

# F1-TMTF-3M

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FSJ1-50A SureFlex® Jumper with interface types TNC male and TNC Female, 3m



## Product Classification

<b>Product Type</b>	SureFlex® standard
<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>	Straight
<b>Interface, Connector A</b>	TNC Male
<b>Interface, Connector B</b>	TNC Female
<b>Specification Sheet Revision Level</b>	A

## Dimensions

<b>Length</b>	3 m   9.843 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

# F1-TMTF-3M



## Included Products

- 41AENT-GE – TNC Female for 1/4 in FSJ1-50A cable
- F1TTM-C – TNC Male for 1/4 in FSJ1-50A cable
- FSJ1-50A – FSJ1-50A, HELIAX® Superflexible Low Density Foam Coaxial Cable, corrugated copper, 1/4 in, black PE jacket

# 41AENT-GE

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TNC Female for 1/4 in FSJ1-50A cable



## Product Classification

<b>Product Type</b>	Wireless and radiating connector
<b>Product Brand</b>	HELIAX®
<b>Product Series</b>	FSJ1-50A

## General Specifications

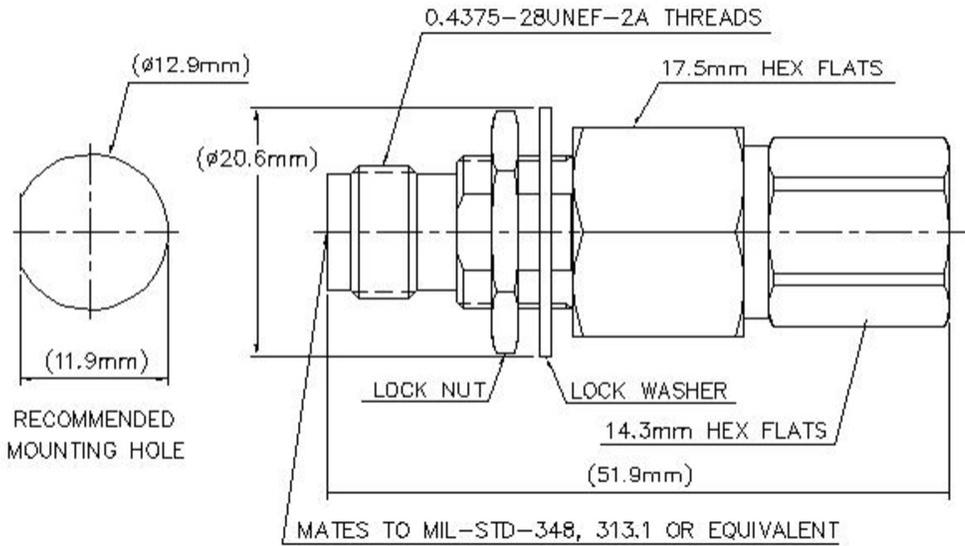
<b>Body Style</b>	Straight
<b>Cable Family</b>	FSJ1-50A
<b>Inner Contact Attachment Method</b>	Captivated
<b>Inner Contact Plating</b>	Gold
<b>Interface</b>	TNC Female
<b>Mounting Angle</b>	Straight
<b>Outer Contact Attachment Method</b>	Tab-flare
<b>Outer Contact Plating</b>	Trimetal
<b>Pressurizable</b>	No

## Dimensions

<b>Width</b>	20.57 mm   0.81 in
<b>Length</b>	51.82 mm   2.04 in
<b>Diameter</b>	20.57 mm   0.81 in
<b>Nominal Size</b>	1/4 in

## Outline Drawing

# 41AENT-GE



## Electrical Specifications

<b>3rd Order IMD at Frequency</b>	-102 dBm @ 910 MHz
<b>3rd Order IMD Test Method</b>	Two +43 dBm carriers
<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>	1500 V
<b>Inner Contact Resistance, maximum</b>	1.5 mOhm
<b>Insulation Resistance, minimum</b>	5000 MOhm
<b>Operating Frequency Band</b>	0 – 18000 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)
45–3600 MHz	1.15	23.13
3600–7200 MHz	1.2	20.83

# 41AENT-GE

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<b>7200–10800 MHz</b>	1.2	20.83
<b>10800–14400 MHz</b>	1.29	17.95
<b>14400–18000 MHz</b>	1.92	10.04

## Mechanical Specifications

<b>Attachment Durability</b>	500 cycles
<b>Connector Retention Tensile Force</b>	449.27 N   101 lbf
<b>Insertion Force</b>	27.98 N   6.29 lbf
<b>Insertion Force Method</b>	IEC 61169-17:9.3.5
<b>Interface Durability</b>	500 cycles
<b>Interface Durability Method</b>	IEC 61169-17:17
<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>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>	56.68 g   0.125 lb
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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

# 41AENT-GE

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## \* Footnotes

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

# F1TTM-C

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TNC Male for 1/4 in FSJ1-50A cable

## Product Classification

<b>Product Type</b>	Wireless and radiating connector
<b>Product Brand</b>	HELIAX®
<b>Product Series</b>	FSJ1-50A

## General Specifications

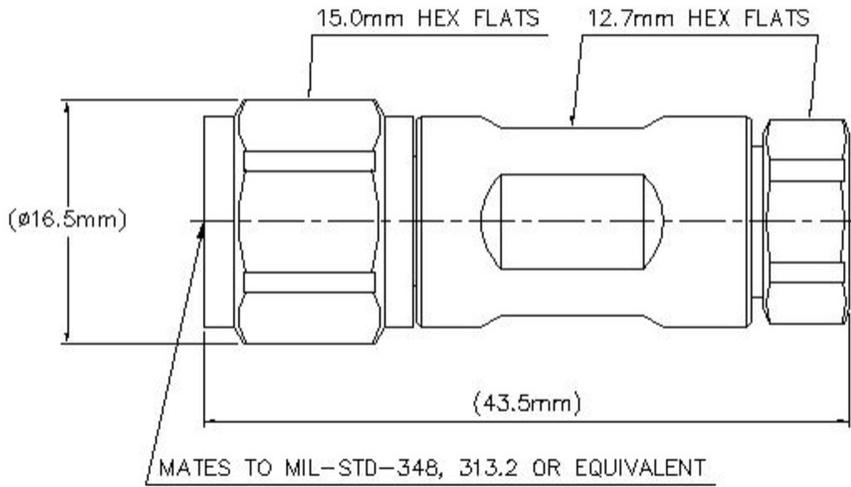
<b>Body Style</b>	Straight
<b>Cable Family</b>	FSJ1-50A
<b>Inner Contact Attachment Method</b>	Captivated
<b>Inner Contact Plating</b>	Gold
<b>Interface</b>	TNC Male
<b>Mounting Angle</b>	Straight
<b>Outer Contact Attachment Method</b>	Self-clamping
<b>Outer Contact Plating</b>	Trimetal
<b>Pressurizable</b>	No

## Dimensions

<b>Height</b>	16.51 mm   0.65 in
<b>Width</b>	16.51 mm   0.65 in
<b>Length</b>	43.43 mm   1.71 in
<b>Diameter</b>	16.51 mm   0.65 in
<b>Nominal Size</b>	1/4 in

## Outline Drawing

# F1TTM-C



## Electrical Specifications

<b>3rd Order IMD at Frequency</b>	-112 dBm @ 910 MHz
<b>3rd Order IMD Test Method</b>	Two +43 dBm carriers
<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>	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)
500–3000 MHz	1.046	32.96
3000–6000 MHz	1.074	28.95

# F1TTM-C

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<b>6000–8000 MHz</b>	1.173	21.98
<b>8000–10000 MHz</b>	1.222	20.01

## Mechanical Specifications

<b>Connector Retention Tensile Force</b>	449.27 N   101 lbf
<b>Coupling Nut Proof Torque</b>	1.7 N-m   15.046 in lb
<b>Coupling Nut Proof Torque Method</b>	IEC 61169-16:9.3.11
<b>Coupling Nut Retention Force</b>	445 N   100.04 lbf
<b>Coupling Nut Retention Force Method</b>	IEC 61169-17:9.3.11
<b>Insertion Force</b>	66.72 N   15 lbf
<b>Insertion Force Method</b>	IEC 61169-16:9.3.5
<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>	30.52 g   0.067 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.andrew.com/ProductCompliance">www.andrew.com/ProductCompliance</a>

# F1TTM-C

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ROHS	Compliant
UK-ROHS	Compliant



# 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>Product Number</b>	887009902/00   SZ887009902/00
<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

# FSJ1-50A

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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

# FSJ1-50A

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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	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.andrew.com/ProductCompliance">www.andrew.com/ProductCompliance</a>
ROHS	Compliant
UK-ROHS	Compliant
UL/ETL Certification	Compliant

