

# F1A-HFQR-1M



FSJ1-50A SureFlex® Jumper with interface types 4.3-10 Female and QMA Male Right angle, 1M

- WARNING: DO NOT MATE WITH 4.1-9.5 DIN

## Product Classification

<b>Product Type</b>	Wireless transmission cable assembly
<b>Product Brand</b>	HELIAX®   SureFlex®
<b>Product Series</b>	FSJ1-50A

## General Specifications

<b>Body Style, Connector A</b>	Straight
<b>Body Style, Connector B</b>	Right angle
<b>Interface, Connector A</b>	4.3-10 Female
<b>Interface, Connector B</b>	QMA Male
<b>Specification Sheet Revision Level</b>	A

## Dimensions

<b>Length</b>	1 m   3.281 ft
<b>Nominal Size</b>	1/4 in

## VSWR/Return Loss

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

## Jumper Assembly Sample Label

# F1A-HFQR-1M



## Environmental Specifications

### Immersion Test Method

Meets IEC 60529:2001, IP68 in mated condition

## Included Products

- F1THF-LS - 4.3-10 Female for 1/4 in foam coaxial cable, factory attached
- F1TQMR-SX - QMA Male Right Angle for 1/4 in foam and air coaxial cable, factory attached
- FSJ1-50A - FSJ1-50A, HELIAX® Superflexible Low Density Foam Coaxial Cable, corrugated copper, 1/4 in, black PE jacket

# F1THF-LS

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4.3-10 Female for 1/4 in foam coaxial cable, factory attached

## Product Classification

<b>Product Type</b>	Wireless and radiating connector
<b>Product Brand</b>	HELIAX®   SureFlex®

## General Specifications

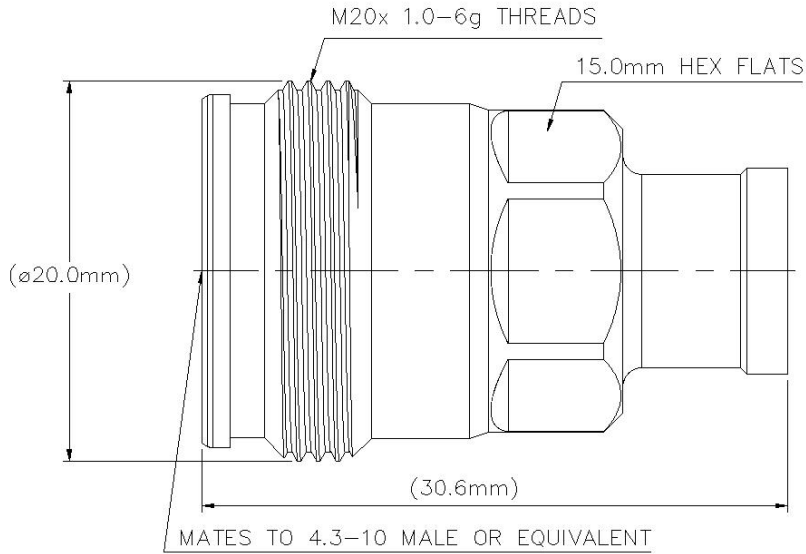
<b>Body Style</b>	Straight
<b>Inner Contact Attachment Method</b>	Solder
<b>Inner Contact Plating</b>	Silver
<b>Interface</b>	4.3-10 Male
<b>Outer Contact Attachment Method</b>	Solder
<b>Outer Contact Plating</b>	Trimetal

## Dimensions

<b>Length</b>	29.97 mm   1.18 in
<b>Diameter</b>	19.81 mm   0.78 in
<b>Nominal Size</b>	1/4 in

# F1THF-LS

## Outline Drawing



## Electrical Specifications

<b>3rd Order IMD at Frequency</b>	-119 dBm @ 910 MHz
<b>3rd Order IMD Test Method</b>	Two +43 dBm carriers
<b>Insertion Loss Coefficient, typical</b>	0.05
<b>Average Power at Frequency</b>	396.0 W @ 900 MHz
<b>Cable Impedance</b>	50 ohm
<b>Connector Impedance</b>	50 ohm
<b>dc Test Voltage</b>	1600 V
<b>Inner Contact Resistance, maximum</b>	1 mOhm
<b>Insulation Resistance, minimum</b>	5000 MOhm
<b>Operating Frequency Band</b>	0 – 6000 MHz
<b>Outer Contact Resistance, maximum</b>	1 mOhm
<b>Peak Power, maximum</b>	6.4 kW
<b>RF Operating Voltage, maximum (vrms)</b>	565 V

## VSWR/Return Loss

Frequency Band	VSWR	Return Loss (dB)
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# F1THF-LS

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<b>0–3000 MHz</b>	1.041	33.94
<b>3000–4000 MHz</b>	1.065	30.04
<b>4000–6000 MHz</b>	1.083	27.99

## Mechanical Specifications

<b>Connector Retention Tensile Force</b>	449.27 N   101 lbf
<b>Connector Retention Torque</b>	1.4 N-m   12.391 in lb
<b>Interface Durability</b>	100 cycles
<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

## Packaging and Weights

<b>Weight, net</b>	26.89 g   0.059 lb
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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/Exempted

# F1THF-LS

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## \* Footnotes

**Insertion Loss Coefficient, typical**  $0.05\sqrt{\text{freq (GHz)}}$  (not applicable for elliptical waveguide)

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

# F1TQMR-SX

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QMA Male Right Angle for 1/4 in foam and air coaxial cable, factory attached

## Product Classification

<b>Product Type</b>	Wireless and radiating connector
<b>Product Brand</b>	HELIAX®   SureFlex®

## General Specifications

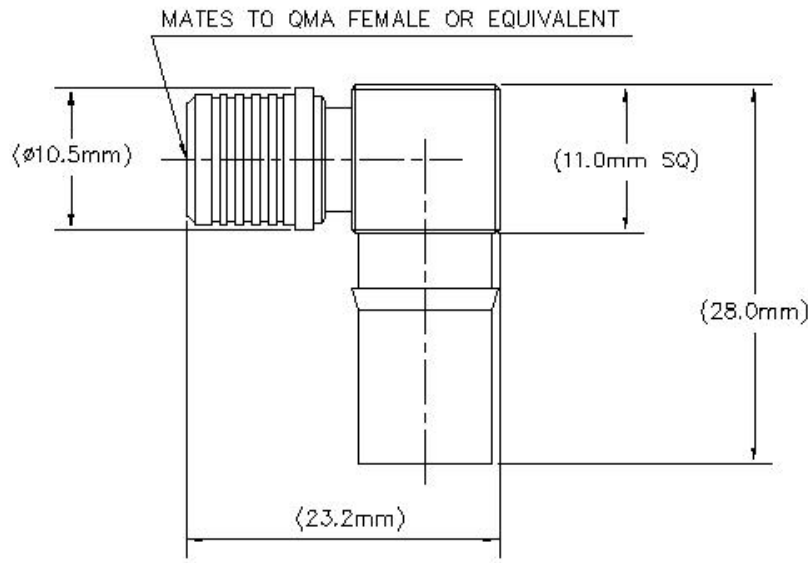
<b>Body Style</b>	Straight
<b>Inner Contact Attachment Method</b>	Solder
<b>Inner Contact Plating</b>	Gold
<b>Interface</b>	QMA Male
<b>Outer Contact Attachment Method</b>	Solder
<b>Outer Contact Plating</b>	Trimetal
<b>Pressurizable</b>	No

## Dimensions

<b>Height</b>	23.11 mm   0.91 in
<b>Width</b>	10.92 mm   0.43 in
<b>Length</b>	27.94 mm   1.1 in
<b>Nominal Size</b>	1/4 in

## Outline Drawing

# F1TQMR-SX



## Electrical Specifications

<b>3rd Order IMD at Frequency</b>	-116 dBm @ 910 MHz
<b>3rd Order IMD Test Method</b>	Two +43 dBm carriers
<b>Insertion Loss Coefficient, typical</b>	0.05
<b>Average Power at Frequency</b>	0.4 kW @ 900 MHz
<b>Cable Impedance</b>	50 ohm
<b>Connector Impedance</b>	50 ohm
<b>dc Test Voltage</b>	1000 V
<b>Inner Contact Resistance, maximum</b>	3 mOhm
<b>Insulation Resistance, minimum</b>	5000 MOhm
<b>Operating Frequency Band</b>	0 – 6000 MHz
<b>Outer Contact Resistance, maximum</b>	2.5 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)
824–2200 MHz	1.045	33.15



# F1TQMR-SX

<b>2200–4000 MHz</b>	1.057	31.15
<b>4000–6000 MHz</b>	1.116	25.22

## Mechanical Specifications

<b>Connector Retention Tensile Force</b>	57.83 N   13 lbf
<b>Connector Retention Torque</b>	1.4 N-m   12.391 in lb
<b>Insertion Force</b>	97.86 N   22 lbf
<b>Insertion Force Method</b>	IEC 61169-15:9.3.5
<b>Interface Durability</b>	500 cycles
<b>Interface Durability Method</b>	IEC 61169-4:17
<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>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

## Packaging and Weights

<b>Weight, net</b>	8 g   0.018 lb
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## Regulatory Compliance/Certifications

<b>Agency</b>	<b>Classification</b>
CHINA-ROHS	Below maximum concentration value
REACH-SVHC	Compliant as per SVHC revision on <a href="https://www.commscope.com/ProductCompliance">www.commscope.com/ProductCompliance</a>
ROHS	Compliant
UK-ROHS	Compliant/Exempted



# F1TQMR-SX

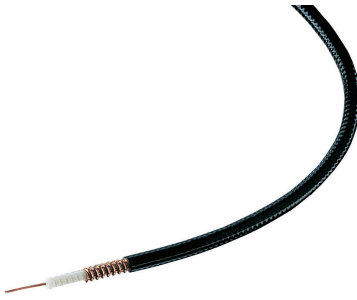
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\* Footnotes

**Insertion Loss Coefficient, typical**  $0.05\sqrt{\text{freq}}$  (GHz) (not applicable for elliptical waveguide)

# FSJ1-50A

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FSJ1-50A, HELIAX® Superflexible Low Density Foam Coaxial Cable, corrugated copper, 1/4 in, black PE jacket

## Product Classification

<b>Product Type</b>	Coaxial wireless cable
<b>Product Brand</b>	HELIAX®   SureFlex®
<b>Product Series</b>	FSJ1-50A   MLOC

## General Specifications

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

## Dimensions

<b>Diameter Over Dielectric</b>	4.826 mm   0.19 in
<b>Diameter Over Jacket</b>	7.366 mm   0.29 in
<b>Inner Conductor OD</b>	1.905 mm   0.075 in
<b>Outer Conductor OD</b>	6.35 mm   0.25 in
<b>Nominal Size</b>	1/4 in

## Electrical Specifications

<b>Cable Impedance</b>	50 ohm ±1 ohm
<b>Capacitance</b>	79.4 pF/m   24.201 pF/ft
<b>dc Resistance, Inner Conductor</b>	9.843 ohms/km   3 ohms/kft
<b>dc Resistance, Outer Conductor</b>	7.216 ohms/km   2.199 ohms/kft
<b>dc Test Voltage</b>	1600 V
<b>Inductance</b>	0.2 µH/m   0.061 µH/ft
<b>Insulation Resistance</b>	100000 MOhms-km
<b>Jacket Spark Test Voltage (rms)</b>	5000 V
<b>Operating Frequency Band</b>	1 – 18000 MHz

# FSJ1-50A

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**Peak Power** 6.4 kW

**Velocity** 82 %

## VSWR/Return Loss

Frequency Band	VSWR	Return Loss (dB)
680–960 MHz	1.201	20.8
1700–2200 MHz	1.201	20.8
2200–2700 MHz	1.433	15

## Attenuation

Frequency (MHz)	Attenuation (dB/100 m)	Attenuation (dB/100 ft)	Average Power (kW)
1.0	0.577	0.176	6.4
1.5	0.707	0.215	6.4
2.0	0.816	0.249	6.4
10.0	1.833	0.559	3.99
20.0	2.6	0.792	2.81
30.0	3.192	0.973	2.29
50.0	4.136	1.261	1.77
85.0	5.419	1.652	1.35
88.0	5.516	1.681	1.33
100.0	5.889	1.795	1.24
108.0	6.125	1.867	1.19
150.0	7.25	2.21	1.01
174.0	7.825	2.385	0.93
200.0	8.408	2.563	0.87
204.0	8.495	2.589	0.86
300.0	10.373	3.162	0.71
400.0	12.051	3.673	0.61
450.0	12.817	3.906	0.57
460.0	12.965	3.952	0.56
500.0	13.545	4.128	0.54
512.0	13.715	4.18	0.53
600.0	14.909	4.544	0.49
700.0	16.175	4.93	0.45
800.0	17.362	5.292	0.42

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<b>824.0</b>	17.637	5.376	0.41
<b>894.0</b>	18.42	5.614	0.4
<b>960.0</b>	19.134	5.832	0.38
<b>1000.0</b>	19.556	5.96	0.37
<b>1218.0</b>	21.738	6.626	0.34
<b>1250.0</b>	22.044	6.719	0.33
<b>1500.0</b>	24.326	7.414	0.3
<b>1700.0</b>	26.038	7.936	0.28
<b>1794.0</b>	26.813	8.172	0.27
<b>1800.0</b>	26.862	8.187	0.27
<b>2000.0</b>	28.455	8.673	0.26
<b>2100.0</b>	29.227	8.908	0.25
<b>2200.0</b>	29.984	9.139	0.24
<b>2300.0</b>	30.727	9.365	0.24
<b>2500.0</b>	32.174	9.806	0.23
<b>2700.0</b>	33.576	10.233	0.22
<b>3000.0</b>	35.602	10.851	0.21
<b>3400.0</b>	38.183	11.638	0.19
<b>3600.0</b>	39.428	12.017	0.19
<b>3700.0</b>	40.041	12.204	0.18
<b>3800.0</b>	40.647	12.389	0.18
<b>3900.0</b>	41.247	12.571	0.18
<b>4000.0</b>	41.841	12.753	0.17
<b>4100.0</b>	42.429	12.932	0.17
<b>4200.0</b>	43.012	13.11	0.17
<b>4300.0</b>	43.59	13.286	0.17
<b>4400.0</b>	44.163	13.46	0.17
<b>4500.0</b>	44.73	13.633	0.16
<b>4600.0</b>	45.293	13.805	0.16
<b>4700.0</b>	45.852	13.975	0.16
<b>4800.0</b>	46.405	14.144	0.16
<b>4900.0</b>	46.955	14.311	0.16
<b>5000.0</b>	47.5	14.477	0.15
<b>6000.0</b>	52.747	16.077	0.14
<b>8000.0</b>	62.37	19.01	0.12

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<b>8800.0</b>	65.974	20.108	0.11
<b>10000.0</b>	71.173	21.693	0.1
<b>12000.0</b>	79.393	24.198	0.09
<b>14000.0</b>	87.172	26.569	0.08
<b>15800.0</b>	93.872	28.611	0.08
<b>16000.0</b>	94.601	28.833	0.08
<b>18000.0</b>	101.745	31.01	0.07

## 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>	25.4 mm   1 in
<b>Minimum Bend Radius, single Bend</b>	25.4 mm   1 in
<b>Number of Bends, minimum</b>	15
<b>Number of Bends, typical</b>	20
<b>Tensile Strength</b>	68 kg   149.914 lb
<b>Bending Moment</b>	0.7 N-m   6.196 in lb
<b>Flat Plate Crush Strength</b>	1.8 kg/mm   100.795 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>	0.07 kg/m   0.047 lb/ft
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# FSJ1-50A

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## Regulatory Compliance/Certifications

<b>Agency</b>	<b>Classification</b>
CHINA-ROHS	Above maximum concentration value
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system
ROHS	Compliant
UK-ROHS	Compliant
UL/ETL Certification	Compliant

