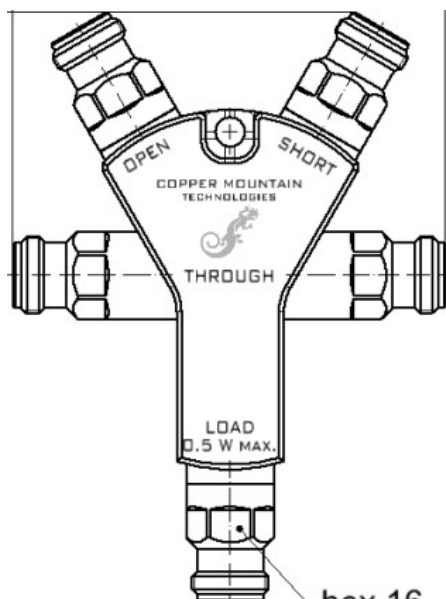




## CMNF18 Calibration Kit Datasheet



|                 |              |
|-----------------|--------------|
| Frequency range | DC to 18 GHz |
|-----------------|--------------|

## Hardware Specifications

### CMNF18

\*This data is preliminary and is subject to change at any time.

#### Radio Frequency Characteristics

|                                 |                                                |
|---------------------------------|------------------------------------------------|
| Interface type                  | N plug per IEC 61169-16                        |
| Frequency range                 | DC to 18 GHz                                   |
| Characteristic impedance        | 50 $\Omega$                                    |
| THRU                            |                                                |
| Return loss, min.               |                                                |
| DC to 4 GHz                     | 38 dB                                          |
| 4 to 8 GHz                      | 34 dB                                          |
| 8 to 18 GHz                     | 28 dB                                          |
| Insertion loss, max.            | $0.035 \text{ dB} \times \sqrt{f(\text{GHz})}$ |
| OPEN                            |                                                |
| Reflection phase accuracy, min. |                                                |
| DC to 6 GHz                     | 2.0 deg.                                       |
| 6 to 9 GHz                      | 3.0 deg.                                       |
| 9 to 18 GHz                     | 4.0 deg.                                       |
| SHORT                           |                                                |
| Reflection phase accuracy, min. |                                                |
| DC to 6 GHz                     | 1.5 deg.                                       |
| 6 to 9 GHz                      | 2.5 deg.                                       |
| 9 to 18 GHz                     | 3.0 deg.                                       |
| LOAD                            |                                                |
| DC-resistance                   | $50 \Omega \pm 0.5 \Omega$                     |
| Return loss, min.               |                                                |
| DC to 6 GHz                     | 42 dB                                          |
| 6 to 9 GHz                      | 35 dB                                          |
| 9 to 18 GHz                     | 32 dB                                          |
| Average power rating            | 0.5 W                                          |

## Calibration Data

| Format      |                         | CMT/ Keysight / Anritsu                 | Rohde & Schwarz                      |
|-------------|-------------------------|-----------------------------------------|--------------------------------------|
| THRU        | Electrical Delay/Length | 244.949 ps                              | 73.43 mm                             |
| OPEN        | C0                      | $0.8918 \times 10^{-15} \text{ F}$      | 0.8918 fF                            |
|             | C1                      | $-1200 \times 10^{-27} \text{ F/Hz}$    | -1.2 fF/GHz                          |
|             | C2                      | $85.41 \times 10^{-36} \text{ F/Hz}^2$  | $0.08541 \text{ fF}/(\text{GHz})^2$  |
|             | C3                      | $0.13 \times 10^{-45} \text{ F/Hz}^3$   | $0.00013 \text{ fF}/(\text{GHz})^3$  |
|             | Offset                  | 85.954 ps                               | 25.77 mm                             |
| SHORT       | L0                      | $16.9 \times 10^{-12} \text{ H}$        | 16.9 pH                              |
|             | L1                      | $-5881 \times 10^{-24} \text{ H/Hz}$    | -5.881 pH/GHz                        |
|             | L2                      | $614.4 \times 10^{-33} \text{ H/Hz}^2$  | $0.6144 \text{ pH}/(\text{GHz})^2$   |
|             | L3                      | $-18.52 \times 10^{-42} \text{ H/Hz}^3$ | $-0.01852 \text{ pH}/(\text{GHz})^3$ |
|             | Offset                  | 85.954 ps                               | 25.77 mm                             |
| Offset loss | 0.82 GΩ/s               |                                         |                                      |

## Mechanical Characteristics

|                                          |                                             |
|------------------------------------------|---------------------------------------------|
| Inner conductor material/surface coating | CuBe age hardened, copper alloy/gold-plated |
| Outer conductor material/surface coating | copper alloy/gold-plated                    |
| Dielectric material                      | cross linked polystyrene, PMP               |
| Other parts material/surface coating     | aluminum/anodized (blue)                    |
| Weight, approx.                          | 0.25 kg                                     |
| Marking                                  | laser engraving                             |

| Component name | Toxic or Hazardous Substances and Elements |    |    |       |     |      |
|----------------|--------------------------------------------|----|----|-------|-----|------|
|                | Pb                                         | Hg | Cd | Cr 6+ | PBB | PBDE |
| Metal parts    | X                                          | O  | O  | O     | O   | O    |

*The environmental protection use period of 50 years is valid if the product is used as intended.*

## Environmental Specifications

|                            |                      |
|----------------------------|----------------------|
| <b>Operating condition</b> |                      |
| Ambient temperature range  | +18 to +28°C         |
| Relative humidity, max.    | 95% (non-condensing) |
| <b>Storage condition</b>   |                      |
| Ambient temperature range  | -40 to +70°C         |
| Relative humidity, max.    | 95% (non-condensing) |