B</b>	Straight
<b>Interface, Connector A</b>	TNC Male
<b>Interface, Connector B</b>	TNC Male
<b>Specification Sheet Revision Level</b>	A

## Dimensions

<b>Length</b>	20 m   65.617 ft
<b>Nominal Size</b>	3/8 in

## VSWR/Return Loss

Frequency Band	VSWR	Return Loss (dB)
1000–11000 MHz	1.93	10

## Jumper Assembly Sample Label

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## Environmental Specifications

**Immersion Test Method** Meets IEC 60529:2001, IP68 in mated condition

## Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system

## Included Products

- 35422-23 – Heat Treated LDF2-50, HELIAX® Low Density Foam Coaxial Cable, corrugated copper, 3/8 in, black PE jacket
- L2TTM-PL – TNC Male Positive Lock for 3/8 in LDF2-50 cable
- LDF2-50 – LDF2-50, HELIAX® Low Density Foam Coaxial Cable, corrugated copper, 3/8 in, black PE jacket

Heat Treated LDF2-50, HELIAX® Low Density Foam Coaxial Cable, corrugated copper, 3/8 in, black PE jacket



## Product Classification

<b>Product Type</b>	Coaxial wireless cable
<b>Product Brand</b>	HELIAX®   SureFlex®
<b>Product Series</b>	LDF2-50

## General Specifications

<b>Flexibility</b>	Standard
<b>Jacket Color</b>	Black
<b>Performance Note</b>	Attenuation values typical, guaranteed within 5%

## Dimensions

<b>Diameter Over Dielectric</b>	8.636 mm   0.34 in
<b>Diameter Over Jacket</b>	11.176 mm   0.44 in
<b>Inner Conductor OD</b>	3.048 mm   0.12 in
<b>Outer Conductor OD</b>	9.652 mm   0.38 in
<b>Nominal Size</b>	3/8 in

## Electrical Specifications

<b>Cable Impedance</b>	50 ohm ±1 ohm
<b>Capacitance</b>	75.5 pF/m   23.012 pF/ft
<b>dc Resistance, Inner Conductor</b>	3.478 ohms/km   1.06 ohms/kft
<b>dc Resistance, Outer Conductor</b>	2.854 ohms/km   0.87 ohms/kft
<b>dc Test Voltage</b>	2500 V
<b>Inductance</b>	0.19 µH/m   0.058 µH/ft
<b>Insulation Resistance</b>	100000 MOhms-km

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<b>Jacket Spark Test Voltage (rms)</b>	5000 V
<b>Operating Frequency Band</b>	1 – 13000 MHz
<b>Peak Power</b>	15.6 kW
<b>Velocity</b>	85 %

## Attenuation

<b>Frequency (MHz)</b>	<b>Attenuation (dB/100 m)</b>	<b>Attenuation (dB/100 ft)</b>	<b>Average Power (kW)</b>
1.0	0.332	0.101	15.6
1.5	0.407	0.124	15.6
2.0	0.471	0.143	15.6
10.0	1.059	0.323	7.28
20.0	1.503	0.458	5.13
30.0	1.847	0.563	4.17
50.0	2.397	0.73	3.22
85.0	3.146	0.959	2.45
88.0	3.203	0.976	2.41
100.0	3.421	1.043	2.25
108.0	3.559	1.085	2.17
150.0	4.219	1.286	1.83
174.0	4.558	1.389	1.69
200.0	4.901	1.494	1.57
204.0	4.952	1.509	1.56
300.0	6.062	1.847	1.27
400.0	7.057	2.151	1.09
450.0	7.513	2.29	1.03
460.0	7.601	2.317	1.01
500.0	7.947	2.422	0.97
512.0	8.048	2.453	0.96
600.0	8.761	2.67	0.88
700.0	9.519	2.901	0.81
800.0	10.232	3.119	0.75
824.0	10.398	3.169	0.74
894.0	10.869	3.313	0.71
960.0	11.299	3.444	0.68
1000.0	11.554	3.521	0.67

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<b>1218.0</b>	12.874	3.924	0.6
<b>1250.0</b>	13.059	3.98	0.59
<b>1500.0</b>	14.446	4.403	0.53
<b>1700.0</b>	15.49	4.721	0.5
<b>1794.0</b>	15.964	4.866	0.48
<b>1800.0</b>	15.994	4.875	0.48
<b>2000.0</b>	16.97	5.172	0.45
<b>2100.0</b>	17.443	5.316	0.44
<b>2200.0</b>	17.908	5.458	0.43
<b>2300.0</b>	18.365	5.597	0.42
<b>2500.0</b>	19.257	5.869	0.4
<b>2700.0</b>	20.122	6.133	0.38
<b>3000.0</b>	21.376	6.515	0.36
<b>3400.0</b>	22.978	7.003	0.34
<b>3600.0</b>	23.754	7.24	0.32
<b>3700.0</b>	24.136	7.356	0.32
<b>3800.0</b>	24.514	7.471	0.31
<b>3900.0</b>	24.888	7.586	0.31
<b>4000.0</b>	25.26	7.699	0.31
<b>4100.0</b>	25.627	7.811	0.3
<b>4200.0</b>	25.992	7.922	0.3
<b>4300.0</b>	26.354	8.032	0.29
<b>4400.0</b>	26.713	8.142	0.29
<b>4500.0</b>	27.069	8.25	0.28
<b>4600.0</b>	27.422	8.358	0.28
<b>4700.0</b>	27.773	8.465	0.28
<b>4800.0</b>	28.12	8.571	0.27
<b>4900.0</b>	28.466	8.676	0.27
<b>5000.0</b>	28.809	8.781	0.27
<b>6000.0</b>	32.121	9.79	0.24
<b>8000.0</b>	38.244	11.656	0.2
<b>8800.0</b>	40.551	12.359	0.19
<b>10000.0</b>	43.894	13.378	0.18
<b>12000.0</b>	49.209	14.998	0.16

## Material Specifications

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<b>Dielectric Material</b>	Foam PE
<b>Jacket Material</b>	PE
<b>Inner Conductor Material</b>	Copper-clad aluminum wire
<b>Outer Conductor Material</b>	Corrugated copper

## Mechanical Specifications

<b>Minimum Bend Radius, multiple Bends</b>	95.25 mm   3.75 in
<b>Minimum Bend Radius, single Bend</b>	40.64 mm   1.6 in
<b>Number of Bends, minimum</b>	15
<b>Number of Bends, typical</b>	50
<b>Tensile Strength</b>	113 kg   249.122 lb
<b>Bending Moment</b>	1.9 N-m   16.816 in lb
<b>Flat Plate Crush Strength</b>	2 kg/mm   111.995 lb/in

## Environmental Specifications

<b>Installation temperature</b>	-40 °C to +60 °C (-40 °F to +140 °F)
<b>Operating Temperature</b>	-55 °C to +85 °C (-67 °F to +185 °F)
<b>Storage Temperature</b>	-70 °C to +85 °C (-94 °F to +185 °F)
<b>Attenuation, Ambient Temperature</b>	68 °F   20 °C
<b>Average Power, Ambient Temperature</b>	104 °F   40 °C
<b>Average Power, Inner Conductor Temperature</b>	212 °F   100 °C

## Packaging and Weights

<b>Cable weight</b>	0.12 kg/m   0.081 lb/ft
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## Regulatory Compliance/Certifications

<b>Agency</b>	<b>Classification</b>
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system

# L2TTM-PL

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TNC Male Positive Lock for 3/8 in LDF2-50 cable

## Product Classification

<b>Product Type</b>	Wireless and radiating connector
<b>Product Brand</b>	HELIAX®
<b>Product Series</b>	LDF2-50

## General Specifications

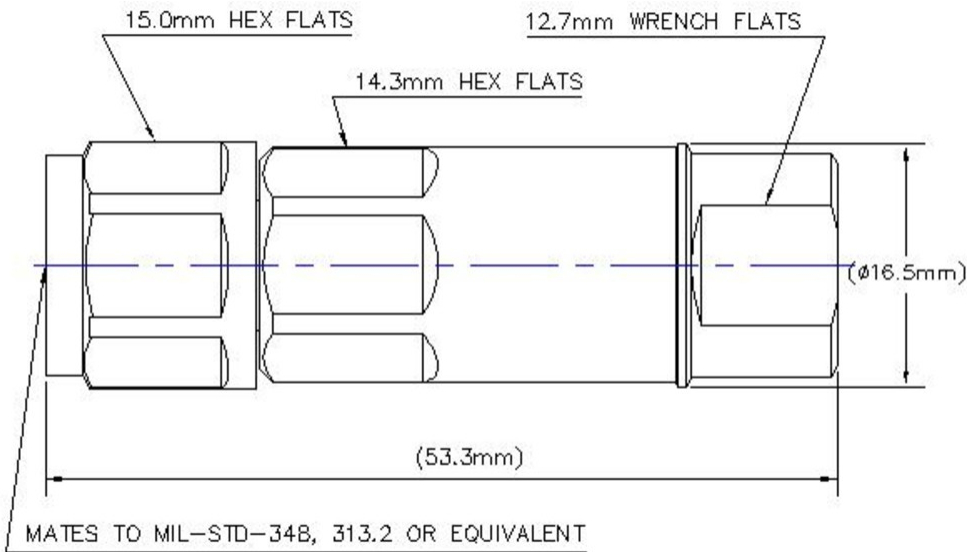
<b>Body Style</b>	Straight
<b>Cable Family</b>	LDF2-50
<b>Inner Contact Attachment Method</b>	Captivated
<b>Inner Contact Plating</b>	Gold
<b>Interface</b>	TNC Male
<b>Mounting Angle</b>	Straight
<b>Outer Contact Attachment Method</b>	Ring-flare
<b>Outer Contact Plating</b>	Trimetal
<b>Pressurizable</b>	No

## Dimensions

<b>Height</b>	16.51 mm   0.65 in
<b>Width</b>	16.51 mm   0.65 in
<b>Length</b>	53.85 mm   2.12 in
<b>Diameter</b>	16.51 mm   0.65 in
<b>Nominal Size</b>	3/8 in

## Outline Drawing

# L2TTM-PL



## Electrical Specifications

<b>3rd Order IMD at Frequency</b>	-107 dBm @ 910 MHz
<b>Insertion Loss Coefficient, typical</b>	0.05
<b>Average Power at Frequency</b>	0.7 kW @ 900 MHz
<b>Cable Impedance</b>	50 ohm
<b>Connector Impedance</b>	50 ohm
<b>dc Test Voltage</b>	1500 V
<b>Inner Contact Resistance, maximum</b>	1.5 mOhm
<b>Insulation Resistance, minimum</b>	5000 MOhm
<b>Operating Frequency Band</b>	0 – 10000 MHz
<b>Outer Contact Resistance, maximum</b>	0.4 mOhm
<b>Peak Power, maximum</b>	5 kW
<b>RF Operating Voltage, maximum (vrms)</b>	500 V
<b>Shielding Effectiveness</b>	-110 dB

## VSWR/Return Loss

Frequency Band	VSWR	Return Loss (dB)
0–960 MHz	1.02	40.09
960–2200 MHz	1.063	30.3



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<b>2200–2700 MHz</b>	1.106	25.96
<b>2700–4000 MHz</b>	1.135	23.98
<b>4000–6000 MHz</b>	1.222	20.01
<b>6000–8000 MHz</b>	1.26	19
<b>8000–10000 MHz</b>	1.38	16

## Mechanical Specifications

<b>Attachment Durability</b>	25 cycles
<b>Connector Retention Tensile Force</b>	671.68 N   151 lbf
<b>Connector Retention Torque</b>	2.7 N-m   23.897 in lb
<b>Coupling Nut Proof Torque</b>	1.7 N-m   15.046 in lb
<b>Coupling Nut Retention Force</b>	445 N   100.04 lbf
<b>Coupling Nut Retention Force Method</b>	MIL-C-39012C-3.25, 4.6.22
<b>Insertion Force</b>	14.99 N   3.37 lbf
<b>Insertion Force Method</b>	IEC 61169-1:15.2.4
<b>Interface Durability</b>	500 cycles
<b>Interface Durability Method</b>	IEC 61169-17:9.5
<b>Mechanical Shock Test Method</b>	IEC 60068-2-27

## Environmental Specifications

<b>Operating Temperature</b>	-55 °C to +85 °C (-67 °F to +185 °F)
<b>Storage Temperature</b>	-65 °C to +125 °C (-85 °F to +257 °F)
<b>Attenuation, Ambient Temperature</b>	20 °C   68 °F
<b>Average Power, Ambient Temperature</b>	40 °C   104 °F
<b>Average Power, Inner Conductor Temperature</b>	100 °C   212 °F
<b>Corrosion Test Method</b>	IEC 60068-2-11
<b>Immersion Depth</b>	1 m
<b>Immersion Test Mating</b>	Mated
<b>Immersion Test Method</b>	IEC 60529:2001, IP68
<b>Moisture Resistance Test Method</b>	IEC 60068-2-3
<b>Thermal Shock Test Method</b>	IEC 60068-2-14
<b>Vibration Test Method</b>	IEC 60068-2-6

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## Packaging and Weights

**Weight, net** 48.84 g | 0.108 lb

## Regulatory Compliance/Certifications

Agency	Classification
CHINA-ROHS	Below maximum concentration value
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system
ROHS	Compliant
UK-ROHS	Compliant



## \* Footnotes

**Insertion Loss Coefficient, typical** 0.05√freq (GHz) (not applicable for elliptical waveguide)

**Immersion Depth** Immersion at specified depth for 24 hours

# LDF2-50

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LDF2-50, HELIAX® Low Density Foam Coaxial Cable, corrugated copper, 3/8 in, black PE jacket



## Product Classification

<b>Product Type</b>	Coaxial wireless cable
<b>Product Brand</b>	HELIAX®   SureFlex®
<b>Product Series</b>	LDF2-50

## General Specifications

<b>Product Number</b>	520098202/00   SZ520098202/00
<b>Flexibility</b>	Standard
<b>Jacket Color</b>	Black
<b>Performance Note</b>	Attenuation values typical, guaranteed within 5%

## Dimensions

<b>Diameter Over Dielectric</b>	8.636 mm   0.34 in
<b>Diameter Over Jacket</b>	11.176 mm   0.44 in
<b>Inner Conductor OD</b>	3.124 mm   0.123 in
<b>Outer Conductor OD</b>	9.652 mm   0.38 in
<b>Nominal Size</b>	3/8 in

## Electrical Specifications

<b>Cable Impedance</b>	50 ohm $\pm$ 1 ohm
<b>Capacitance</b>	75.5 pF/m   23.012 pF/ft
<b>dc Resistance, Inner Conductor</b>	3.478 ohms/km   1.06 ohms/kft
<b>dc Resistance, Outer Conductor</b>	2.854 ohms/km   0.87 ohms/kft
<b>dc Test Voltage</b>	2500 V
<b>Inductance</b>	0.19 $\mu$ H/m   0.058 $\mu$ H/ft

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<b>Insulation Resistance</b>	100000 MOhms-km
<b>Jacket Spark Test Voltage (rms)</b>	5000 V
<b>Operating Frequency Band</b>	1 – 13000 MHz
<b>Peak Power</b>	15.6 kW
<b>Velocity</b>	85 %

## Attenuation

<b>Frequency (MHz)</b>	<b>Attenuation (dB/100 m)</b>	<b>Attenuation (dB/100 ft)</b>	<b>Average Power (kW)</b>
1.0	0.332	0.101	15.6
1.5	0.407	0.124	15.6
2.0	0.471	0.143	15.6
10.0	1.059	0.323	7.28
20.0	1.503	0.458	5.13
30.0	1.847	0.563	4.17
50.0	2.397	0.73	3.22
85.0	3.146	0.959	2.45
88.0	3.203	0.976	2.41
100.0	3.421	1.043	2.25
108.0	3.559	1.085	2.17
150.0	4.219	1.286	1.83
174.0	4.558	1.389	1.69
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204.0	4.952	1.509	1.56
300.0	6.062	1.847	1.27
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450.0	7.513	2.29	1.03
460.0	7.601	2.317	1.01
500.0	7.947	2.422	0.97
512.0	8.048	2.453	0.96
600.0	8.761	2.67	0.88
700.0	9.519	2.901	0.81
800.0	10.232	3.119	0.75
824.0	10.398	3.169	0.74
894.0	10.869	3.313	0.71
960.0	11.299	3.444	0.68

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<b>1000.0</b>	11.554	3.521	0.67
<b>1218.0</b>	12.874	3.924	0.6
<b>1250.0</b>	13.059	3.98	0.59
<b>1500.0</b>	14.446	4.403	0.53
<b>1700.0</b>	15.49	4.721	0.5
<b>1794.0</b>	15.964	4.866	0.48
<b>1800.0</b>	15.994	4.875	0.48
<b>2000.0</b>	16.97	5.172	0.45
<b>2100.0</b>	17.443	5.316	0.44
<b>2200.0</b>	17.908	5.458	0.43
<b>2300.0</b>	18.365	5.597	0.42
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<b>3000.0</b>	21.376	6.515	0.36
<b>3400.0</b>	22.978	7.003	0.34
<b>3600.0</b>	23.754	7.24	0.32
<b>3700.0</b>	24.136	7.356	0.32
<b>3800.0</b>	24.514	7.471	0.31
<b>3900.0</b>	24.888	7.586	0.31
<b>4000.0</b>	25.26	7.699	0.31
<b>4100.0</b>	25.627	7.811	0.3
<b>4200.0</b>	25.992	7.922	0.3
<b>4300.0</b>	26.354	8.032	0.29
<b>4400.0</b>	26.713	8.142	0.29
<b>4500.0</b>	27.069	8.25	0.28
<b>4600.0</b>	27.422	8.358	0.28
<b>4700.0</b>	27.773	8.465	0.28
<b>4800.0</b>	28.12	8.571	0.27
<b>4900.0</b>	28.466	8.676	0.27
<b>5000.0</b>	28.809	8.781	0.27
<b>6000.0</b>	32.121	9.79	0.24
<b>8000.0</b>	38.244	11.656	0.2
<b>8800.0</b>	40.551	12.359	0.19
<b>10000.0</b>	43.894	13.378	0.18
<b>12000.0</b>	49.209	14.998	0.16

# LDF2-50

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## Material Specifications

<b>Dielectric Material</b>	Foam PE
<b>Jacket Material</b>	PE
<b>Inner Conductor Material</b>	Copper-clad aluminum wire
<b>Outer Conductor Material</b>	Corrugated copper

## Mechanical Specifications

<b>Minimum Bend Radius, multiple Bends</b>	95.25 mm   3.75 in
<b>Minimum Bend Radius, single Bend</b>	40.64 mm   1.6 in
<b>Number of Bends, minimum</b>	15
<b>Number of Bends, typical</b>	50
<b>Tensile Strength</b>	113 kg   249.122 lb
<b>Bending Moment</b>	1.9 N-m   16.816 in lb
<b>Flat Plate Crush Strength</b>	2 kg/mm   111.995 lb/in

## Environmental Specifications

<b>Installation temperature</b>	-40 °C to +60 °C (-40 °F to +140 °F)
<b>Operating Temperature</b>	-55 °C to +85 °C (-67 °F to +185 °F)
<b>Storage Temperature</b>	-70 °C to +85 °C (-94 °F to +185 °F)
<b>Attenuation, Ambient Temperature</b>	68 °F   20 °C
<b>Average Power, Ambient Temperature</b>	104 °F   40 °C
<b>Average Power, Inner Conductor Temperature</b>	212 °F   100 °C

## Packaging and Weights

<b>Cable weight</b>	0.12 kg/m   0.081 lb/ft
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## Regulatory Compliance/Certifications

<b>Agency</b>	<b>Classification</b>
CHINA-ROHS	Below maximum concentration value
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system
REACH-SVHC	Compliant as per SVHC revision on <a href="http://www.commscope.com/ProductCompliance">www.commscope.com/ProductCompliance</a>
ROHS	Compliant
UK-ROHS	Compliant

