

# HLT4-PNMNR-3-AR1



HLT4-50T Jumper with interface types 7-16 DIN Male and N Male Right Angle, 1.01 m

## OBSOLETE

This product was discontinued on: November 15, 2007

## Product Classification

<b>Product Type</b>	Wireless transmission cable assembly
<b>Product Brand</b>	HELIAX®
<b>Product Series</b>	HLT4-50T

## General Specifications

<b>Body Style, Connector A</b>	Straight
<b>Body Style, Connector B</b>	Right angle
<b>Interface, Connector A</b>	7-16 DIN Male
<b>Interface, Connector B</b>	N Male
<b>Specification Sheet Revision Level</b>	A

## Dimensions

<b>Length</b>	1.01 m   3.314 ft
<b>Nominal Size</b>	1/2 in

## Electrical Specifications

<b>DTF, Connector A</b>	-32 dB
<b>DTF, Connector B</b>	-32 dB

## Jumper Assembly Sample Label

# HLT4-PNMNR-3-AR1



## Environmental Specifications

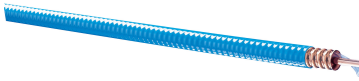
### Immersion Test Method

Meets IEC 60529:2001, IP68 in mated condition

## Included Products

- |           |   |  |
|-----------|---|--|
| HLT4-50T  | - | HLT4-50T, HELIAX® High Power, High Temperature Air Dielectric Coaxial Cable, corrugated copper, 1/2 in, blue PVDF jacket |
| L4TDM-PS  | - | 7-16 DIN Male Positive Stop™ for 1/2 in LDF4-50A cable   |
| L4TDM-PSA | - | 7-16 DIN Male Positive Stop™ for 1/2 in AL4RPV-50, LDF4-50A, HL4RPV-50 cable   |
| L4TNR-HC  | - | Type N Male Right Angle for 1/2 in LDF4-50A cable  |

# HLT4-50T



HLT4-50T, HELIAX® High Power, High Temperature Air Dielectric Coaxial Cable, corrugated copper, 1/2 in, blue PVDF jacket

## Product Classification

<b>Product Type</b>	Air coaxial cable
<b>Product Brand</b>	HELIAX®
<b>Product Series</b>	HLT4-50T

## General Specifications

<b>Flexibility</b>	Standard
<b>Jacket Color</b>	Blue

## Dimensions

<b>Diameter Over Jacket</b>	15.24 mm   0.6 in
<b>Inner Conductor OD</b>	4.826 mm   0.19 in
<b>Outer Conductor OD</b>	13.97 mm   0.55 in
<b>Nominal Size</b>	1/2 in

## Electrical Specifications

<b>Cable Impedance</b>	52.5 ohm ±2 ohm
<b>Capacitance</b>	66.929 pF/m   20.4 pF/ft
<b>dc Resistance, Inner Conductor</b>	1.476 ohms/km   0.45 ohms/kft
<b>dc Resistance, Outer Conductor</b>	1.903 ohms/km   0.58 ohms/kft
<b>dc Test Voltage</b>	3000 V
<b>Inductance</b>	1.87 µH/m   0.57 µH/ft
<b>Insulation Resistance</b>	100000 MOhms-km
<b>Jacket Spark Test Voltage (rms)</b>	5000 V
<b>Operating Frequency Band</b>	1 – 4000 MHz
<b>Peak Power</b>	21.4 kW
<b>Power Attenuation</b>	4.807
<b>Pulse Reflection</b>	0.5%
<b>Velocity</b>	93 %

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## Attenuation

<b>Frequency (MHz)</b>	<b>Attenuation (dB/100 m)</b>	<b>Attenuation (dB/100 ft)</b>	<b>Average Power (kW)</b>
1.0	0.217	0.066	21.4
1.5	0.266	0.081	21.4
2.0	0.308	0.094	21.4
10.0	0.7	0.213	21.4
20.0	1.002	0.305	15.74
30.0	1.239	0.377	12.74
50.0	1.622	0.494	9.72
85.0	2.156	0.657	7.32
88.0	2.197	0.669	7.18
100.0	2.354	0.718	6.7
108.0	2.455	0.748	6.42
150.0	2.94	0.896	5.37
174.0	3.192	0.973	4.94
200.0	3.45	1.051	4.57
204.0	3.488	1.063	4.52
300.0	4.339	1.322	3.64
400.0	5.12	1.561	3.08
450.0	5.484	1.671	2.88
460.0	5.554	1.693	2.84
500.0	5.833	1.778	2.7
512.0	5.915	1.803	2.67
600.0	6.497	1.98	2.43
700.0	7.125	2.171	2.21
800.0	7.723	2.354	2.04
824.0	7.863	2.396	2.01
894.0	8.263	2.519	1.91
960.0	8.632	2.631	1.83
1000.0	8.852	2.698	1.78
1218.0	10.004	3.049	1.58
1250.0	10.168	3.099	1.55
1500.0	11.407	3.477	1.38

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<b>1700.0</b>	12.356	3.766	1.28
<b>1794.0</b>	12.791	3.898	1.23
<b>1800.0</b>	12.819	3.907	1.23
<b>2000.0</b>	13.723	4.183	1.15
<b>2100.0</b>	14.166	4.318	1.11
<b>2200.0</b>	14.603	4.451	1.08
<b>2300.0</b>	15.036	4.583	1.05
<b>2500.0</b>	15.886	4.842	0.99
<b>2700.0</b>	16.719	5.096	0.94
<b>3000.0</b>	17.94	5.468	0.88
<b>3400.0</b>	19.523	5.95	0.81
<b>3600.0</b>	20.297	6.186	0.78
<b>3700.0</b>	20.681	6.303	0.76
<b>3800.0</b>	21.062	6.419	0.75
<b>3900.0</b>	21.441	6.535	0.74
<b>4000.0</b>	21.817	6.65	0.72

## Material Specifications

<b>Dielectric Material</b>	PTFE
<b>Jacket Material</b>	PVDF
<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>	127 mm   5 in
<b>Number of Bends, minimum</b>	10
<b>Number of Bends, typical</b>	15
<b>Tensile Strength</b>	113 kg   249.122 lb
<b>Bending Moment</b>	7.3 ft lb   9.897 N-m
<b>Flat Plate Crush Strength</b>	1.786 kg/mm   100 lb/in
<b>Pressurization, maximum</b>	0.207 N/mm <sup>2</sup>   30 psi

## Environmental Specifications

<b>Installation temperature</b>	-40 °C to +60 °C (-40 °F to +140 °F)
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# HLT4-50T

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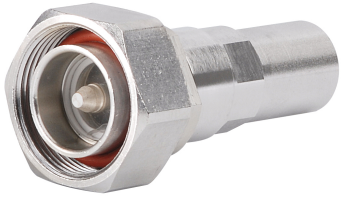
<b>Operating Temperature</b>	-55 °C to +85 °C (-67 °F to +185 °F)
<b>Storage Temperature</b>	-70 °C to +85 °C (-94 °F to +185 °F)
<b>Attenuation, Ambient Temperature</b>	68 °F   20 °C
<b>Average Power, Ambient Temperature</b>	104 °F   40 °C
<b>Average Power, Inner Conductor Temperature</b>	392 °F   200 °C

## Packaging and Weights

<b>Cable weight</b>	0.268 kg/m   0.18 lb/ft
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# L4TDM-PS

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7-16 DIN Male Positive Stop™ for 1/2 in LDF4-50A cable

## Product Classification

<b>Product Type</b>	Wireless and radiating connector
<b>Product Brand</b>	HELIAX®   Positive Stop™

## General Specifications

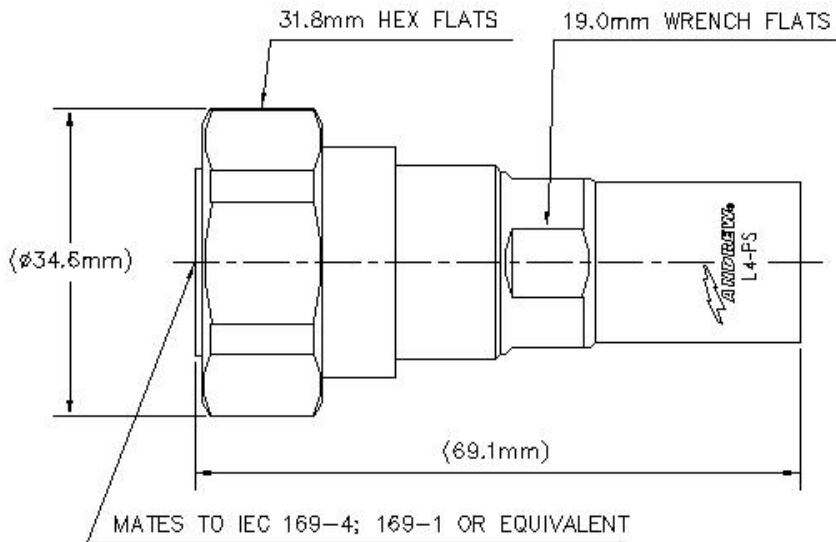
<b>Body Style</b>	Straight
<b>Cable Family</b>	LDF4-50A
<b>Inner Contact Attachment Method</b>	Captivated
<b>Inner Contact Plating</b>	Silver
<b>Interface</b>	7-16 DIN Male
<b>Mounting Angle</b>	Straight
<b>Outer Contact Attachment Method</b>	Ring-flare
<b>Outer Contact Plating</b>	Trimetal
<b>Pressurizable</b>	No

## Dimensions

<b>Length</b>	68.07 mm   2.68 in
<b>Diameter</b>	36.07 mm   1.42 in
<b>Nominal Size</b>	1/2 in

## Outline Drawing

# L4TDM-PS



## Electrical Specifications

<b>3rd Order IMD at Frequency</b>	-120 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>	1.1 kW @ 900 MHz
<b>Cable Impedance</b>	50 ohm
<b>Connector Impedance</b>	50 ohm
<b>dc Test Voltage</b>	4000 V
<b>Inner Contact Resistance, maximum</b>	0.8 mOhm
<b>Insulation Resistance, minimum</b>	5000 MOhm
<b>Operating Frequency Band</b>	0 – 8800 MHz
<b>Outer Contact Resistance, maximum</b>	1.5 mOhm
<b>Peak Power, maximum</b>	40 kW
<b>RF Operating Voltage, maximum (vrms)</b>	1415 V
<b>Shielding Effectiveness</b>	-110 dB

## VSWR/Return Loss

Frequency Band	VSWR	Return Loss (dB)
45–1000 MHz	1.023	38.89



# L4TDM-PS

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<b>1010–2200 MHz</b>	1.029	36.9
<b>2200–3000 MHz</b>	1.046	32.96
<b>3010–4000 MHz</b>	1.074	28.95
<b>4010–6000 MHz</b>	1.106	25.96
<b>6010–8000 MHz</b>	1.152	23.02

## Mechanical Specifications

<b>Attachment Durability</b>	25 cycles
<b>Connector Retention Tensile Force</b>	889.64 N   200 lbf
<b>Connector Retention Torque</b>	5.42 N-m   47.998 in lb
<b>Coupling Nut Proof Torque</b>	25 N-m   221.269 in lb
<b>Coupling Nut Retention Force</b>	1000 N   224.81 lbf
<b>Coupling Nut Retention Force Method</b>	MIL-C-39012C-3.25, 4.6.22
<b>Insertion Force</b>	200.17 N   45 lbf
<b>Insertion Force Method</b>	IEC 61169-1:15.2.4
<b>Interface Durability</b>	500 cycles
<b>Interface Durability Method</b>	IEC 61169-4:9.5
<b>Mechanical Shock Test Method</b>	MIL-STD-202, Method 213, Test Condition I

## Environmental Specifications

<b>Operating Temperature</b>	-55 °C to +85 °C (-67 °F to +185 °F)
<b>Storage Temperature</b>	-55 °C to +85 °C (-67 °F to +185 °F)
<b>Attenuation, Ambient Temperature</b>	20 °C   68 °F
<b>Average Power, Ambient Temperature</b>	40 °C   104 °F
<b>Corrosion Test Method</b>	MIL-STD-1344A, Method 1001.1, Test Condition A
<b>Immersion Depth</b>	1 m
<b>Immersion Test Mating</b>	Unmated
<b>Immersion Test Method</b>	IEC 60529:2001, IP68
<b>Moisture Resistance Test Method</b>	MIL-STD-202F, Method 106F
<b>Thermal Shock Test Method</b>	MIL-STD-202F, Method 107G, Test Condition A-1, Low Temperature -55 °C
<b>Vibration Test Method</b>	IEC 60068-2-6
<b>Water Jetting Test Mating</b>	Unmated
<b>Water Jetting Test Method</b>	IEC 60529:2001, IP66

# L4TDM-PS

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## Packaging and Weights

**Weight, net** 123 g | 0.271 lb

## Regulatory Compliance/Certifications

<b>Agency</b>	<b>Classification</b>
CHINA-ROHS	Above maximum concentration value
ROHS	Compliant/Exempted
UK-ROHS	Compliant/Exempted



## \* 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

# L4TDM-PSA

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7-16 DIN Male Positive Stop™ for 1/2 in AL4RPV-50, LDF4-50A, HL4RPV-50 cable

## Product Classification

<b>Product Type</b>	Wireless and radiating connector
<b>Product Brand</b>	HELIAX®   Positive Stop™
<b>Product Series</b>	LDF4-50A
<b>Ordering Note</b>	CommScope® standard product (Global)

## General Specifications

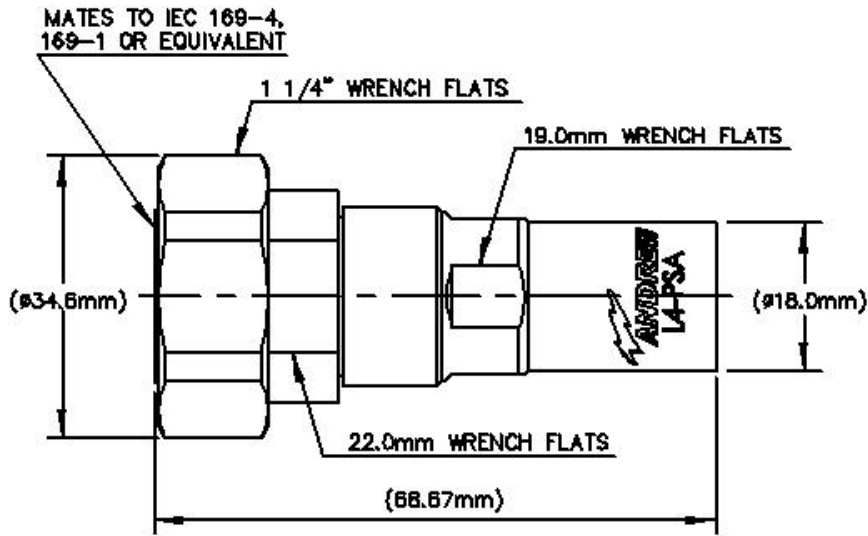
<b>Body Style</b>	Straight
<b>Cable Family</b>	AL4-50
<b>Harmonized System (HS) Code</b>	85366910 (Coaxial cable and other coaxial electric conductors)
<b>Inner Contact Attachment Method</b>	Captivated
<b>Inner Contact Plating</b>	Silver
<b>Interface</b>	7-16 DIN Male
<b>Mounting Angle</b>	Straight
<b>Outer Contact Attachment Method</b>	Ring-flare
<b>Outer Contact Plating</b>	Trimetal

## Dimensions

<b>Length</b>	68.58 mm   2.7 in
<b>Diameter</b>	34.54 mm   1.36 in
<b>Nominal Size</b>	1/2 in

## Outline Drawing

# L4TDM-PSA



## Electrical Specifications

<b>3rd Order IMD at Frequency</b>	-120 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>	1.1 kW @ 900 MHz
<b>Cable Impedance</b>	50 ohm
<b>Connector Impedance</b>	50 ohm
<b>dc Test Voltage</b>	4000 V
<b>Inner Contact Resistance, maximum</b>	0.8 mOhm
<b>Insulation Resistance, minimum</b>	5000 MOhm
<b>Operating Frequency Band</b>	0 – 8800 MHz
<b>Outer Contact Resistance, maximum</b>	1.5 mOhm
<b>Peak Power, maximum</b>	40 kW
<b>RF Operating Voltage, maximum (vrms)</b>	1415 V
<b>Shielding Effectiveness</b>	-110 dB

## VSWR/Return Loss

Frequency Band	VSWR	Return Loss (dB)
45–1000 MHz	1.023	38.89

# L4TDM-PSA

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<b>1010–2200 MHz</b>	1.029	36.9
<b>2200–3000 MHz</b>	1.046	32.96
<b>3010–4000 MHz</b>	1.074	28.95
<b>4010–6000 MHz</b>	1.106	25.96
<b>6010–8000 MHz</b>	1.152	23.02

## Mechanical Specifications

<b>Attachment Durability</b>	25 cycles
<b>Connector Retention Tensile Force</b>	889.64 N   200 lbf
<b>Connector Retention Torque</b>	5.42 N-m   47.998 in lb
<b>Coupling Nut Proof Torque</b>	25 N-m   221.269 in lb
<b>Coupling Nut Retention Force</b>	1000 N   224.81 lbf
<b>Coupling Nut Retention Force Method</b>	MIL-C-39012C-3.25, 4.6.22
<b>Insertion Force</b>	200.17 N   45 lbf
<b>Insertion Force Method</b>	IEC 61169-1:15.2.4
<b>Interface Durability</b>	500 cycles
<b>Interface Durability Method</b>	IEC 61169-4:9.5
<b>Mechanical Shock Test Method</b>	MIL-STD-202, Method 213, Test Condition I

## Environmental Specifications

<b>Operating Temperature</b>	-55 °C to +85 °C (-67 °F to +185 °F)
<b>Storage Temperature</b>	-55 °C to +85 °C (-67 °F to +185 °F)
<b>Corrosion Test Method</b>	MIL-STD-1344A, Method 1001.1, Test Condition A
<b>Immersion Depth</b>	1 m
<b>Immersion Test Mating</b>	Unmated
<b>Immersion Test Method</b>	IEC 60529:2001, IP68
<b>Moisture Resistance Test Method</b>	MIL-STD-202F, Method 106F
<b>Thermal Shock Test Method</b>	MIL-STD-202F, Method 107G, Test Condition A-1, Low Temperature -55 °C
<b>Vibration Test Method</b>	IEC 60068-2-6
<b>Water Jetting Test Mating</b>	Unmated
<b>Water Jetting Test Method</b>	IEC 60529:2001, IP66

## Packaging and Weights

# L4TDM-PSA

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**Weight, net**

120.09 g | 0.265 lb

## Regulatory Compliance/Certifications

**Agency**

**Classification**

CHINA-ROHS

Above 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.commscope.com/ProductCompliance](http://www.commscope.com/ProductCompliance)

ROHS

Compliant/Exempted

UK-ROHS

Compliant/Exempted



## \* Footnotes

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

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

# L4TNR-HC

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Type N Male Right Angle for 1/2 in LDF4-50A cable

## Product Classification

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

## General Specifications

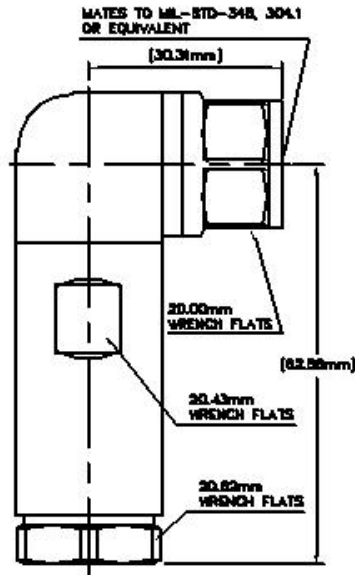
<b>Body Style</b>	Right angle
<b>Cable Family</b>	LDF4-50A
<b>Inner Contact Attachment Method</b>	Captivated
<b>Inner Contact Plating</b>	Gold
<b>Interface</b>	N Male
<b>Mounting Angle</b>	Right angle
<b>Outer Contact Attachment Method</b>	Ring-flare
<b>Outer Contact Plating</b>	Trimetal
<b>Pressurizable</b>	No

## Dimensions

<b>Width</b>	22.86 mm   0.9 in
<b>Length</b>	73.66 mm   2.9 in
<b>Right Angle Length</b>	41.66 mm   1.64 in
<b>Diameter</b>	22.86 mm   0.9 in
<b>Nominal Size</b>	1/2 in

## Outline Drawing

# L4TNR-HC



## Electrical Specifications

<b>Insertion Loss Coefficient, typical</b>	0.05
<b>Average Power at Frequency</b>	0.6 kW @ 900 MHz
<b>Cable Impedance</b>	50 ohm
<b>Connector Impedance</b>	50 ohm
<b>dc Test Voltage</b>	2000 V
<b>Inner Contact Resistance, maximum</b>	2 mOhm
<b>Insulation Resistance, minimum</b>	5000 MOhm
<b>Operating Frequency Band</b>	0 – 8800 MHz
<b>Outer Contact Resistance, maximum</b>	0.3 mOhm
<b>Peak Power, maximum</b>	10 kW
<b>RF Operating Voltage, maximum (vrms)</b>	707 V
<b>Shielding Effectiveness</b>	-130 dB

## VSWR/Return Loss

Frequency Band	VSWR	Return Loss (dB)
0–1000 MHz	1.065	30.04
1000–2170 MHz	1.119	25.01

## Mechanical Specifications



# L4TNR-HC

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<b>Attachment Durability</b>	25 cycles
<b>Connector Retention Tensile Force</b>	889.64 N   200 lbf
<b>Connector Retention Torque</b>	5.42 N-m   47.998 in lb
<b>Coupling Nut Proof Torque</b>	4.52 N-m   39.997 in lb
<b>Coupling Nut Retention Force</b>	444.82 N   100 lbf
<b>Coupling Nut Retention Force Method</b>	MIL-C-39012C-3.25, 4.6.22
<b>Insertion Force</b>	66.72 N   15 lbf
<b>Insertion Force Method</b>	MIL-C-39012C-3.12, 4.6.9
<b>Interface Durability</b>	500 cycles
<b>Interface Durability Method</b>	IEC 61169-16:9.5
<b>Mechanical Shock Test Method</b>	MIL-STD-202, Method 213, Test Condition I

## Environmental Specifications

<b>Operating Temperature</b>	-55 °C to +85 °C (-67 °F to +185 °F)
<b>Storage Temperature</b>	-55 °C to +85 °C (-67 °F to +185 °F)
<b>Attenuation, Ambient Temperature</b>	20 °C   68 °F
<b>Average Power, Ambient Temperature</b>	40 °C   104 °F
<b>Corrosion Test Method</b>	MIL-STD-1344A, Method 1001.1, Test Condition A
<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>	MIL-STD-202F, Method 106F
<b>Thermal Shock Test Method</b>	MIL-STD-202F, Method 107G, Test Condition A-1, Low Temperature -55 °C
<b>Vibration Test Method</b>	IEC 60068-2-6
<b>Water Jetting Test Mating</b>	Mated
<b>Water Jetting Test Method</b>	IEC 60529:2001, IP66

## Packaging and Weights

<b>Weight, net</b>	204.49 g   0.451 lb
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## \* Footnotes

<b>Insertion Loss Coefficient, typical</b>	0.05√freq (GHz) (not applicable for elliptical waveguide)
<b>Immersion Depth</b>	Immersion at specified depth for 24 hours

