

## CDN EMCL-20

### EM-Coupling clamp

#### IEC / EN 61000-4-6

- For the coupling during immunity tests according to IEC/EN 61000-4-6
- Frequency range 10 kHz - 1 GHz
- Suitable for cables **up to 20 mm**, for thicker cables up to 35 mm: use CDN EMCL-35

**High test voltage:**  
**up to 25 V in combination with**  
**CDG 7000-75 W generator**



#### Overview

EM coupling clamps are always used when the use of coupling / decoupling networks (CDN) does not seem suitable or appropriate. This applies, for example, to unshielded cables consisting of a large number of individual conductors.

With the electromagnetic coupling path, both capacitive and inductive coupling into the cable connected to the test object is achieved.

The EM coupling clamp has a directivity of  $\geq 10$  dB above 10 MHz, so that a defined impedance between the asymmetrical connection point of the auxiliary / additional equipment and the reference ground plane is no longer required. Above 10 MHz, the behavior of the EM coupling link is therefore similar to that of coupling/decoupling networks.

#### Key facts

- EM coupling clamp for immunity tests on cables up to 20 mm diameter
- Low insertion loss: less than 15 W amplifier power is required to achieve the test level of 10 V
- Supplied as standard **with calibration set and individual calibration data!**



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### Technical data I

#### CDN EMCL-20

Frequency range 10 kHz – 1 GHz

Nominal impedance 50 Ohm

Max. input level

0.01 (10 kHz) – 100 MHz 100 W, 15 min

100 – 230 MHz 100 W, 5 min

230 – 1000 MHz 50 W, 3 min

Connector N-type female

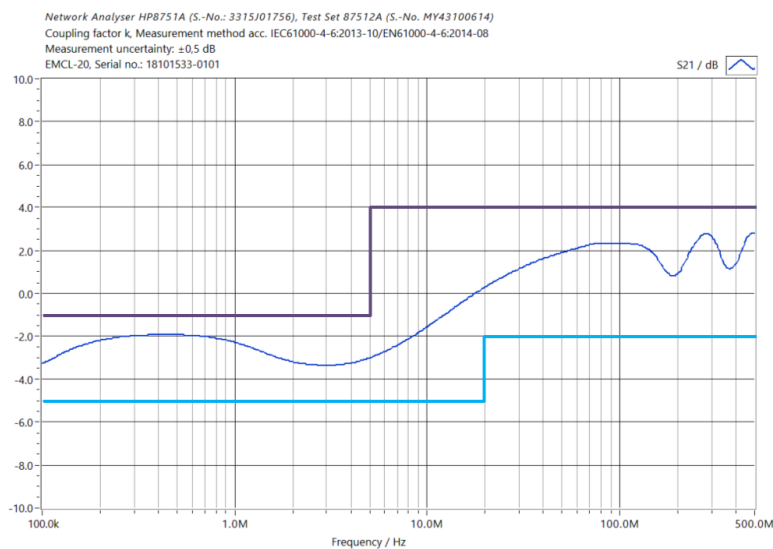
Cable diameter max. < 20 mm

Dimensions (L x W x H) 640 x 120 x 135 mm

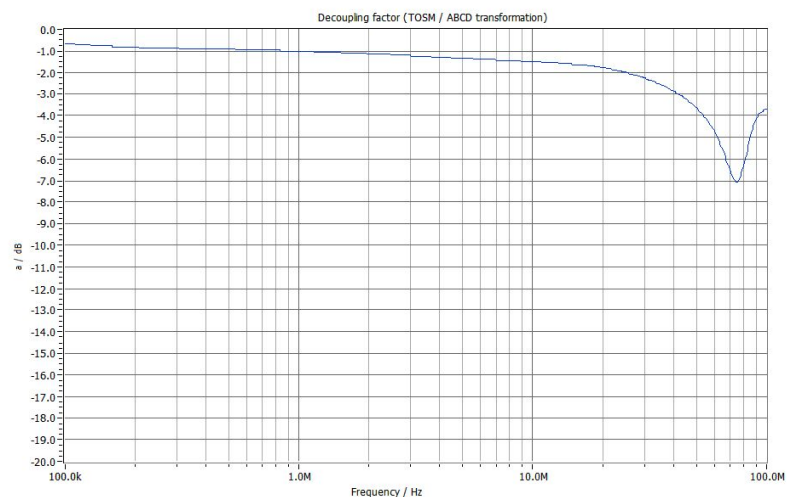
Weight appr. 10.5 kg

### Technical data II

### Typical coupling factor



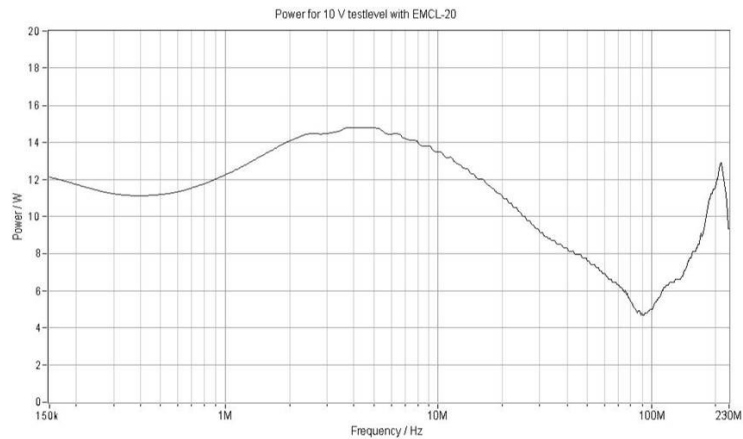
### Typical decoupling factor (transformed)



# CDN EMCL-20

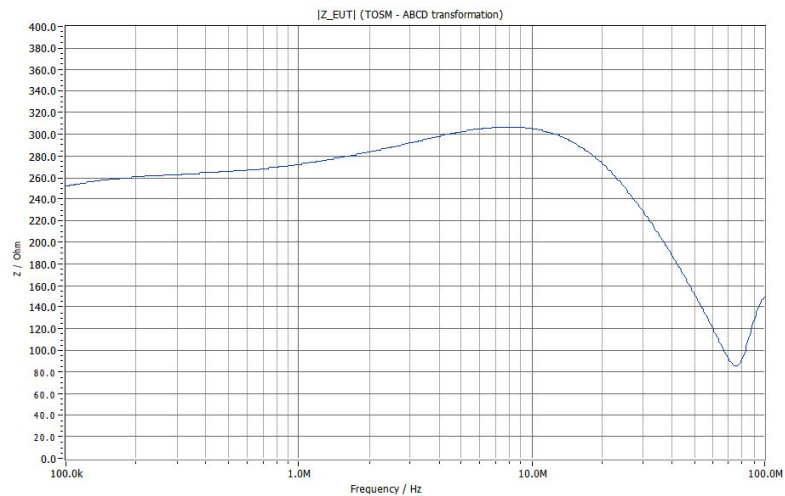
## EM-Coupling clamp

### Measured amplifier power



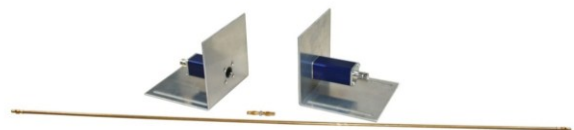
Measured amplifier power to achieve the highest level required in EN 61000-4-6 of 10 V.  
Measurement was carried out with 6 dB attenuator and 80% amplitude modulation.

### Typical clamp impedance (transformed)



### Calibration set / calibration data (included in delivery)

- 2 mounting brackets incl. 50/150 Ohm transition
- 1 piece BNC termination, 50 Ohm, 1 W
- 1 adapter with banana plugs for calibration of the network analyzer, length 34 mm
- 1 piece brass rod 4 mm with banana plugs for setting the test level, length 672 mm
- N male to BNC female



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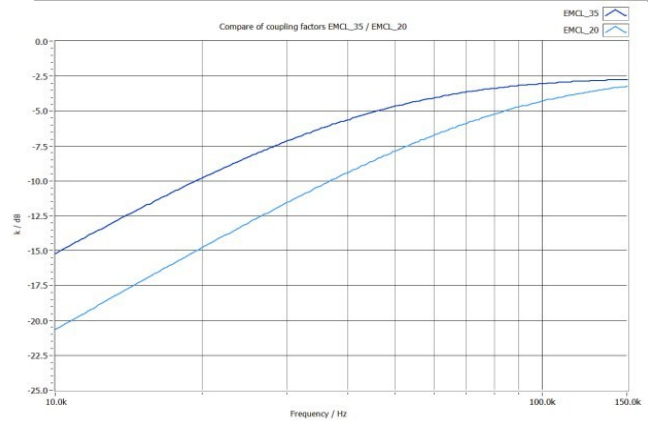
Accessories for frequency range 10 kHz - 150 kHz

ATTENTION: only for CDN-EMCL 20

### CDN EMCL-NW\_10 / MN\_1



### Comparison coupling factors EMCL 35 / 20



The high coupling factor of the EMCL-35 allows a test according to level 3 (10V) of IEC 61000-4-6 already at 10 kHz with the test generator CDG 7000-75-10.

EM coupling clamps have been developed **for test frequencies above 150 kHz**. For product standards with test requirements in the **frequency range from 10 kHz - 150 kHz**, the clamp cannot be operated as usual via the 6 dB attenuator because the insertion loss is too high for effective coupling!

For this reason, a **CDN-EMCL-NW\_10** matching network should be used, which transforms the low impedance of the EM coupling clamp up to an acceptable level for the amplifier. With this matching network, tests up to 10 V at 80 % AM can be performed safely and reproducibly - without the 6 dB attenuator.

### Options

CDG 7006-20W	Attenuator 6 dB, 20 W, BNC connector male / female
CDG 7006-100W	Attenuator 6 dB, 100 W, BNC connector male / female
CDN EMCL-NW_10	Matching network
CDN ABCL-20	Absorber clamp for additional decoupling during immunity testing according to IEC / EN 61000-4-6, 100 kHz - 1000 MHz, cable diameter max. 20 mm

All information regarding appearance and technical data correspond to the current state of development at the time of release of this data sheet. Errors and technical changes excepted.

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