



Coaxial Cable

141 SMRNM Model Series

50Ω DC to 18 GHz



CASE STYLE: KQ1995-XX

XX= cable length in inches

The Big Deal

- Hand-Formable RF Cables
- 18 GHz Right-Angle connector (SMA)
- Excellent Return Loss and Insertion Loss
- Ideal for interconnect of assembled systems

Product Overview

141 SMRNM+ series Hand-Flex coaxial cables are ideal for integrating coaxial components and sub-systems in tight spaces and dense system configurations. SMA to N-Type connection avoids need for an adapter between components with SMA-F and N-F connection ports, reducing system cost and improving reliability. Sturdy, hand formable cable construction maintains shape after bending with bend-radius as small as 8mm. 141 SMRNM+ coaxial cables have the advantages of wide frequency range and excellent return loss and insertion loss. Available in a variety of lengths.

Key Features

Feature	Advantages
Hand-Formable RF Cables	The 141 Series Hand-Flex cables are hand formable making them ideal for use integrating coaxial components and sub-assemblies without the need for special cable-bending tools and alleviating the risk of damage during the bending process typical of semi-rigid coaxial cable assemblies.
Tight Bend Radius 8mm	Capable of only 8mm bend radius, the 141 Hand Flex series is able to make connections in tight spaces making these cables ideal for dense system integration.
18 GHz Right-Angle Connector	Using a custom right-angle connector, the 141 SMRNM Series is able to meet system requirements of 90° connections without bending and sacrificing high frequency performance
Excellent Return loss • 29 dB typ. at 6 GHz • 26 dB typ. at 18 GHz	The 141 Series Hand-Flex Cables are ideally suited for interconnecting a wide variety of RF components while minimizing VSWR ripple contribution due to mating cables & connectors.
Good Power Handling Capability: • 546W at 0.5 GHz • 90W at 18 GHz	Mini-Circuits 141 Cable series can support medium to high RF power levels enabling these cables to be used in the transmit path. (power rating is at sea-level altitudes.)
Built in Anti-torque nut	Mini-Circuits 141 Series Hand Flex cables include an anti-torque feature to support the straight SMA connector body during installation alleviating risk of stress to the connector/cable interface
Jacketed and Unjacketed options	Standard 141 Series cables include a blue FEP insulator jacket reducing the risk of accidental shorting of DC power lines or active pins during installation and operation. Un-jacketed versions are available upon request.

Notes

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
 B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
 C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp



HAND FLEX™ Coaxial Cable

50Ω 10 inch DC to 18 GHz

141-10SMRNM+

Maximum Ratings

Operating Temperature	-55°C to 105°C	
Storage Temperature	-55°C to 105°C	
Power Handling at 25°C, Sea Level	156W at 6 GHz	121W at 10 GHz
	273W at 2 GHz	90W at 18 GHz
	387W at 1 GHz	
	546W at 0.5 GHz	

Permanent damage may occur if any of these limits are exceeded.

Features

- Right-Angle connection capable of DC to 18 GHz
- Low Loss, 0.61 dB typ. at 18 GHz
- Excellent Return Loss, 26 dB typ. at 18 GHz
- Hand formable to almost any custom shape without special bending tools
- 8mm bend radius for tight installations
- Anti-torque nut prevents cable stress during installation
- Insulated outer jacket standard
- Connector interface meets MIL-STD-348
- Ideal for interconnect of assembled systems

Applications

- Replacement for custom bent 0.141" semi-rigid cables
- Communication receivers and transmitters
- Military and aerospace systems
- Environmental and test chambers



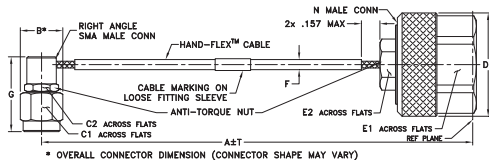
CASE STYLE: KQ1995-10

Connectors	Model
Right Angle SMA-Male / N-Male	141-10SMRNM+

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

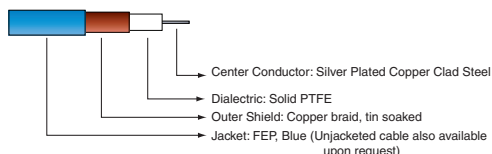
Outline Drawing



Outline Dimensions (inch/mm)

A	B	C1	C2	D
10.0	.36	.315	.250	.88
254.00	9.14	8.00	6.35	22.35
E1	E2	F	T	wt
.75	.375	.163±.004	.10	grams
19.05	9.53	4.14±0.10	2.54	45

Cable Construction



SMA-Male Connector:
Coupling Nut: Stainless Steel Passivated
Body: Stainless Steel Gold Plated
Center Pin: Silver Plated Copper Clad Steel

N-Male Connector:
Coupling Nut: Brass, Nickel Plated
Body: Brass, Nickel Plated
Center Pin: Brass, Gold Plated

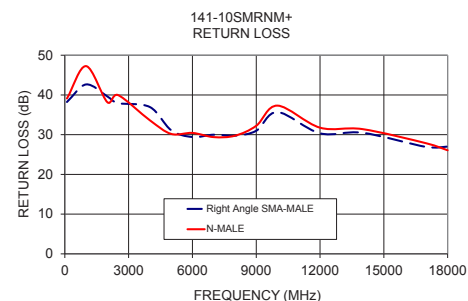
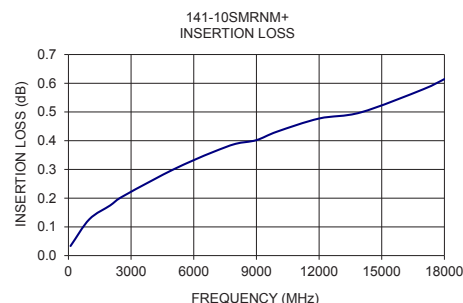
Electrical Specifications at 25°C

Parameter	Condition (GHz)	Min.	Typ.	Max.	Unit
Frequency Range		DC		18	GHz
Length ¹			10		inches
Insertion Loss	DC - 2	—	0.1	0.4	dB
	2 - 6	—	0.2	0.7	
	6 - 10	—	0.4	0.9	
	10 - 18	—	0.5	1.2	
Return Loss	DC - 2	20	39	—	dB
	2 - 6	20	36	—	
	6 - 10	17	32	—	
	10 - 18	17	31	—	

1. Custom sizes available, consult factory.

Typical Performance Data

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	
		Right Angle SMA-Male	N-Male
100	0.03	38.2	39.1
1000	0.13	42.6	47.3
2000	0.17	39.6	38.2
2500	0.20	37.9	40.0
4000	0.26	37.0	33.6
5000	0.30	31.1	30.2
6000	0.33	29.4	30.4
7000	0.36	30.0	29.4
8000	0.39	29.8	29.7
9000	0.40	31.0	32.2
10000	0.43	35.7	37.3
12000	0.48	30.3	31.8
14000	0.50	30.5	31.4
17000	0.58	26.9	27.8
18000	0.61	27.0	26.1



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141-10SMRNM+
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Proper Cable Connection Using Anti-Torque Nut

Mini-Circuits 141-series HandFlex™ interconnect cables are constructed with an anti-torque nut adjacent to the connector coupling nut. When used properly, this feature prevents possible damage to the cable due to torquing and twisting when tightening the cable connector.

To properly tighten the cable connector:

- 1) The cable connector includes a coupling nut which rotates to fasten the connector, and an anti-torque nut, which is fixed to prevent the cable from twisting during connection.



- 2) To properly tighten the cable, use a standard 1/4-inch open end wrench to brace the anti-torque nut.



- 3) Using a 5/16-inch open end wrench, rotate the coupling nut clockwise to tighten the cable connector.

***NOTE:** Mini-Circuits recommends using a 5/16-inch open end wrench calibrated to 8 inch-pounds maximum torque to prevent damage due to over-torquing the connector.

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Hand-Flex Coaxial Cable

141-10SMRNM+

Right Angle SMA Male to Straight N Male

Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	RIGHT ANGLE SMA-MALE RETURN LOSS (dB)	N-MALE RETURN LOSS (dB)
100	0.03	38.2	39.1
150	0.04	36.5	37.9
200	0.05	35.9	37.5
250	0.06	36.2	37.9
300	0.06	37.4	39.4
350	0.07	39.7	42.1
400	0.08	42.3	47.1
450	0.08	43.4	53.9
500	0.09	42.4	54.6
550	0.09	39.9	49.9
600	0.10	37.7	43.4
650	0.10	36.4	40.5
700	0.11	36.0	39.0
750	0.11	36.4	38.5
800	0.11	37.8	39.0
850	0.12	40.4	40.7
950	0.12	44.4	47.7
1000	0.13	42.6	47.3
1500	0.15	39.4	40.0
2000	0.17	39.6	38.2
2500	0.20	38.2	39.9
3000	0.22	39.1	39.0
3500	0.25	42.2	37.1
4000	0.27	37.7	34.2
4500	0.28	33.6	30.4
5000	0.30	31.1	30.0
5500	0.30	32.2	31.9
6000	0.33	29.4	30.4
6500	0.35	30.5	30.2
7000	0.36	30.1	29.6
7500	0.38	29.9	29.3
8000	0.39	29.9	29.7
8500	0.39	28.4	29.0
9000	0.40	31.0	32.2
9500	0.42	31.7	32.9
10000	0.43	35.7	37.3
10500	0.44	41.9	42.3
11000	0.46	35.5	37.3
11500	0.48	32.7	35.4
12000	0.50	30.1	31.6
12500	0.48	30.8	33.5
13000	0.50	31.2	33.8
13500	0.50	29.2	30.8
14000	0.52	30.5	31.7
14500	0.51	35.0	34.8
15000	0.52	37.7	34.9
15500	0.52	34.2	35.0
16000	0.56	32.5	35.0
16500	0.57	32.0	33.1
17000	0.59	27.3	28.3
17500	0.59	25.6	26.3
18000	0.61	27.0	26.1



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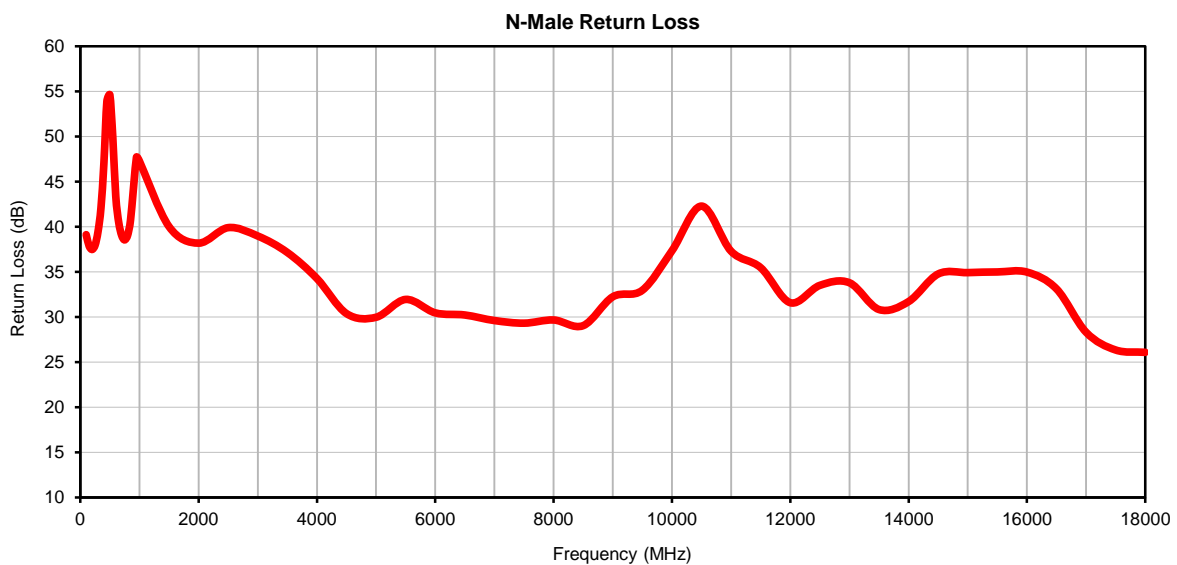
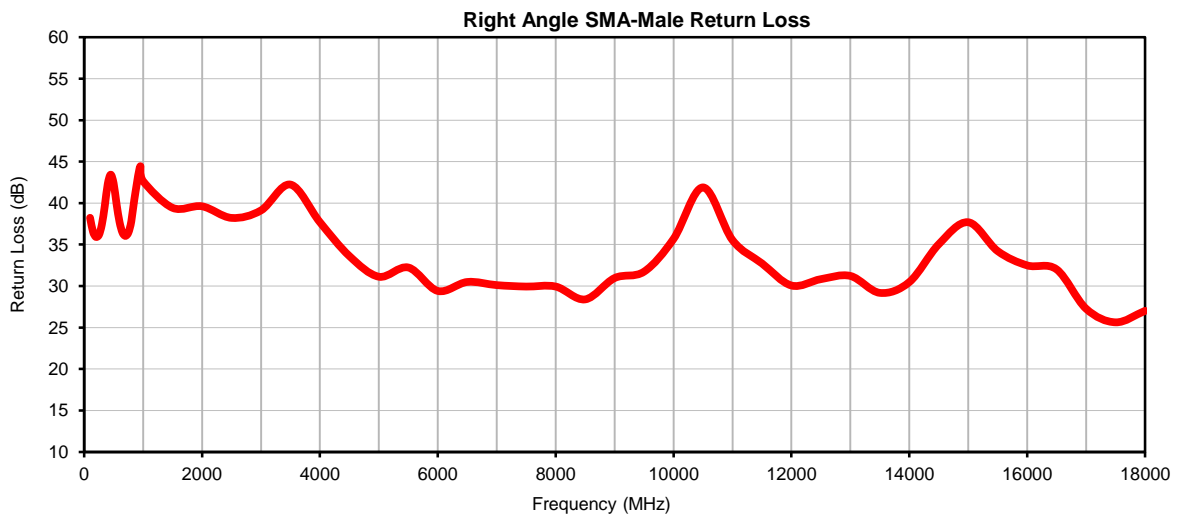
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IF/RF MICROWAVE COMPONENTS

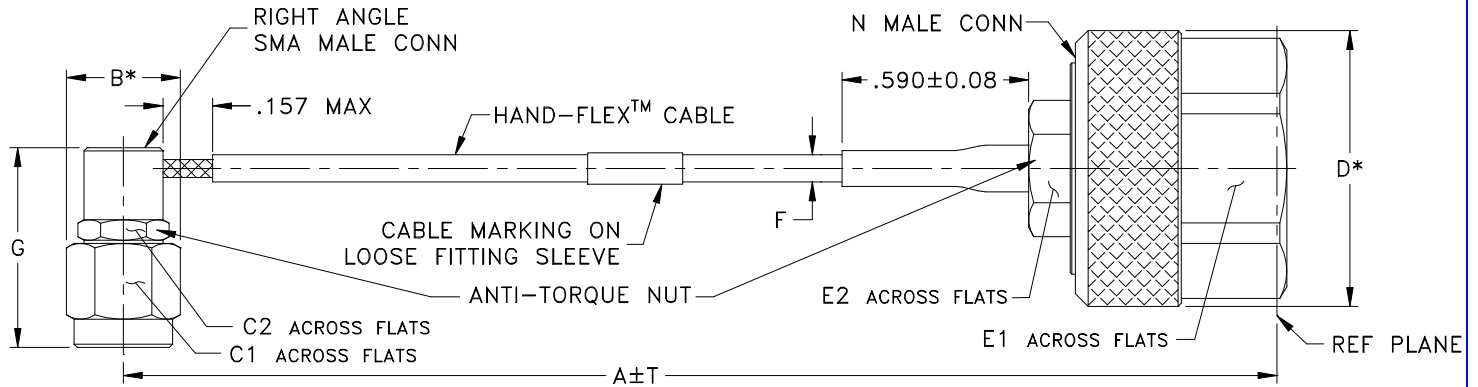
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Right Angle SMA Male to Straight N Male

Typical Performance Curves



Outline Dimensions



KQ1995 SERIES
 RIGHT ANGLE SMA MALE (CONN-1)
 N MALE (CONN-2)

CASE STYLE #	A		B	C1	C2	D	E1	E2	F		G	H
	INCH	MM							141U-ASMRNM+	141U-ASMRNM+		
KQ1995-10	10.00	254.00	.36 (9.14)	0.313 (7.95)	0.250 (6.35)	0.88 (22.35)	0.75 (19.05)	0.375 (9.53)	.141±.003 (3.58±0.07)	.163±.004 (4.14±0.10)	.728±.020 (18.50±0.50)	- -

CASE STYLE #	T		WEIGHT GRAMS
	INCH	MM	
KQ1995-10	0.10	2.54	45

Unless otherwise specified dimensions are in inches (mm).
 Tolerances: 2Pl. ± .03; 3Pl. ± .015

Note:

1. 141 Hand-Flex™ Coaxial Cable.
2. "A" represents length of cable.



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The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-55° to 105° C or -55° to 85° C (see datasheet) Ambient Environment	Individual Model Data sheet
Storage Temperature	-55° to 105° C or -55° to 85° C (see data sheet) Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 100°C, 100 Cycles	MIL-STD-202F; Method 107G
Multiple Bend Radius	40 mm, 5 times for 141 series cables 30 mm, 5 times for 086 series cables	
Single Bend Radius	8 mm for 141 series cables 6 mm for 086 series cables	