FLEX TEST™

# Instrumentation Test Cable VNAX-1M-EMERF+

50Ω 1M DC to 67 GHz Low Loss

CASE STYLE: RH2934-3.28

## The Big Deal

- Ultra-wideband operation, DC to 67 GHz
- 1.85mm Rugged Female connector for direct interface with 67 GHz VNA ports
- Low insertion loss and excellent return loss
- Rugged construction, crush and torque resistant

## Product Overview

Mini-Circuits' VNAX-1M-EMERF+ is an ultra-wideband precision rugged instrumentation cable specially designed for use with 67 GHz VNA equipment in test environments. The cable provides excellent VSWR and very low insertion loss over its entire frequency range. 1.85mm rugged female to1.85mm male connector configuration provides direct connection from the ports of a 67 GHz VNA to 1.85mm connectorized devices without the need for adapters. The cable features a rugged crush and torque resistant outer sheath that protects the cable from damage in demanding lab settings.

## Key Features

| Feature | Advantages |
|---|---|
| DC-67 GHz operation designed for use with Vector Network Analyzers (VNA) | Covers a wide range of test applications; rugged 1.87mm connector interfaces directly with VNA without the need for an adapter for improved VSWR performance and lower cost. |
| Rugged cable-connector interface | Chrome plated metal back shell maintains integrity of the cable-connector interface improving the reliability and extending life of use. |
| Extra rugged yet flexible armored cable construction. | 100% coverage, non-interleaved, stainless steel spiral sheath provides crush resistance and captured, opposing force steel braid provides torque resistance. PET monofilament yarn outer cover eliminates conductivity and allows easy handling. |
| 1M length | Standard VNA cable length makes this model a high performing, cost-effective replacement for expensive OEM cables. |
| Anti-Torque Component | Nut component feature on connector used to fit a torque wrench to minimize stress on connectors and prevent breakage |

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| Conn 1 | Conn 2 | Model |
|---|---|---|
| **1.85mm Male** | **1.85mm Rugged Female** | VNAX-1M-EMERF+ |

***+RoHS Compliant***

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

## Maximum Ratings

| | | |
|---|---|---|
| Operating Temperature | +18°C to +28°C | |
| Storage Temperature | -40°C to +50°C | |
| Power Handling at 25°C, Sea level | 115W | 1GHz |
| | 59W | 6GHz |
| | 27W | 26.5GHz |
| | 17W | 67GHz |

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

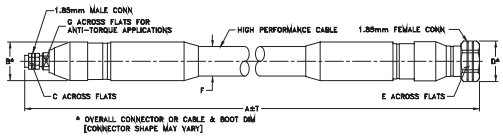
## Features

- extremely low insertion loss
- extra rugged construction includes protective shield and strain relief for longer life
- stainless steel 40 GHz connector for long mating-cycle life
- amplitude and phase stability vs flexture

## Applications

- military and defense applications
- research & development labs
- precision testing

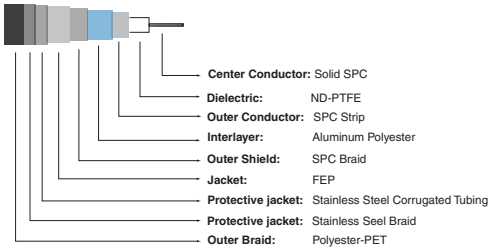
## Outline Drawing




## Outline Dimensions (inch / mm)

| A | | B | C | D | E | F | G | T | | wt |
|---|---|---|---|---|---|---|---|---|---|---|
| Feet | Meters | 0.79 | .315 | 0.83 | .75 | .602 | .275 | Inch | MM | grams |
| 3.28 | 1.00 | 20.07 | 8.00 | 21.08 | 19.05 | 15.3 | 7.0 | +.79/-0 | +20.0/-0 | 531 |

## Cable Construction




***Product Guarantee***

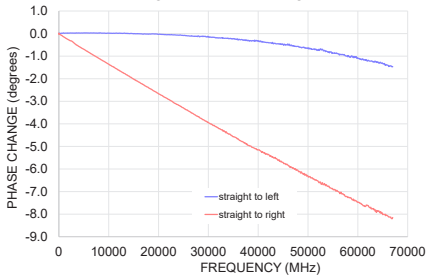
*Mini-Circuits® will repair or replace your test cable at its option if the connector attachment fails within six months of shipment. This guarantee excludes cable or connector interface damage from misuse or abuse.*

## Electrical Specifications at 25°C

| Parameter | Condition (GHz) | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|
| Frequency Range | | DC | | 67 | GHz |
| Length | | | 1 | | M |
| Insertion Loss | DC - 18 | — | 1.86 | 4.3 | dB |
| | 18 - 40 | — | 3.72 | 5.5 | |
| | 40 - 50 | — | 4.88 | 6.4 | |
| | 50 - 67 | — | 5.79 | 6.9 | |
| Return Loss | DC - 18 | 19 | 33 | — | dB |
| | 18 - 40 | 17 | 22 | — | |
| | 40 - 50 | 16 | 25 | — | |
| | 50 - 67 | 16 | 15 | — | |

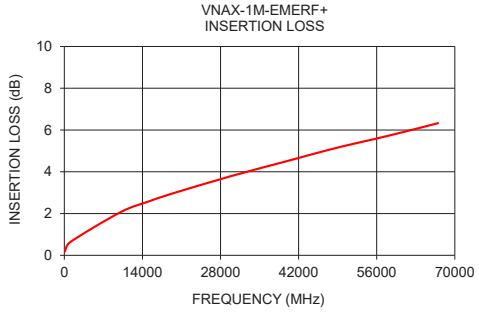
## Typical Performance Data

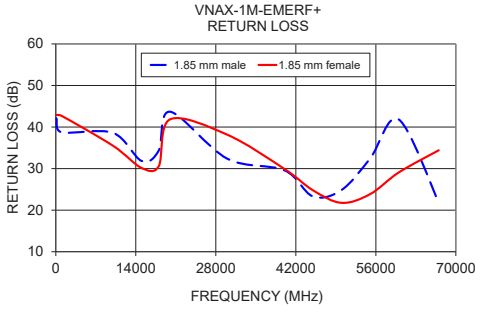
| Frequency (MHz) | Insertion Loss (dB) | Return Loss (dB) | |
|---|---|---|---|
| | | 1.85 mm Male | 1.85 mm Female |
| 100 | 0.18 | 42.11 | 42.90 |
| 1000 | 0.62 | 38.76 | 42.71 |
| 10000 | 2.06 | 38.61 | 35.51 |
| 15000 | 2.57 | 31.86 | 30.16 |
| 18000 | 2.84 | 34.31 | 30.54 |
| 20000 | 3.01 | 43.68 | 41.86 |
| 30000 | 3.80 | 32.39 | 38.16 |
| 40000 | 4.52 | 29.60 | 29.93 |
| 45000 | 4.88 | 23.31 | 24.78 |
| 50000 | 5.22 | 24.86 | 21.76 |
| 55000 | 5.53 | 32.43 | 23.86 |
| 60000 | 5.85 | 41.83 | 29.07 |
| 67000 | 6.33 | 21.85 | 34.41 |




* Typical phase change over flexure performed on VNAX-3FT-KMVRF+ by wrapping cable 360° around 4" radii mandrels referenced to normalized straight position.

** Setup is flipped and measurement is repeated.




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