L1B-PNMNR-2M

LDF1-50 SureFlex® Jumper with interface types N Male and N Male Right Angle, 2 m

Product Classification

Product Type	Wireless transmission cable assembly
Product Brand	HELIAX® | SureFlex®
Product Series	LDF1-50

General Specifications

Attachment, Connector B	Field attachment
Body Style, Connector A	Straight
Body Style, Connector B	Right angle
Interface, Connector A	N Male
Interface, Connector B	N Male
Specification Sheet Revision Level	A

Dimensions

Length	2 m | 6.562 ft
Nominal Size	1/4 in

VSWR/Return Loss

Frequency Band	VSWR	Return Loss (dB)
700–3000 MHz	1.288	18

Jumper Assembly Sample Label

L1B-PNMNR-2M

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

35422-50	–	Heat Treated LDF1-50, HELIAX® Low Density Foam Coaxial Cable, corrugated copper, 1/4 in, black PE jacket
L1TNR-PL	–	Type N Male Right Angle Positive Lock for 1/4 in LDF1-50 cable
LDF1-50	–	LDF1-50, HELIAX® Low Density Foam Coaxial Cable, corrugated copper, 1/4 in, black PE jacket
LDF1-50-43	–	LDF1-50, HELIAX® Low Density Foam Coaxial Cable, corrugated copper, 1/4 in, black PE jacket

35422-50

Heat Treated LDF1-50, HELIAX® Low Density Foam Coaxial Cable, corrugated copper, 1/4 in, black PE jacket

Product Classification

Product Type	Coaxial wireless cable
Product Brand	HELIAX®
Product Series	LDF1-50

General Specifications

Flexibility	Standard
Jacket Color	Black
Performance Note	Attenuation values typical, guaranteed within 5%

Dimensions

Diameter Over Dielectric	6.858 mm | 0.27 in
Diameter Over Jacket	8.763 mm | 0.345 in
Inner Conductor OD	2.54 mm | 0.1 in
Outer Conductor OD	7.874 mm | 0.31 in
Nominal Size	1/4 in

Electrical Specifications

Cable Impedance	50 ohm ±1 ohm
Capacitance	76.8 pF/m | 23.409 pF/ft
dc Resistance, Inner Conductor	5.151 ohms/km | 1.57 ohms/kft
dc Resistance, Outer Conductor	4.003 ohms/km | 1.22 ohms/kft
dc Test Voltage	2200 V
Inductance	0.194 µH/m | 0.059 µH/ft
Insulation Resistance	100000 MOhms-km
Jacket Spark Test Voltage (rms)	5000 V
Operating Frequency Band	1 – 15800 MHz
Peak Power	12.1 kW

Velocity	86 %

VSWR/Return Loss

Frequency Band	VSWR	Return Loss (dB)
806–960 MHz	1.15	23.13
1700–2000 MHz	1.15	23.13

Attenuation

Frequency (MHz)	Attenuation (dB/100 m)	Attenuation (dB/100 ft)	Average Power (kW)
1.0	0.394	0.12	12.1
1.5	0.483	0.147	12.1
2.0	0.558	0.17	12.1
10.0	1.254	0.382	5.83
20.0	1.781	0.543	4.11
30.0	2.188	0.667	3.34
50.0	2.838	0.865	2.58
85.0	3.724	1.135	1.96
88.0	3.791	1.156	1.93
100.0	4.049	1.234	1.81
108.0	4.213	1.284	1.74
150.0	4.993	1.522	1.47
174.0	5.392	1.644	1.36
200.0	5.798	1.767	1.26
204.0	5.858	1.785	1.25
300.0	7.168	2.185	1.02
400.0	8.342	2.543	0.88
450.0	8.88	2.706	0.82
460.0	8.984	2.738	0.81
500.0	9.391	2.862	0.78
512.0	9.511	2.899	0.77
600.0	10.351	3.155	0.71
700.0	11.244	3.427	0.65
800.0	12.084	3.683	0.61
824.0	12.278	3.742	0.6
894.0	12.833	3.911	0.57

960.0	13.339	4.066	0.55
1000.0	13.639	4.157	0.54
1218.0	15.192	4.63	0.48
1250.0	15.41	4.697	0.47
1500.0	17.04	5.194	0.43
1700.0	18.266	5.567	0.4
1794.0	18.823	5.737	0.39
1800.0	18.858	5.748	0.39
2000.0	20.003	6.097	0.37
2100.0	20.559	6.266	0.36
2200.0	21.104	6.432	0.35
2300.0	21.64	6.596	0.34
2500.0	22.686	6.914	0.32
2700.0	23.701	7.224	0.31
3000.0	25.171	7.672	0.29
3400.0	27.048	8.244	0.27
3600.0	27.956	8.521	0.26
3700.0	28.403	8.657	0.26
3800.0	28.846	8.792	0.25
3900.0	29.284	8.925	0.25
4000.0	29.719	9.058	0.25
4100.0	30.149	9.189	0.24
4200.0	30.576	9.319	0.24
4300.0	30.999	9.448	0.24
4400.0	31.419	9.576	0.23
4500.0	31.835	9.703	0.23
4600.0	32.249	9.829	0.23
4700.0	32.659	9.954	0.22
4800.0	33.066	10.078	0.22
4900.0	33.47	10.201	0.22
5000.0	33.871	10.323	0.22
6000.0	37.742	11.503	0.19
8000.0	44.888	13.681	0.16
8800.0	47.579	14.501	0.15
10000.0	51.475	15.689	0.14

12000.0	57.664	17.575	0.13
14000.0	63.552	19.37	0.12
15800.0	68.646	20.922	0.11

Material Specifications

Dielectric Material	Foam PE
Jacket Material	PE
Inner Conductor Material	Copper-clad aluminum wire
Outer Conductor Material	Corrugated copper

Mechanical Specifications

Minimum Bend Radius, multiple Bends	76.2 mm | 3 in
Minimum Bend Radius, single Bend	38.1 mm | 1.5 in
Number of Bends, minimum	15
Number of Bends, typical	30
Tensile Strength	91 kg | 200.62 lb
Bending Moment	1.4 N-m | 12.391 in lb
Flat Plate Crush Strength	1.4 kg/mm | 78.396 lb/in

Environmental Specifications

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

Packaging and Weights

Cable weight	0.09 kg/m | 0.06 lb/ft

Regulatory Compliance/Certifications

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

L1TNR-PL

Type N Male Right Angle Positive Lock for 1/4 in LDF1-50 cable

Product Classification

Product Type	Wireless and radiating connector
Product Brand	HELIAX®
Product Series	LDF1-50

General Specifications

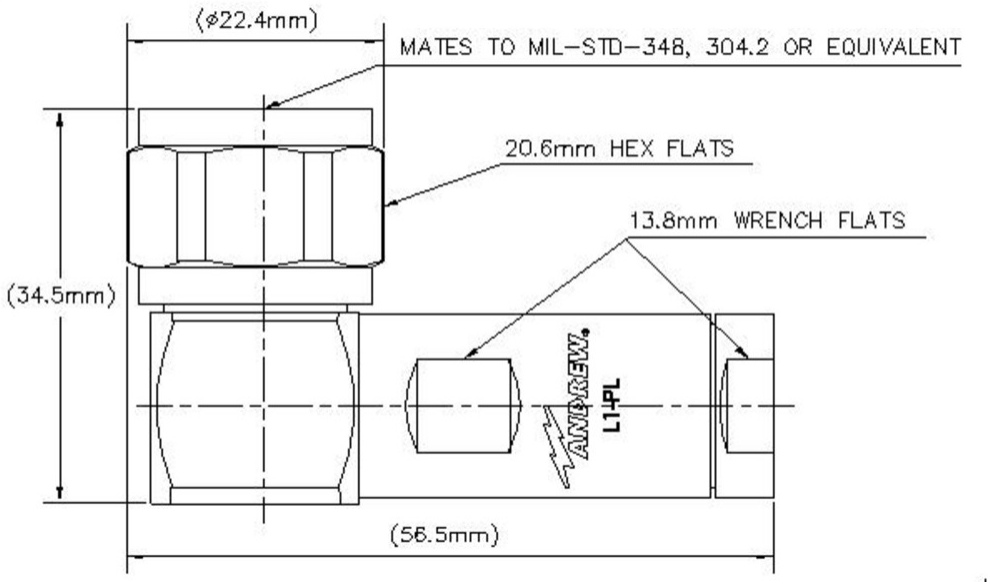
Body Style	Right angle
Cable Family	LDF1-50
Inner Contact Attachment Method	Captivated
Inner Contact Plating	Silver
Interface	N Male
Mounting Angle	Right angle
Outer Contact Attachment Method	Self-flare
Outer Contact Plating	Trimetal
Pressurizable	No

Dimensions

Height	34.54 mm | 1.36 in
Width	22.35 mm | 0.88 in
Length	56.39 mm | 2.22 in
Right Angle Length	34.54 mm | 1.36 in
Diameter	22.35 mm | 0.88 in
Nominal Size	1/4 in

Outline Drawing

L1TNR-PL



Electrical Specifications

3rd Order IMD at Frequency	-107 dBm @ 910 MHz
3rd Order IMD Test Method	Two +43 dBm carriers
Insertion Loss Coefficient, typical	0.05
Average Power at Frequency	0.6 kW @ 900 MHz
Cable Impedance	50 ohm
Connector Impedance	50 ohm
dc Test Voltage	2200 V
Inner Contact Resistance, maximum	1 mOhm
Insulation Resistance, minimum	5000 MOhm
Operating Frequency Band	0 – 6000 MHz
Outer Contact Resistance, maximum	0.25 mOhm
Peak Power, maximum	10 kW
RF Operating Voltage, maximum (vrms)	707 V
Shielding Effectiveness	-110 dB

VSWR/Return Loss

Frequency Band	VSWR	Return Loss (dB)
45–920 MHz	1.041	33.94

920–2700 MHz	1.041	33.94
2600–4000 MHz	1.065	30.04
4000–6000 MHz	1.065	30.04

Mechanical Specifications

Attachment Durability	25 cycles
Connector Retention Tensile Force	449.27 N | 101 lbf
Coupling Nut Proof Torque	1.7 N-m | 15.046 in lb
Coupling Nut Retention Force	449.98 N | 101.16 lbf
Coupling Nut Retention Force Method	MIL-C-39012C-3.25, 4.6.22
Insertion Force	27.98 N | 6.29 lbf
Insertion Force Method	IEC 61169-1:15.2.4
Interface Durability	500 cycles
Interface Durability Method	IEC 61169-16:9.5
Mechanical Shock Test Method	IEC 60068-2-27

Environmental Specifications

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

Packaging and Weights

Weight, net	106.09 g | 0.234 lb

Regulatory Compliance/Certifications

L1TNR-PL

Agency	Classification
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 www.andrew.com/ProductCompliance
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

LDF1-50

LDF1-50, HELIAX® Low Density Foam Coaxial Cable, corrugated copper, 1/4 in, black PE jacket

Product Classification

Product Type	Coaxial wireless cable
Product Brand	HELIAX®
Product Series	LDF1-50 | MLOC

General Specifications

Product Number	520100002/00 | SZ520100002/00
Flexibility	Standard
Jacket Color	Black
Performance Note	Attenuation values typical, guaranteed within 5%

Dimensions

Diameter Over Dielectric	6.858 mm | 0.27 in
Diameter Over Jacket	8.763 mm | 0.345 in
Inner Conductor OD	2.54 mm | 0.1 in
Outer Conductor OD	7.874 mm | 0.31 in
Nominal Size	1/4 in

Electrical Specifications

Cable Impedance	50 ohm ±1 ohm
Capacitance	76.8 pF/m | 23.409 pF/ft
dc Resistance, Inner Conductor	5.151 ohms/km | 1.57 ohms/kft
dc Resistance, Outer Conductor	4.003 ohms/km | 1.22 ohms/kft
dc Test Voltage	2200 V
Inductance	0.194 µH/m | 0.059 µH/ft
Insulation Resistance	100000 MOhms-km
Jacket Spark Test Voltage (rms)	5000 V
Operating Frequency Band	1 – 15800 MHz

Peak Power	12.1 kW
Velocity	86 %

VSWR/Return Loss

Frequency Band	VSWR	Return Loss (dB)	VSWR, typical	Return Loss, typical (dB)
806–960 MHz	1.15	23.13		
1700–2000 MHz	1.15	23.13		
4000–6000 MHz	1.433	14.99	1.29	18

Attenuation

Frequency (MHz)	Attenuation (dB/100 m)	Attenuation (dB/100 ft)	Average Power (kW)
1.0	0.394	0.12	12.1
1.5	0.483	0.147	12.1
2.0	0.558	0.17	12.1
10.0	1.254	0.382	5.83
20.0	1.781	0.543	4.11
30.0	2.188	0.667	3.34
50.0	2.838	0.865	2.58
85.0	3.724	1.135	1.96
88.0	3.791	1.156	1.93
100.0	4.049	1.234	1.81
108.0	4.213	1.284	1.74
150.0	4.993	1.522	1.47
174.0	5.392	1.644	1.36
200.0	5.798	1.767	1.26
204.0	5.858	1.785	1.25
300.0	7.168	2.185	1.02
400.0	8.342	2.543	0.88
450.0	8.88	2.706	0.82
460.0	8.984	2.738	0.81
500.0	9.391	2.862	0.78
512.0	9.511	2.899	0.77
600.0	10.351	3.155	0.71
700.0	11.244	3.427	0.65
800.0	12.084	3.683	0.61

824.0	12.278	3.742	0.6
894.0	12.833	3.911	0.57
960.0	13.339	4.066	0.55
1000.0	13.639	4.157	0.54
1218.0	15.192	4.63	0.48
1250.0	15.41	4.697	0.47
1500.0	17.04	5.194	0.43
1700.0	18.266	5.567	0.4
1794.0	18.823	5.737	0.39
1800.0	18.858	5.748	0.39
2000.0	20.003	6.097	0.37
2100.0	20.559	6.266	0.36
2200.0	21.104	6.432	0.35
2300.0	21.64	6.596	0.34
2500.0	22.686	6.914	0.32
2700.0	23.701	7.224	0.31
3000.0	25.171	7.672	0.29
3400.0	27.048	8.244	0.27
3600.0	27.956	8.521	0.26
3700.0	28.403	8.657	0.26
3800.0	28.846	8.792	0.25
3900.0	29.284	8.925	0.25
4000.0	29.719	9.058	0.25
4100.0	30.149	9.189	0.24
4200.0	30.576	9.319	0.24
4300.0	30.999	9.448	0.24
4400.0	31.419	9.576	0.23
4500.0	31.835	9.703	0.23
4600.0	32.249	9.829	0.23
4700.0	32.659	9.954	0.22
4800.0	33.066	10.078	0.22
4900.0	33.47	10.201	0.22
5000.0	33.871	10.323	0.22
6000.0	37.742	11.503	0.19
8000.0	44.888	13.681	0.16

8800.0	47.579	14.501	0.15
10000.0	51.475	15.689	0.14
12000.0	57.664	17.575	0.13
14000.0	63.552	19.37	0.12
15800.0	68.646	20.922	0.11

Material Specifications

Dielectric Material	Foam PE
Jacket Material	PE
Inner Conductor Material	Copper-clad aluminum wire
Outer Conductor Material	Corrugated copper

Mechanical Specifications

Minimum Bend Radius, multiple Bends	76.2 mm | 3 in
Minimum Bend Radius, single Bend	38.1 mm | 1.5 in
Number of Bends, minimum	15
Number of Bends, typical	30
Tensile Strength	91 kg | 200.62 lb
Bending Moment	1.4 N-m | 12.391 in lb
Flat Plate Crush Strength	1.4 kg/mm | 78.396 lb/in

Environmental Specifications

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

Packaging and Weights

Cable weight	0.09 kg/m | 0.06 lb/ft

Regulatory Compliance/Certifications

Agency	**Classification**

LDF1-50

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 www.andrew.com/ProductCompliance
ROHS	Compliant
UK-ROHS	Compliant

LDF1-50-43

LDF1-50, HELIAX® Low Density Foam Coaxial Cable, corrugated copper, 1/4 in, black PE jacket

Product Classification

Product Type	Coaxial wireless cable
Product Brand	HELIAX®
Product Series	LDF1-50

General Specifications

Flexibility	Standard
Jacket Color	Black
Performance Note	Attenuation values typical, guaranteed within 5%

Dimensions

Diameter Over Dielectric	6.858 mm | 0.27 in
Diameter Over Jacket	8.763 mm | 0.345 in
Inner Conductor OD	2.54 mm | 0.1 in
Outer Conductor OD	7.874 mm | 0.31 in
Nominal Size	1/4 in

Electrical Specifications

Cable Impedance	50 ohm ±1 ohm
Capacitance	76.8 pF/m | 23.409 pF/ft
dc Resistance, Inner Conductor	5.151 ohms/km | 1.57 ohms/kft
dc Resistance, Outer Conductor	4.003 ohms/km | 1.22 ohms/kft
dc Test Voltage	3000 V
Inductance	0.194 µH/m | 0.059 µH/ft
Insulation Resistance	100000 MOhms-km
Jacket Spark Test Voltage (rms)	5000 V
Operating Frequency Band	1 – 15800 MHz
Peak Power	12.1 kW

LDF1-50-43

Velocity	86 %

VSWR/Return Loss

Frequency Band	VSWR	Return Loss (dB)
100–400 MHz	1.17	22.13
680–960 MHz	1.2	20.83
1700–2200 MHz	1.2	20.83

Attenuation

Frequency (MHz)	Attenuation (dB/100 m)	Attenuation (dB/100 ft)	Average Power (kW)
1.0	0.394	0.12	12.1
1.5	0.483	0.147	12.1
2.0	0.558	0.17	12.1
10.0	1.254	0.382	5.83
20.0	1.781	0.543	4.11
30.0	2.188	0.667	3.34
50.0	2.838	0.865	2.58
85.0	3.724	1.135	1.96
88.0	3.791	1.156	1.93
100.0	4.049	1.234	1.81
108.0	4.213	1.284	1.74
150.0	4.993	1.522	1.47
174.0	5.392	1.644	1.36
200.0	5.798	1.767	1.26
204.0	5.858	1.785	1.25
300.0	7.168	2.185	1.02
400.0	8.342	2.543	0.88
450.0	8.88	2.706	0.82
460.0	8.984	2.738	0.81
500.0	9.391	2.862	0.78
512.0	9.511	2.899	0.77
600.0	10.351	3.155	0.71
700.0	11.244	3.427	0.65
800.0	12.084	3.683	0.61
824.0	12.278	3.742	0.6

894.0	12.833	3.911	0.57
960.0	13.339	4.066	0.55
1000.0	13.639	4.157	0.54
1218.0	15.192	4.63	0.48
1250.0	15.41	4.697	0.47
1500.0	17.04	5.194	0.43
1700.0	18.266	5.567	0.4
1794.0	18.823	5.737	0.39
1800.0	18.858	5.748	0.39
2000.0	20.003	6.097	0.37
2100.0	20.559	6.266	0.36
2200.0	21.104	6.432	0.35
2300.0	21.64	6.596	0.34
2500.0	22.686	6.914	0.32
2700.0	23.701	7.224	0.31
3000.0	25.171	7.672	0.29
3400.0	27.048	8.244	0.27
3600.0	27.956	8.521	0.26
3700.0	28.403	8.657	0.26
3800.0	28.846	8.792	0.25
3900.0	29.284	8.925	0.25
4000.0	29.719	9.058	0.25
4100.0	30.149	9.189	0.24
4200.0	30.576	9.319	0.24
4300.0	30.999	9.448	0.24
4400.0	31.419	9.576	0.23
4500.0	31.835	9.703	0.23
4600.0	32.249	9.829	0.23
4700.0	32.659	9.954	0.22
4800.0	33.066	10.078	0.22
4900.0	33.47	10.201	0.22
5000.0	33.871	10.323	0.22
6000.0	37.742	11.503	0.19
8000.0	44.888	13.681	0.16
8800.0	47.579	14.501	0.15

10000.0	51.475	15.689	0.14
12000.0	57.664	17.575	0.13
14000.0	63.552	19.37	0.12
15800.0	68.646	20.922	0.11

Material Specifications

Dielectric Material	Foam PE
Jacket Material	PE
Inner Conductor Material	Copper-clad aluminum wire
Outer Conductor Material	Corrugated copper

Mechanical Specifications

Minimum Bend Radius, multiple Bends	76.2 mm | 3 in
Minimum Bend Radius, single Bend	38.1 mm | 1.5 in
Number of Bends, minimum	15
Number of Bends, typical	30
Tensile Strength	91 kg | 200.62 lb
Bending Moment	1.4 N-m | 12.391 in lb
Flat Plate Crush Strength	1.4 kg/mm | 78.396 lb/in

Environmental Specifications

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

Packaging and Weights

Cable weight	0.09 kg/m | 0.06 lb/ft

Regulatory Compliance/Certifications

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