



# CMAD 20B COMMON MODE ABSORPTION DEVICE



- Frequency range 1 MHz to 1 GHz
- Frequency range 30 MHz to 200 MHz (CISPR 16-1-4)
- Max. cable diameter 20 mm
- Conform with CISPR 16-1-4

Reproducible emissions measurements require a defined line termination for the frequency range where connected lines provide a significant influence on the emissions. The key parameter is the asymmetrical impedance (common-mode impedance), which can be seen as the common mode impedance to the reference ground.

The CMAD (Common Mode Absorption Device) is specified in CISPR 16-1-4 and its use is defined in CISPR 16-2-3 and CISPR 11 edition 6.0. It improves the asymmetrical line termination in the frequency range 30 MHz to 200 MHz and improves measurement reproducibility. The CMAD needs to be clipped on lines leaving the test area. No more than three CMADs should be used for one setup.

The CMAD 20B replaces the CMAD 20A and Lüthi FTC 40X15E. It offers smaller dimensions as CMAD 20A and single holders for the ferrite core halves in difference to Lüthi FTC 40X15E.

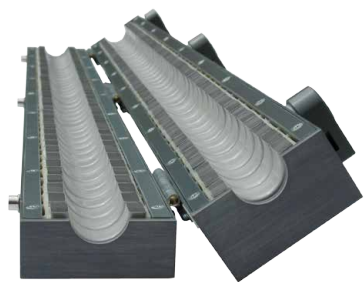
### Technical specifications



CMAD 20B, open, top view

|  |                        |
|--|------------------------|
| Frequency range as required in CISPR 16-1-4: | 30 MHz to 200 MHz      |
| Frequency range for general use:             | 1 MHz to 1000 MHz      |
| Maximum cable diameter:                      | 20 mm                  |
| Dimension (LxWxH):                           | 670 mm x 78 mm x 58 mm |
| Weight:                                      | approx. 3.4 kg         |

### Model No. and options

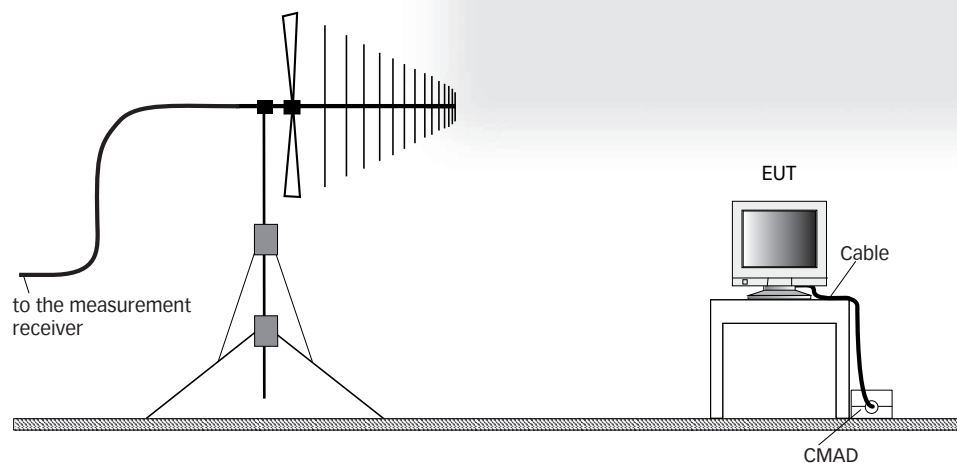


CMAD 20B, open, side view

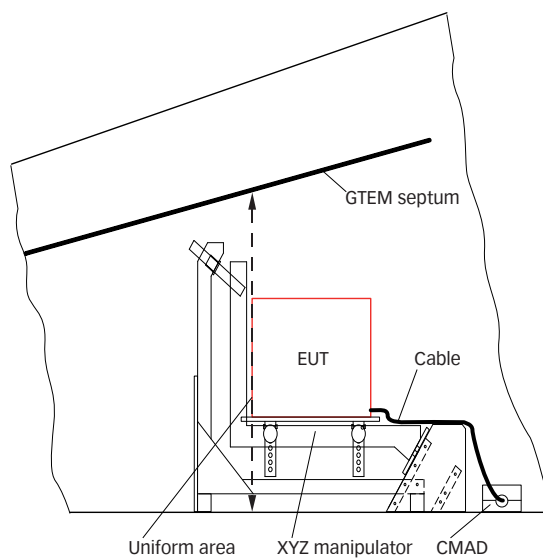
| Part number | Description  |
|-------------|--|
| 257259      | CMAD 20B<br>Common Mode Absorption Device (CISPR 16-1-4, CISPR 16-2-3, CISPR 11 ed. 6.0) cable sizes up to 20 mm, incl. traceable calibration (certificate according ISO17025) |
| 247651      | CAL CMAD20A<br>Calibration fixture for CMAD 20A, CMAD 20B, Lüthi FTC 40x15 E according CISPR 16-1-4  |

# CMAD 20B COMMON MODE ABSORPTION DEVICE

Typical set-up in a chamber

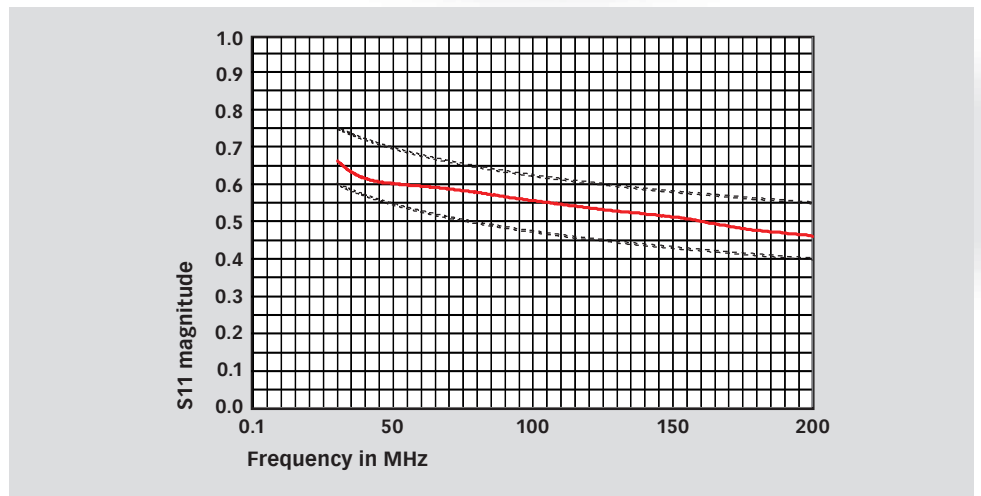


Typical set-up in a GTEM cell

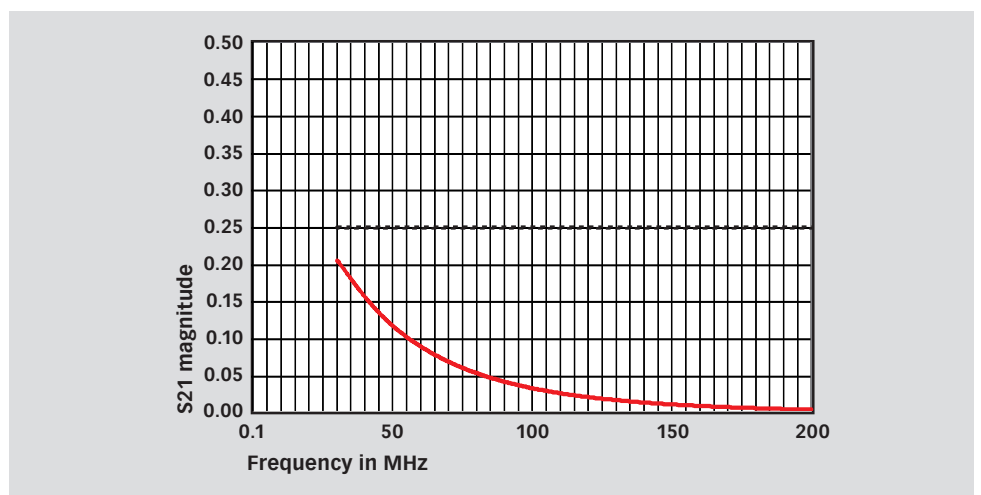


# CMAD 20B COMMON MODE ABSORPTION DEVICE

Typical S11 magnitude, ---- CISPR 16-1-4 limits

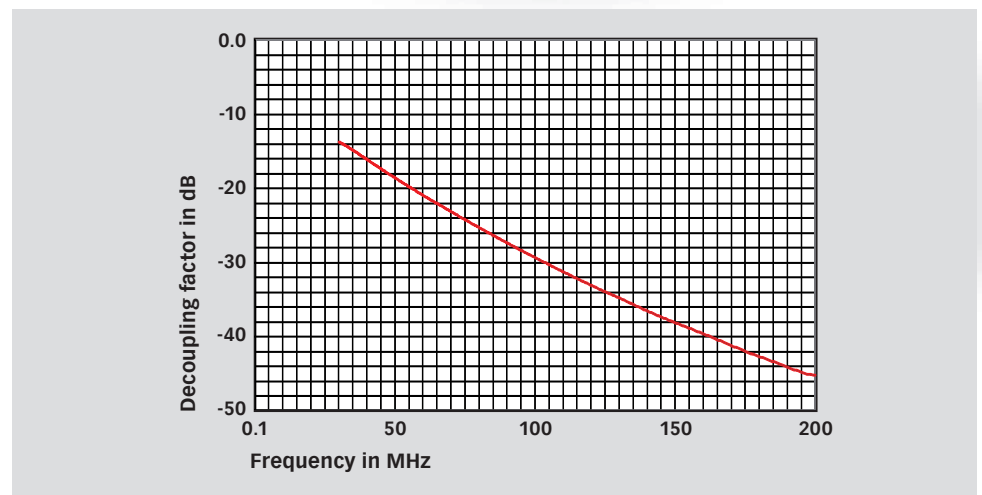


Typical S21 magnitude, ---- CISPR 16-1-4 limit

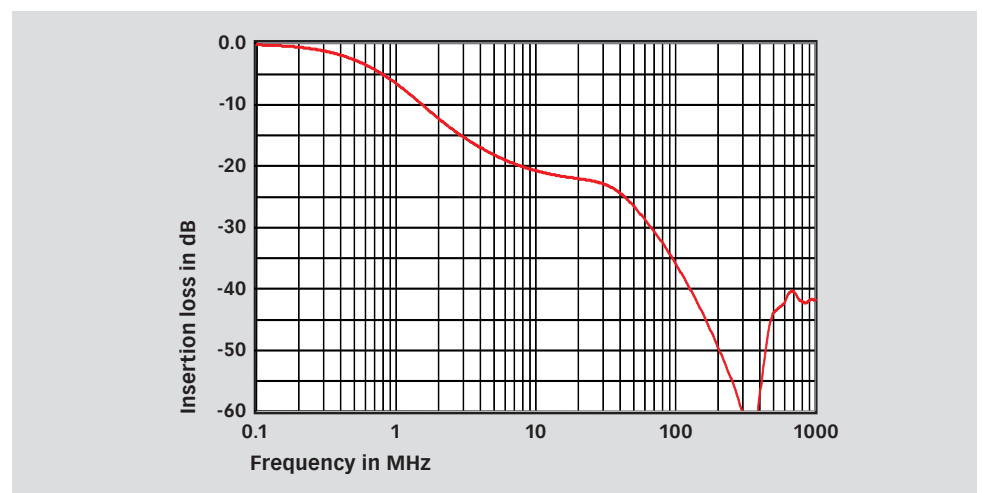


# CMAD 20B COMMON MODE ABSORPTION DEVICE

Typical decoupling factor, TRL calibration method in accordance to CISPR 16-1-4



Typical insertion loss in a 50  $\Omega$  system



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