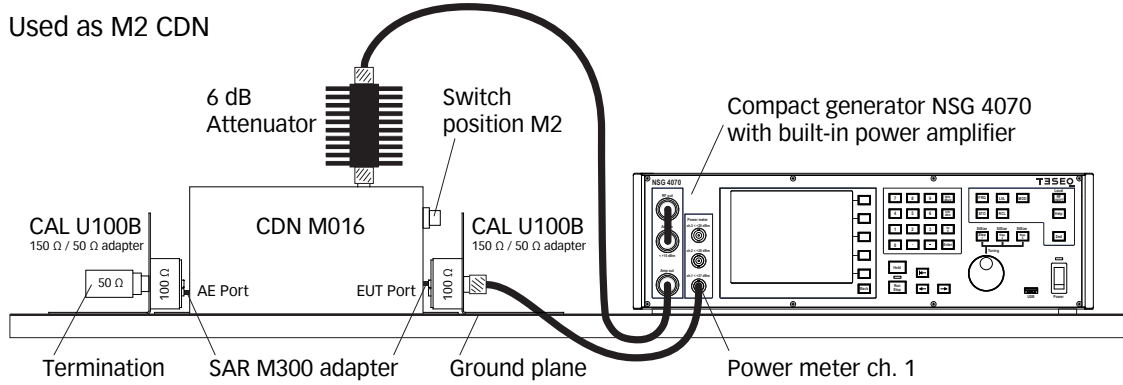


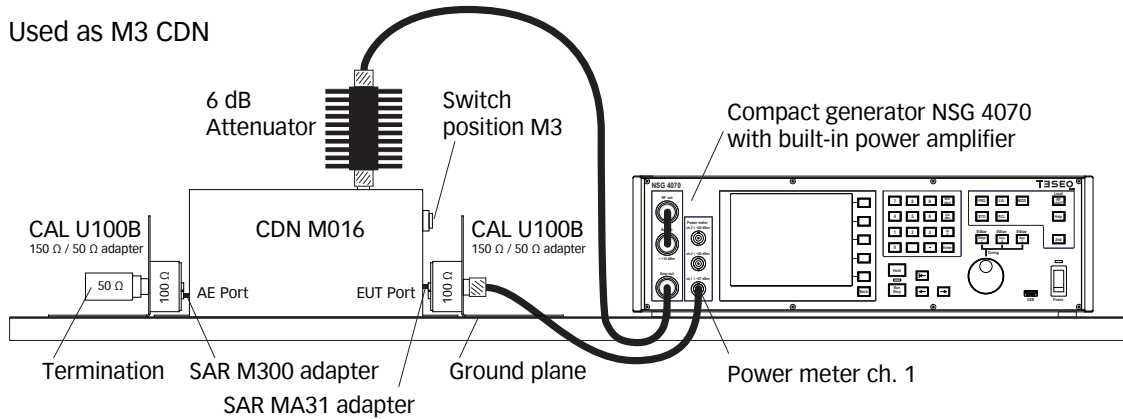
**8.2.15. Test setup calibration with a CDN**

The calibration setup always refers to the type of CDN. The CDN user manuals and the NSG 4070 Control Program show the required setup. (Immunity Menu/Global setup/Show test setup pictures). Examples for the system calibration of CDN M016 and CDN S are shown in the following figures:

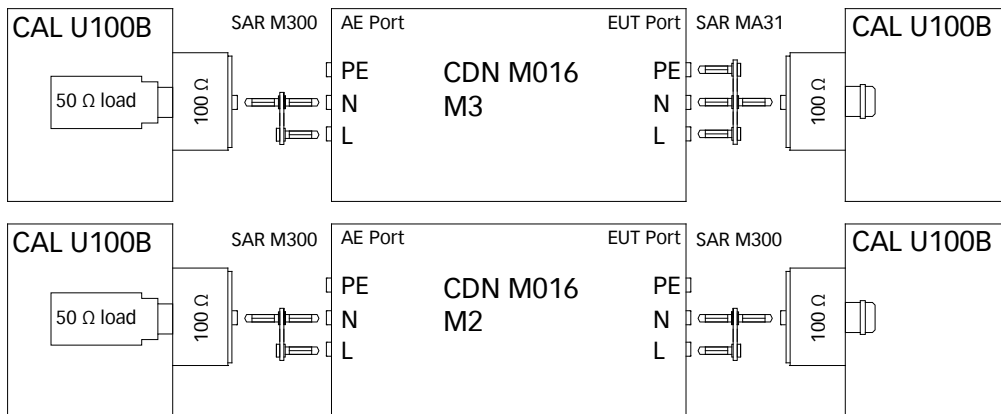
Used as M2 CDN



Used as M3 CDN



**Figure 15: Test setup calibration with CDN M016 (switchable M2/M3)**



**Figure 16: Setup details with CDN M016**

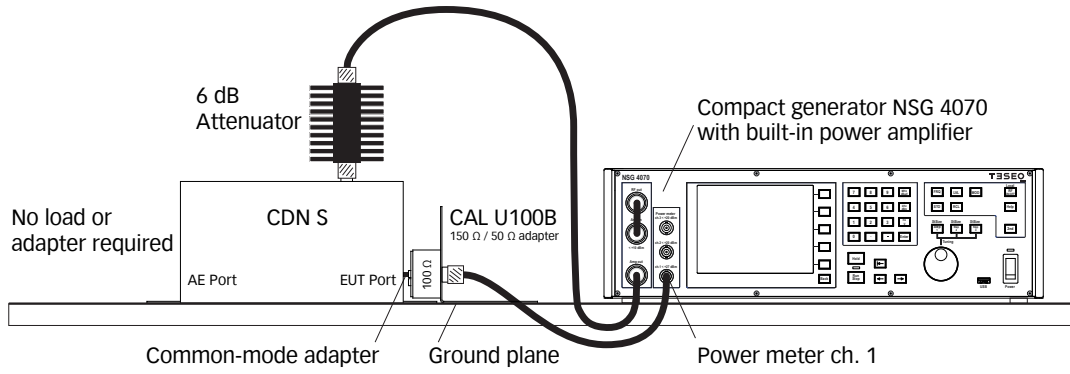


Figure 17: Test setup calibration with CDN S

8.2.16. EUT test setup with CDN

After calibration the calibration adapter has to be removed from the setup. The EUT must be connected through the CDN. One general example for the test setup with EUT is shown below:

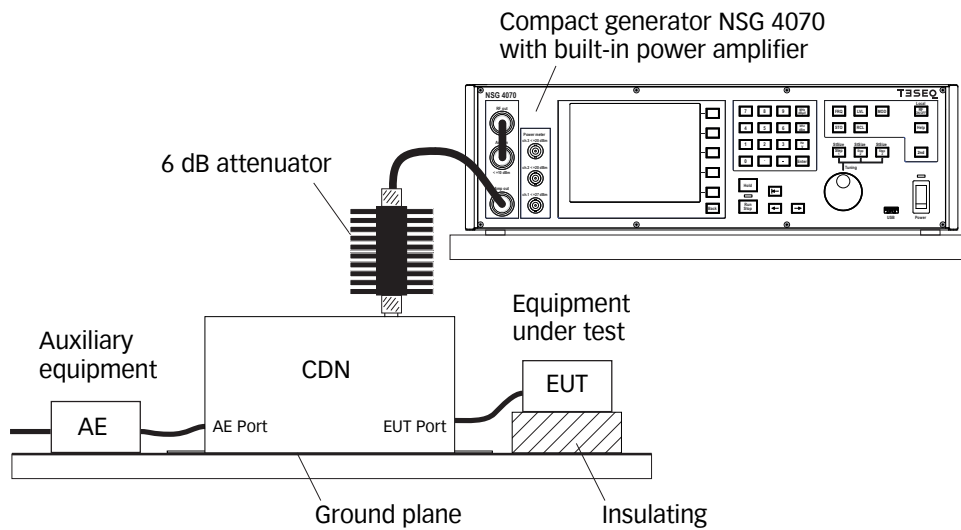


Figure 18: Test setup with EUT

### 8.2.17. Test setup calibration with EM clamp

The NSG 4070 is connected via a 6 dB attenuator to the RF port of the EM clamp. The EUT port of the EM clamp is connected with a 150  $\Omega$  to 50  $\Omega$  adapter to power meter channel 1. The AE port is terminated with 150  $\Omega$ . Both adapters need to be connected with the supplied cable of the calibration jig. The clamp needs to be clicked on this cable. The setup for the system calibration is shown in figure below:

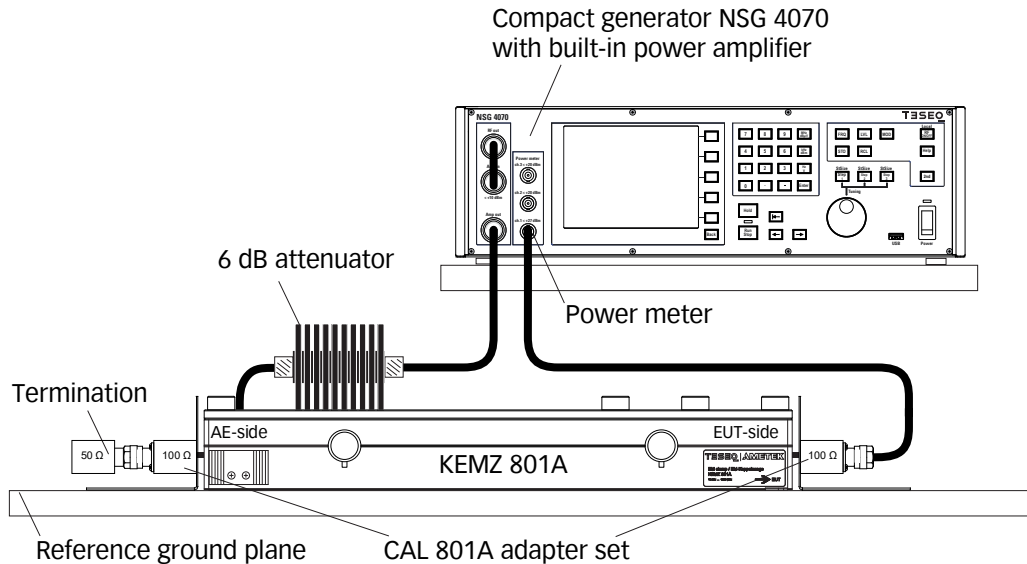


Figure 19: Test setup calibration according IEC/EN 61000-4-6 with EM clamp

### 8.2.18. EUT test setup with EM clamp

After calibration the 150  $\Omega$  to 50  $\Omega$  adapter / 150  $\Omega$  load has to be removed from the setup. The EUT must be connected through the EM clamp. One general example for the test setup with EUT is shown below:

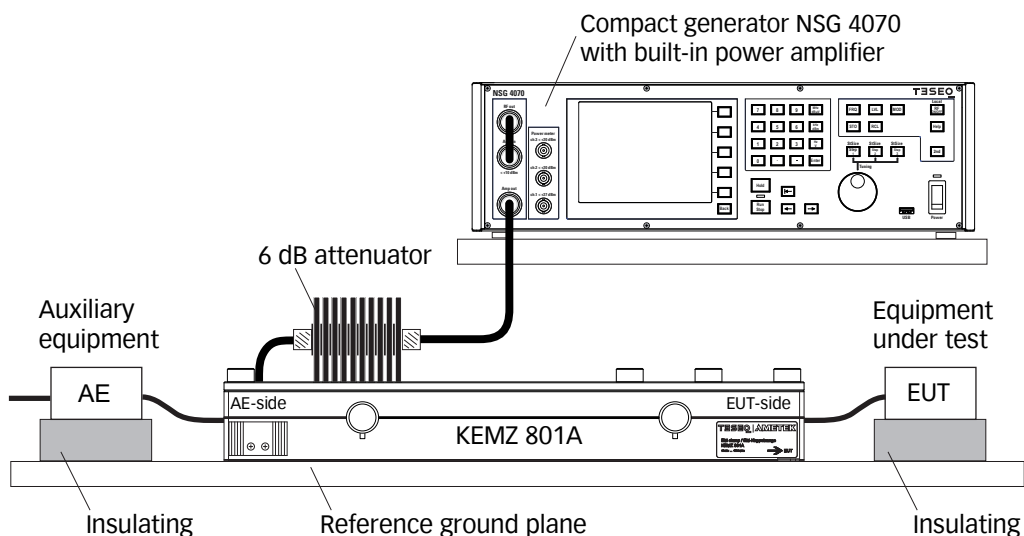
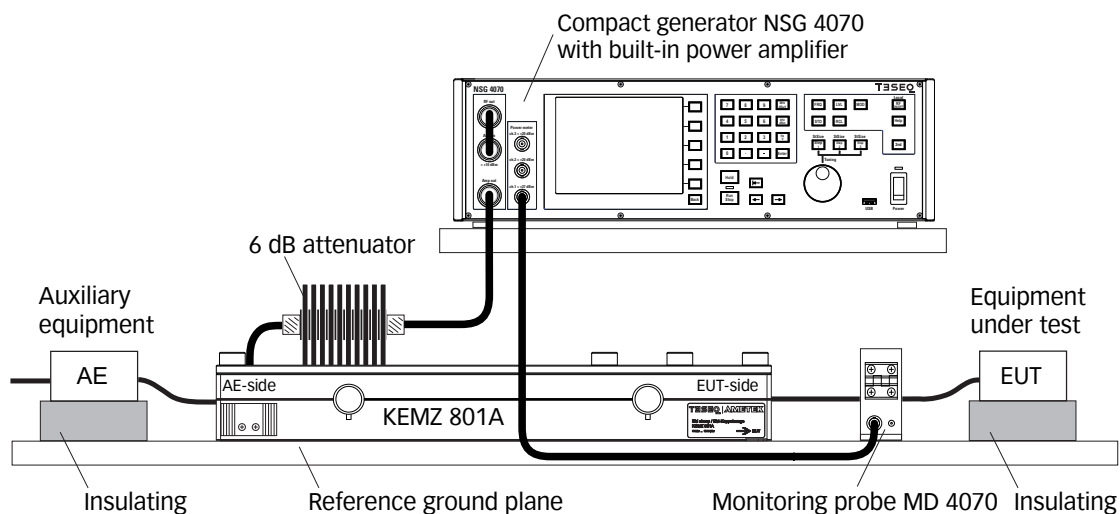


Figure 20: Test setup with EUT according IEC/EN 61000-4-6 with EM clamp

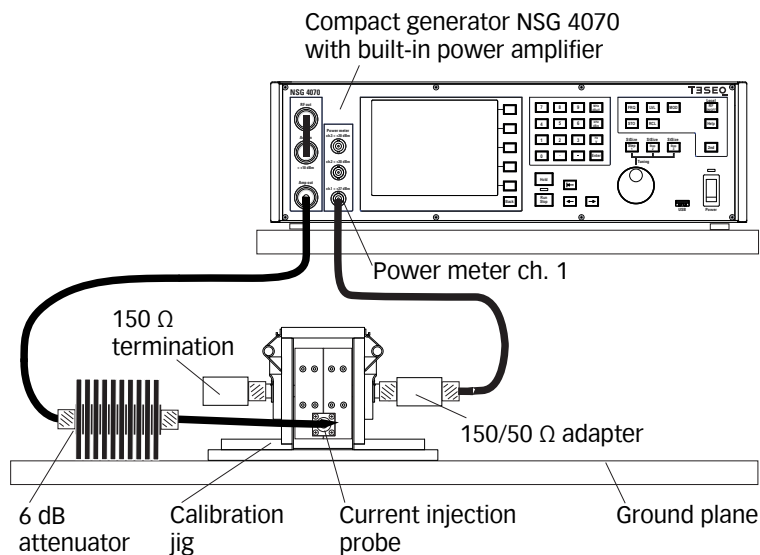
The test setup with using the monitoring probe is shown below.



**Figure 21: Test setup with EUT according IEC/EN 61000-4-6 with EM clamp and monitoring probe**

**8.2.19. Test setup calibration with current injection probe (150 Ω system)**

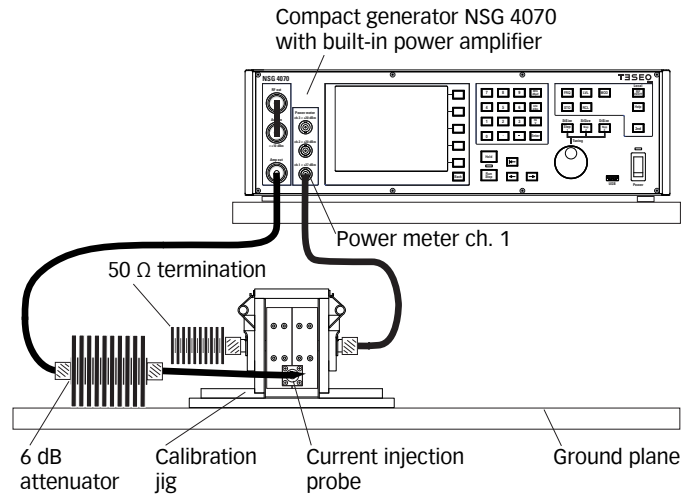
The test generator is connected via 6 dB attenuator to the RF port of the current injection probe. The probe is inserted in a 50 Ω jig. The jig is connected with a 150 Ω to 50 Ω adapter to a power meter with 50 Ω input impedance. The other side of the jig is terminated with 150 Ω. The setup for the system calibration is shown in the figure below:



**Figure 22: Test setup calibration according IEC/EN 61000-4-6 with current injection probe**

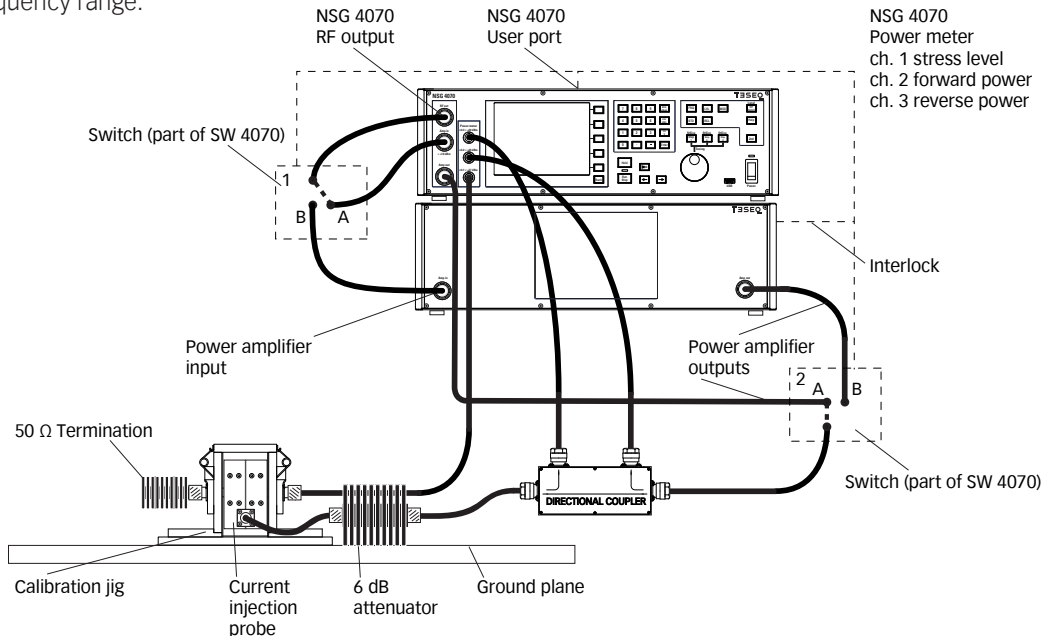
**8.2.20. Test setup calibration with current injection probe (50 Ω system)**

The test generator is connected via 6 dB attenuator to the RF port of the current injection probe. The probe is inserted in a 50 Ω jig. The jig is connected to a power meter channel 1. The other side of the jig is terminated with 50 Ω. All IEC / EN 61000-4-6 setups of the NSG 4070 are based on the 150 Ω. A conversion factor of -9.5 dB is needed because of the 50 Ω to 150 Ω relation. For calibrating in a 50 Ω system is needed to add -9.5 dB as additional attenuation. Test levels of 10 V EMF may require an additional attenuator of 10 or 20 dB. The resultant factor should be used (Example: 20 dB -9.5 dB = 10.5 dB). See chapter 4.3.3 if using the front panel operation of the NSG 4070 or 5.9.3.7 if using the Windows software. The setup is shown in the figure below:



**Figure 23: Test setup calibration with current injection probe in a 50 Ω system**

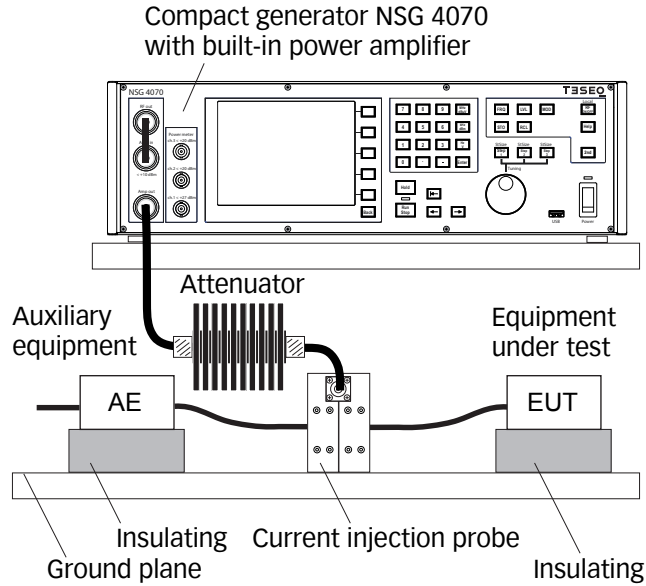
The following figure shows the use of internal and external amplifier (“MIXED” mode) for having an extended frequency range.



**Figure 24: Test setup calibration with current injection probe in a 50 Ω system, 2 amps**

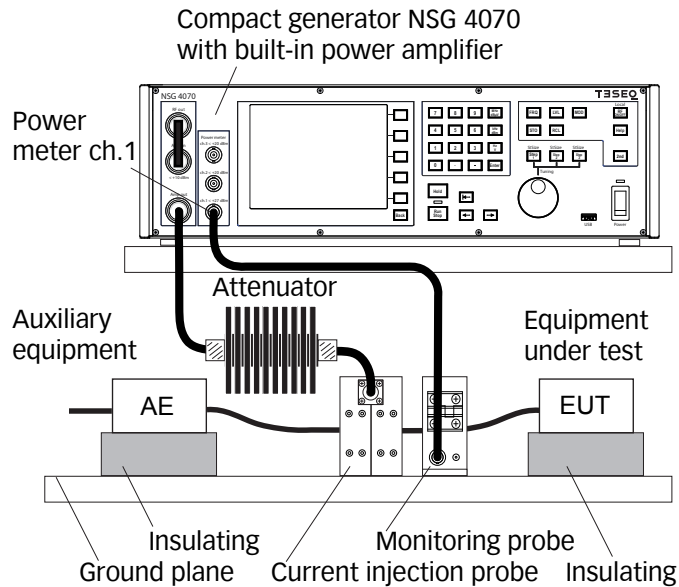
**8.2.21. EUT test setup with current injection probe**

After calibration the jig and the adapters must be removed from the setup. The EUT must be connected through the current injection probe. A general example for the test setup with EUT is shown below:



**Figure 25: Test setup with EUT according IEC / EN 61000-4-6 with current injection probe**

The test setup with using the monitoring probe is shown below.



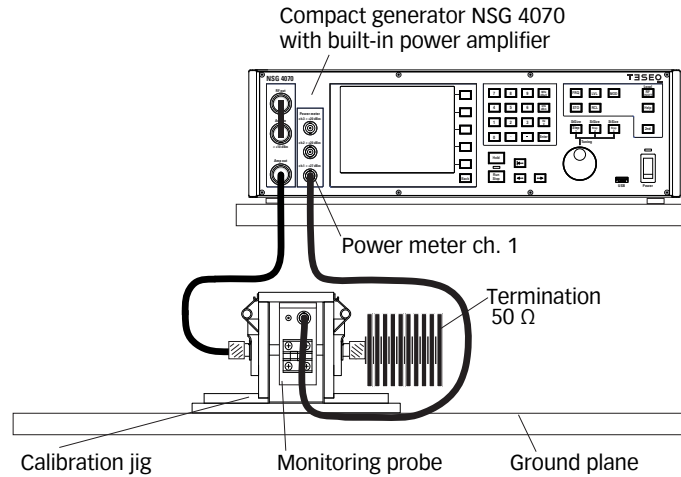
**Figure 26: Test setup with EUT according IEC / EN 61000-4-6 with current injection probe and monitoring probe**

### 8.2.22. Calibration of the monitoring probe

Teseq recommends using the MD 4070 monitoring probe due to the operating range of the power meter. The active mode of MD 4070 allows also the operation with low stress levels. Details given in Table 11. The active mode requires to connect the power supply with the MD 4070. Using the whole dynamic range requires to calibrate the MD 4070 in the active and passive mode. The remote controlled switching requires connection with the NSG 4070 user port. The probe calibration measures the insertion loss in a  $50\ \Omega$  system.

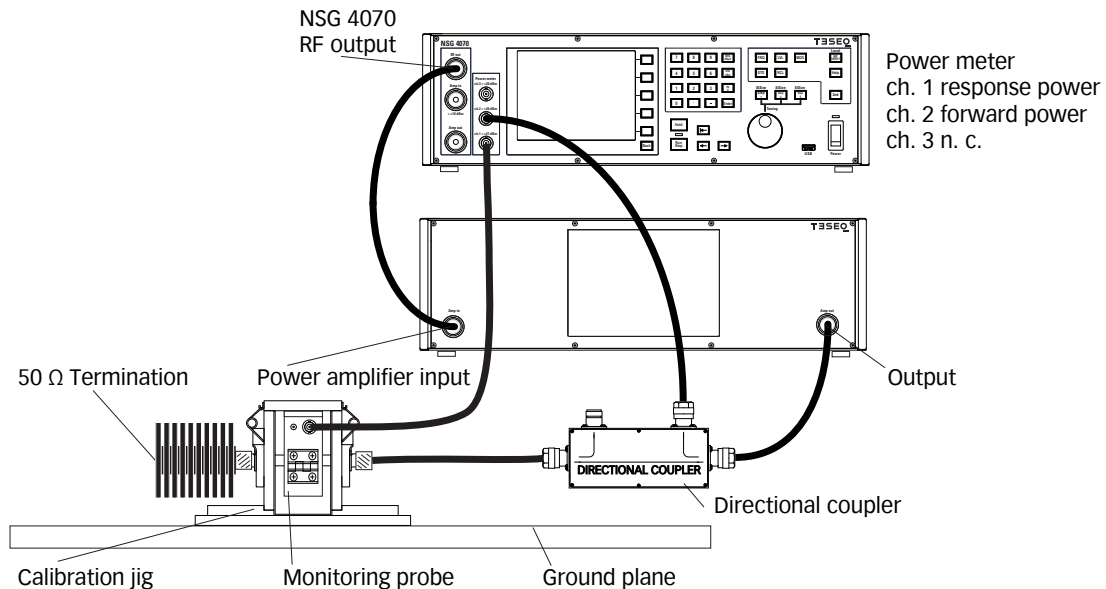


**CAUTION:** Using power amplifiers with more than 100 Watts requires to protect power meter channel 1 with an attenuator of at least 10 dB.



**Figure 27: Calibration setup of the monitoring probe**

The calibration setup for the monitoring probe with an external power amplifier is shown below.



**Figure 28: Calibration setup of the monitoring probe with external power amplifier and directional coupler**

### 8.2.23. Setup with external power amplifier and directional coupler

An external power amplifier can be connected to the NSG 4070 as shown in the general example below. An external power amplifier requires always an external directional coupler regardless of the type of NSG 4070 used. For the combination internal and external amplifier is needed the optionally available RF switch SW 4070. A setup is shown in figure 24.

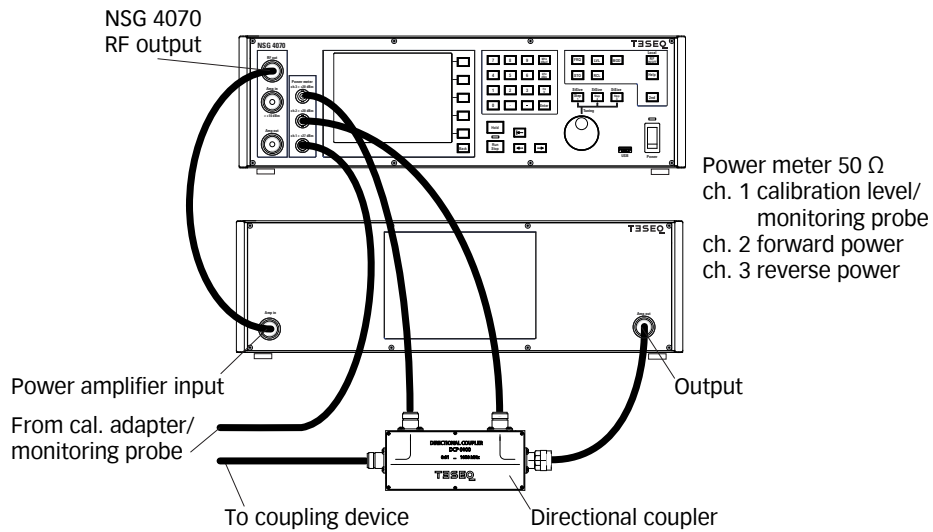


Figure 29: Setup with external power amplifier and directional coupler