

# NSG 4070B APPLICATION FOR RTCA DO160 SECTION 20

## Test parameter

Standards:	RTCA DO160 section 20 CS
Frequency range:	10 kHz to 400 MHz
Test levels:	see diagram
Modulation:	as given in the standard
Test method:	Substitution method with monitoring probe
Monitoring probe:	no requirements in the standard, only for information, no limiting/control of the injected level

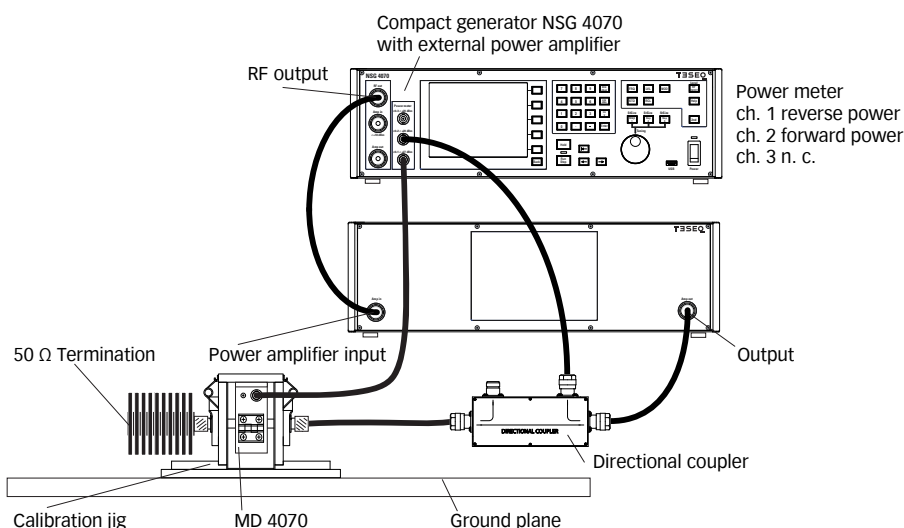
## Equipment

Signal generation:	NSG 4070B-0
Modulator:	included in NSG 4070B-0
Power meter:	3x included in NSG 4070B-0
Power amplifier:	CBA 400M-110
Directional coupler:	DCP 0100
Current injection probe:	CIP 9136A
Monitoring probe:	MD 4070
Calibration jig:	PCJ 9201B
Termination:	50 $\Omega$ 10 W
Attenuation:	26 dB 30 W, 10 dB 30 W, 20 dB 10 W
Software:	optional C5I or WIN 6000

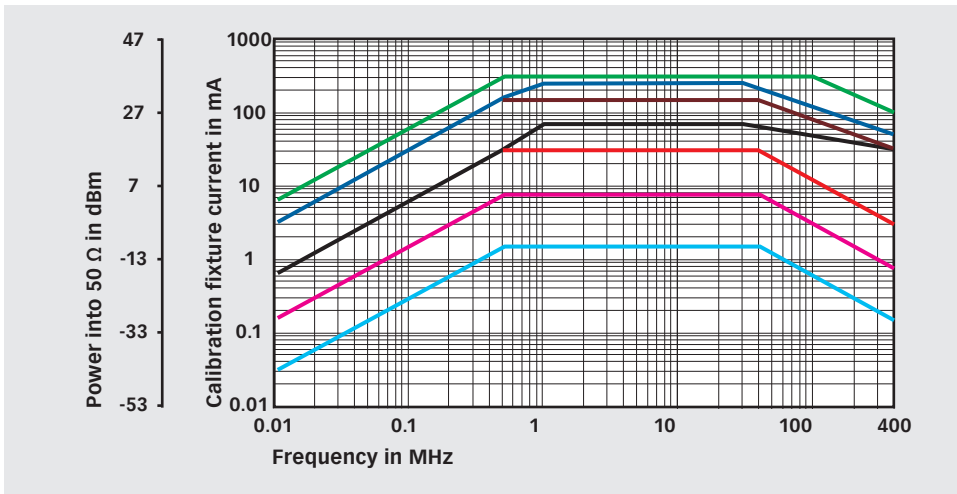


**WARNING: The power meter inputs are very sensitive. It is the user's responsibility to ensure that the selected test levels does not damage the equipment. Any hardware/setup changes should be calculated before starting the test.**

## Calibration set-up for monitoring probe

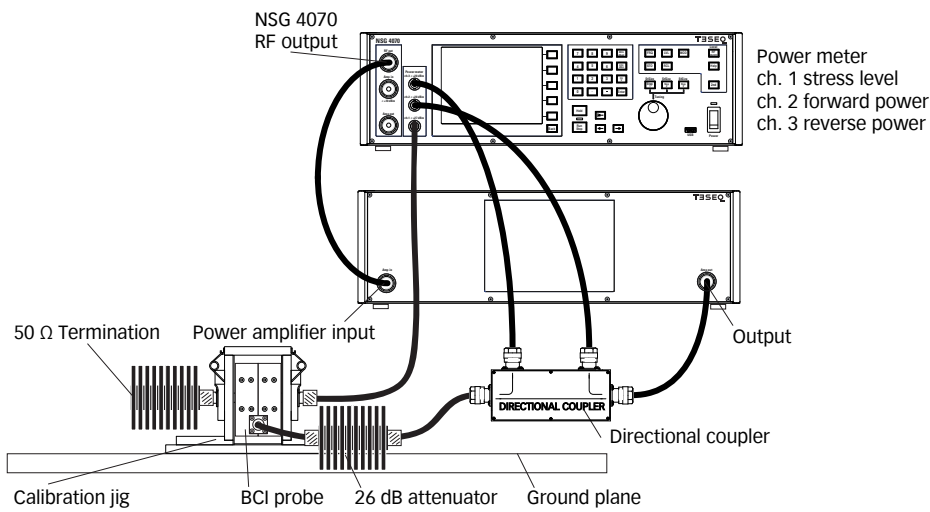


Remarks:  
The monitoring probe MD 4070 needs to be calibrated in the way of its use (active, passive or with switching at a specific frequency from active to passive).



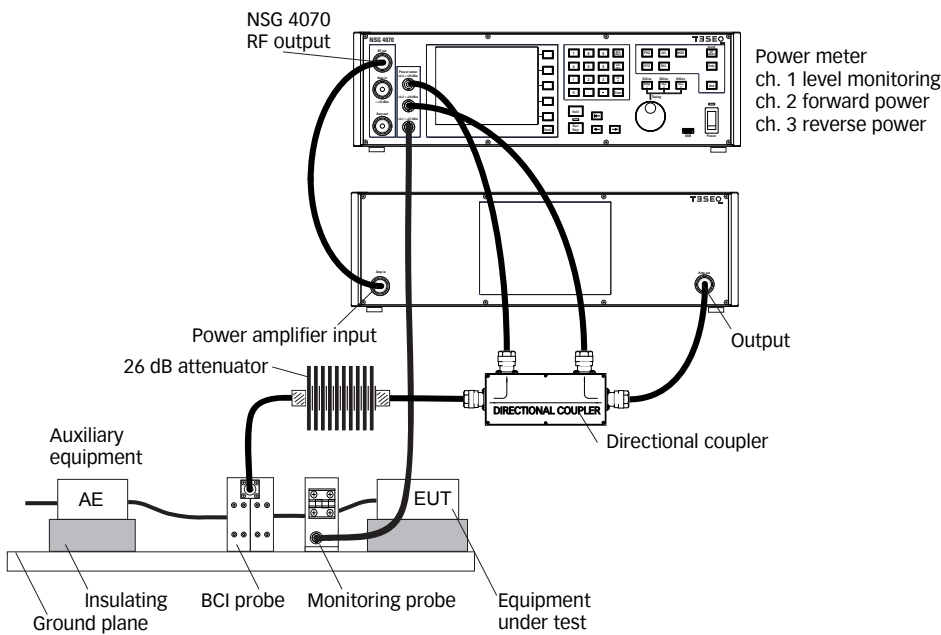
- Test levels**
- Category S
  - Category T
  - Category R
  - Category W
  - Category Y
  - Category M
  - Category O

**Calibration set-up (for categories S and T)**



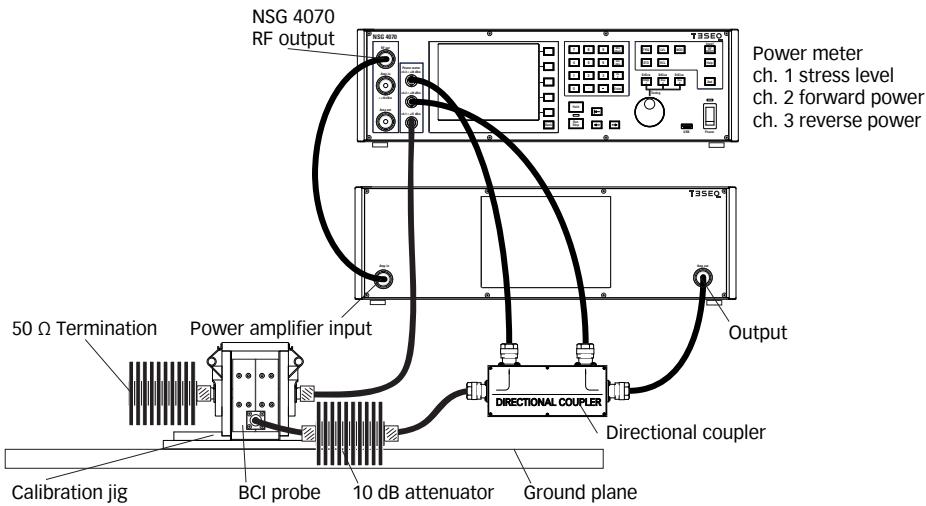
Attenuator: 26 dB 30 W  
 Termination: 50 Ω 10 W  
 Caution:  
 Stress levels below 3 mA cannot be adjusted due to the power amplifier noise floor. This requires to work with an increased test level or additional attenuator on the BCI probe.

**Test set-up with monitoring probe (for categories S and T)**



Attenuator: 26 dB 30 W  
 Use of MD 4070 in the active mode.  
 Caution:  
 The low stress levels of category S below 30 kHz cannot be measured with MD 4070.

### Calibration set-up (for categories M and R)



Power meter  
ch. 1 stress level  
ch. 2 forward power  
ch. 3 reverse power

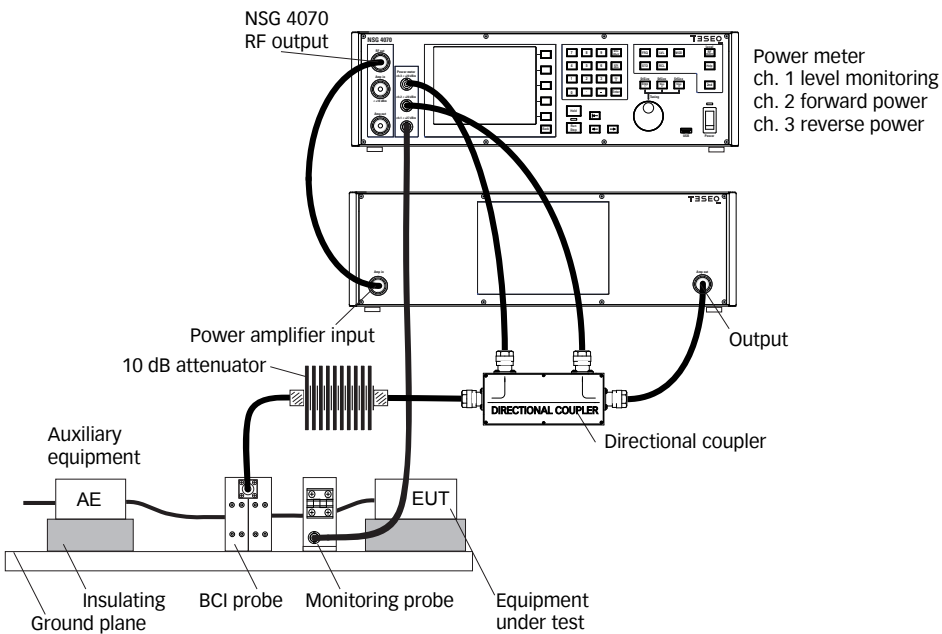
Attenuator: 10 dB 30 W

Termination: 50 Ω 10 W

Caution:

Stress levels below 3 mA cannot be adjusted due to the power amplifier noise floor. This requires to work with an increased test level or additional attenuator on the BCI probe.

### Test set-up with monitoring probe (for categories M and R)



Power meter  
ch. 1 level monitoring  
ch. 2 forward power  
ch. 3 reverse power

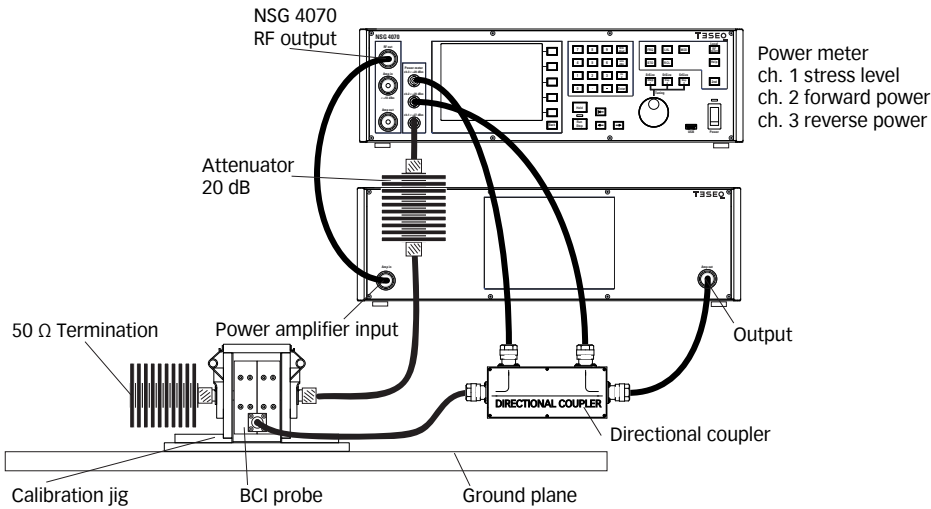
Use of MD 4070 in the active mode in the range below 50 kHz.

Use of MD 4070 in the passive mode above 50 kHz.

Caution:

The use of the MD 4070 in the active mode during tests with stress levels above 20 mA could damage power meter channel 1 of NSG 4070.

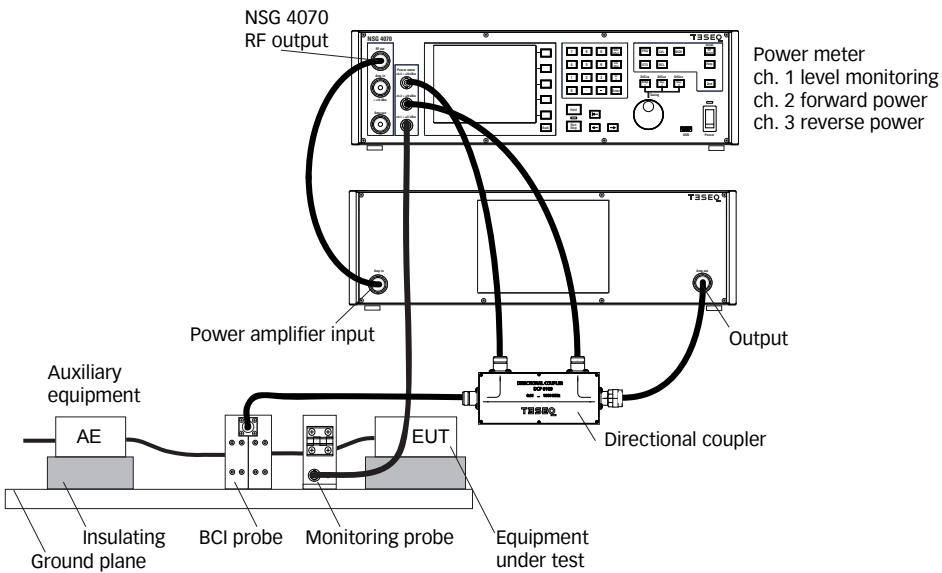
**Calibration set-up (for categories O, W and Y)**



Attenuator: 20 dB, 10 W  
 Termination: 50 Ω 10 W

Remarks:  
 Power meter channel 1 needs to be protected with a 20 dB attenuator.

**Test set-up with monitoring probe (for categories O, W and Y)**



Use of MD 4070 in the passive mode.  
 Power meter ch. 1 level monitoring  
 ch. 2 forward power  
 ch. 3 reverse power