SG 4070 APPLICATION FOR MIL-STD 461F CS 114

Test parameter

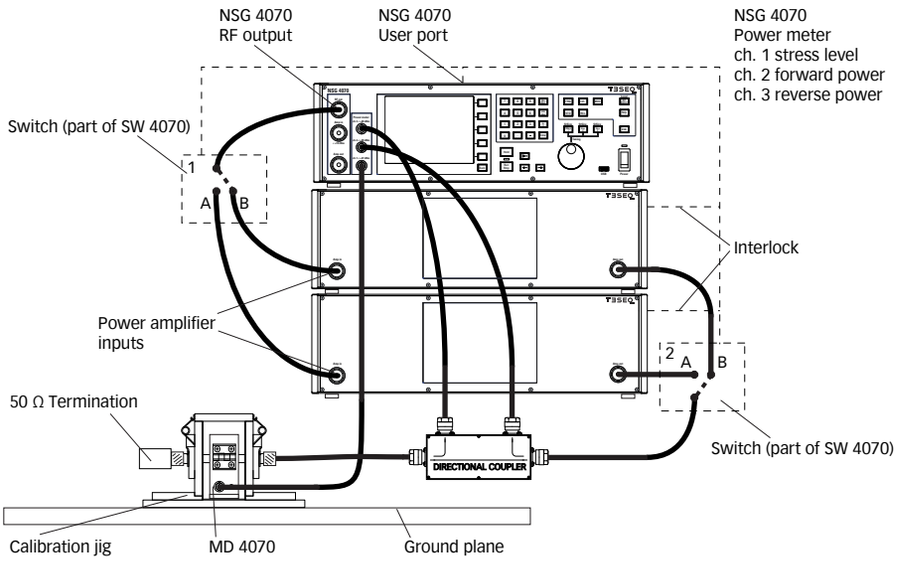
Standards:	MIL-STD 461F CS 114
Frequency range:	10 kHz to 200 MHz
Curve 1 to 5:	see diagrams
Modulation:	1 kHz pulse modulation, 50% duty cycle
Test method:	Substitution method with monitoring probe
Monitoring probe:	only for information

Equipment

Signal generation:	NSG 4070-0
Modulator:	included in NSG 4070-0
Power meter:	3x included in NSG 4070-0
Power amplifier:	max. 30 W required
RF Switch:	SW 4070
Directional coupler:	DCP 0100
Current injection probe:	CIP 9136A
Monitoring probe:	MD 4070
Calibration jig:	PCJ 9201B
Termination:	50 Ω 10 W
Attenuation:	1x 20 dB 30 W, 2x 10 dB 30 W, 1x 6 dB 30 W
Software:	incl. in NSG 4070 or optional C3I 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).

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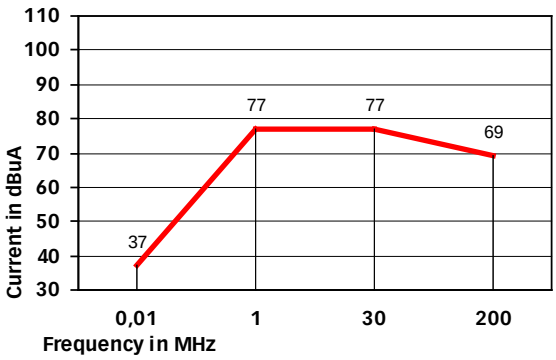
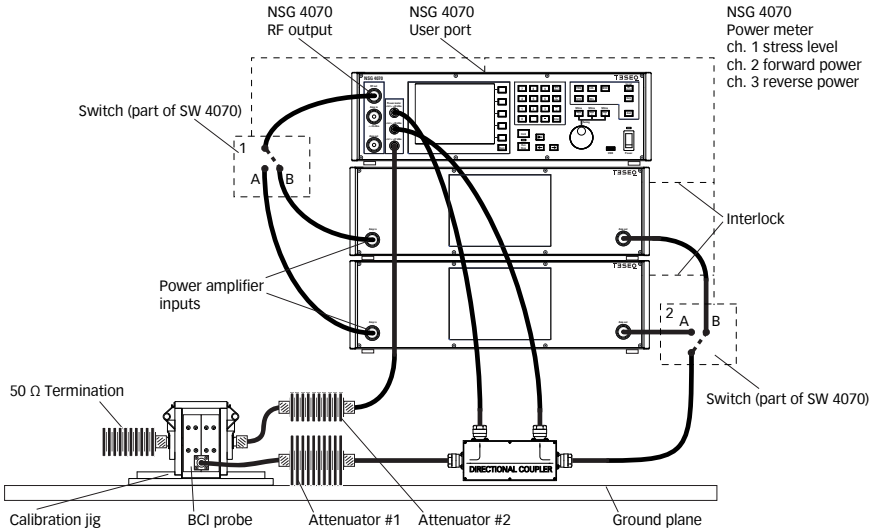
Test level — for MIL STD 461F CS114 curve #1



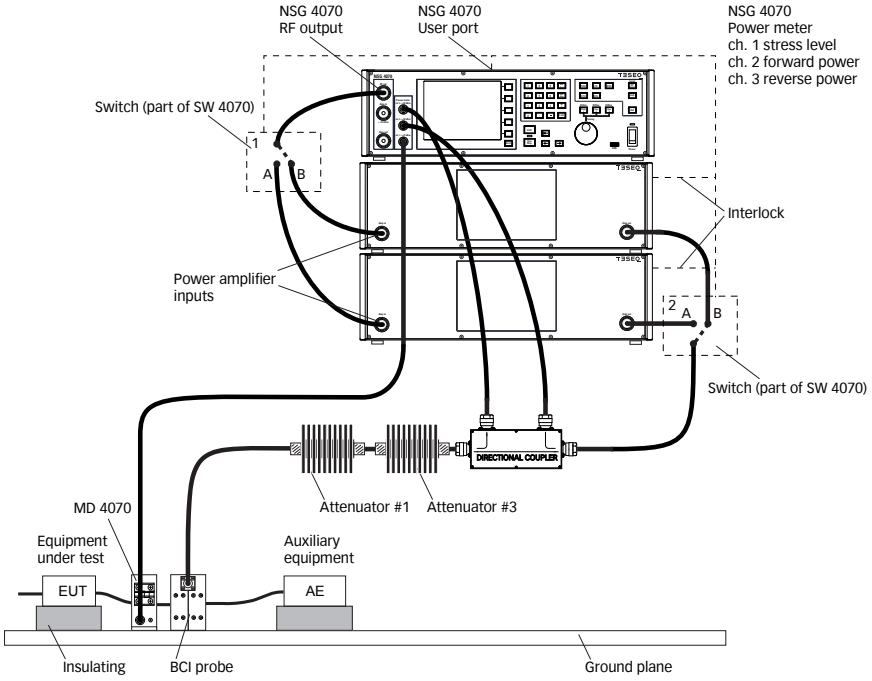
Calibration set-up (for curve #1)



Attenuator #1: 10 dB, 30 W
Attenuator #2: not in use
Attenuator #3: not in use
Termination: 50 Ω 10 W

Remarks:
Calibration with a 20 dB increased level.

Test set-up with monitoring probe (for curve #1)



Attenuator #1: 10 dB, 30 W
Attenuator #2: not in use
Attenuator #3: 20 dB, 30 W
Termination: 50 Ω 10 W

Remarks:
Test with additional 20 dB attenuator (attenuator #3) between directional coupler and BCI probe.

Use of MD 4070 on PM ch.1:
The monitoring probe is in the linear measuring range above 54 dBµA stress level (above 70 kHz). The MD 4070 needs to be used in the active mode.

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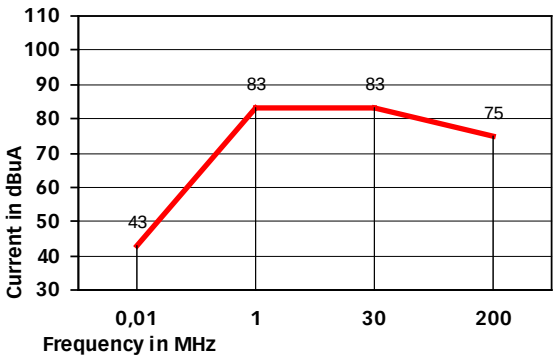
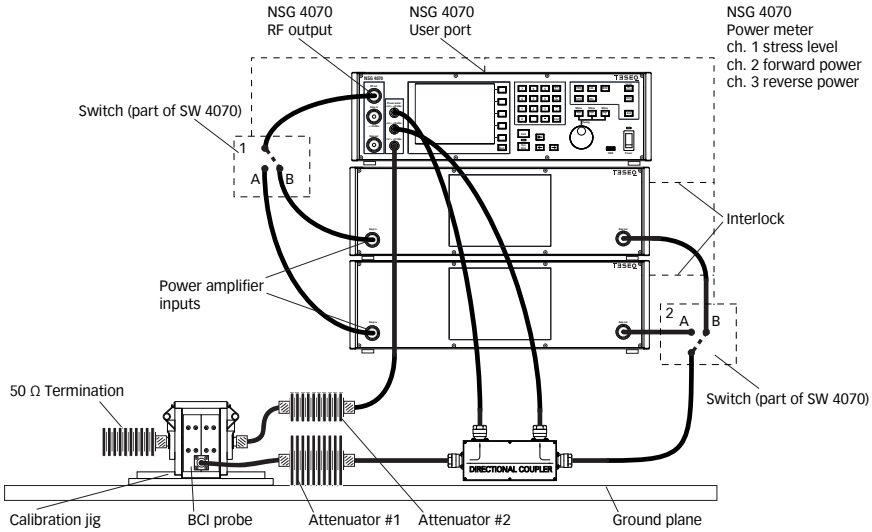
Test level — for MIL STD 461F CS114 curve #2



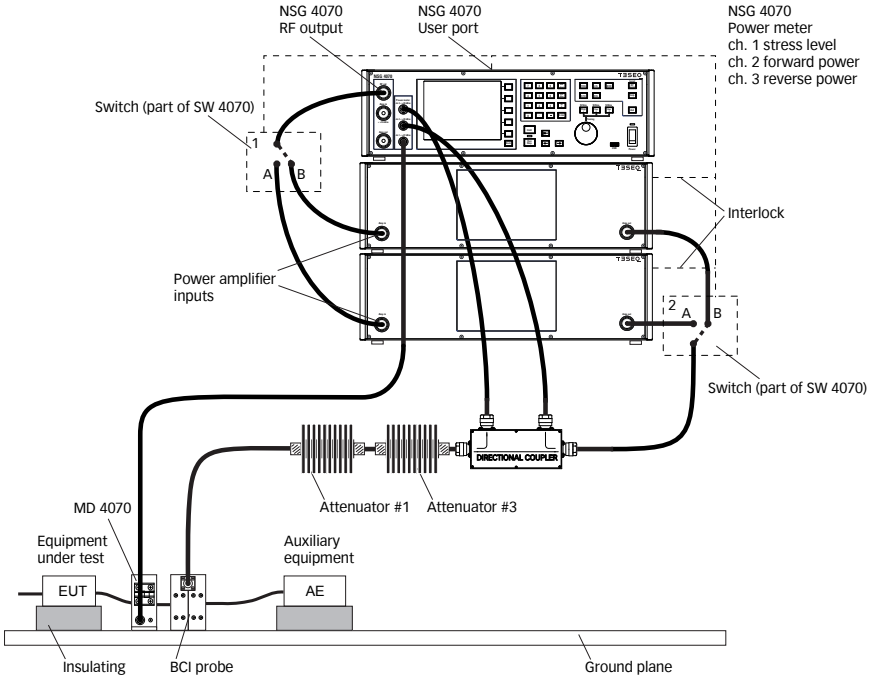
Calibration set-up (for curve #2)



Attenuator #1: 10 dB, 30 W
Attenuator #2: not in use
Attenuator #3: not in use
Termination: 50 Ω 10 W

Remarks:
Calibration with a 16 dB increased level.

Test set-up with monitoring probe (for curve #2)



Attenuator #1: 10 dB, 30 W
Attenuator #2: not in use
Attenuator #3: 16 dB, 30 W
Termination: 50 Ω 10 W

Remarks:
Test with additional 16 dB attenuator (attenuator #3) between directional coupler and BCI probe.

Use of MD 4070 on PM ch.1:
The monitoring probe is in the linear measuring range above 57 dBµA stress level (above 50 kHz). The MD 4070 needs to be used in the active mode.

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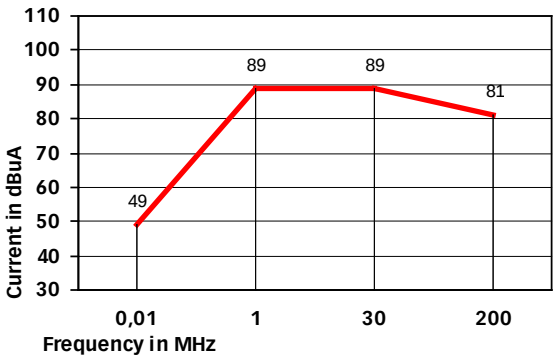
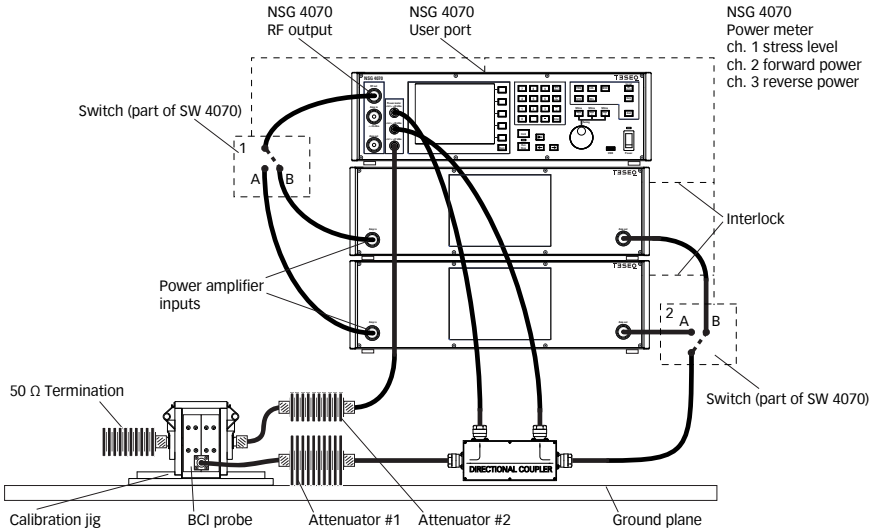
Test level — for MIL STD 461F CS114 curve #3



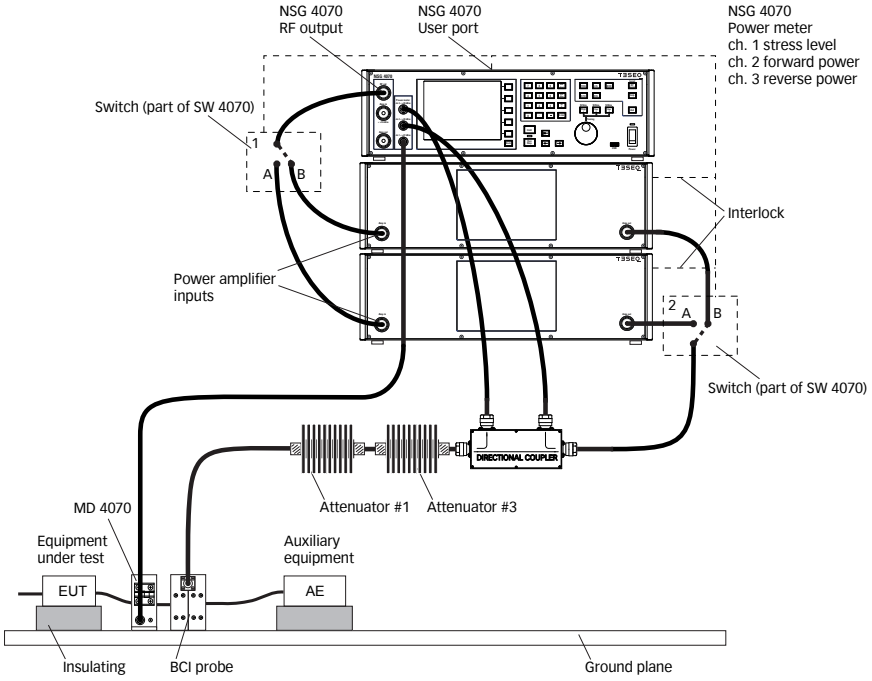
Calibration set-up (for curve #3)



Attenuator #1: 10 dB, 30 W
Attenuator #2: not in use
Attenuator #3: not in use
Termination: 50 Ω 10 W

Remarks:
Calibration with a 10 dB increased level.

Test set-up with monitoring probe (for curve #3)



Attenuator #1: 10 dB, 30 W
Attenuator #2: not in use
Attenuator #3: 10 dB, 30 W
Termination: 50 Ω 10 W

Remarks:
Test with additional 10 dB attenuator (attenuator #3) between directional coupler and BCI probe.

Use of MD 4070 on PM ch.1:
The monitoring probe is in the linear measuring range above 57 dBµA stress level (above 30 kHz). The MD 4070 needs to be used in the active mode.

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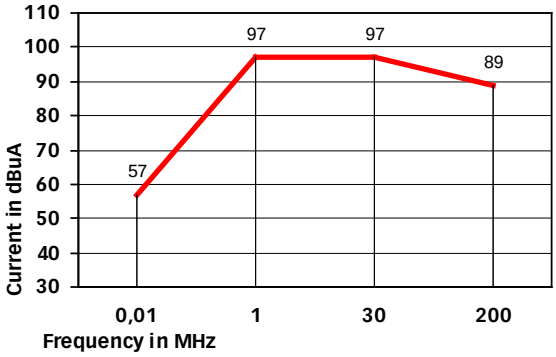
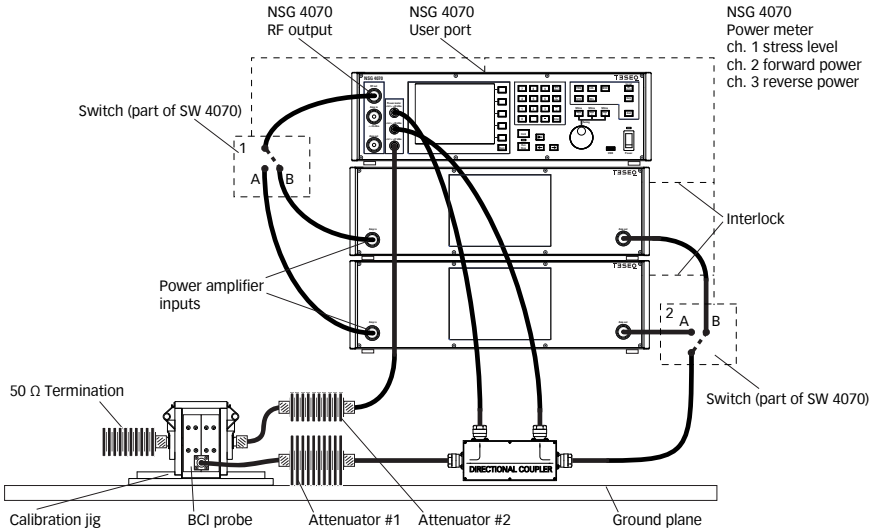
Test level — for MIL STD 461F CS114 curve #4



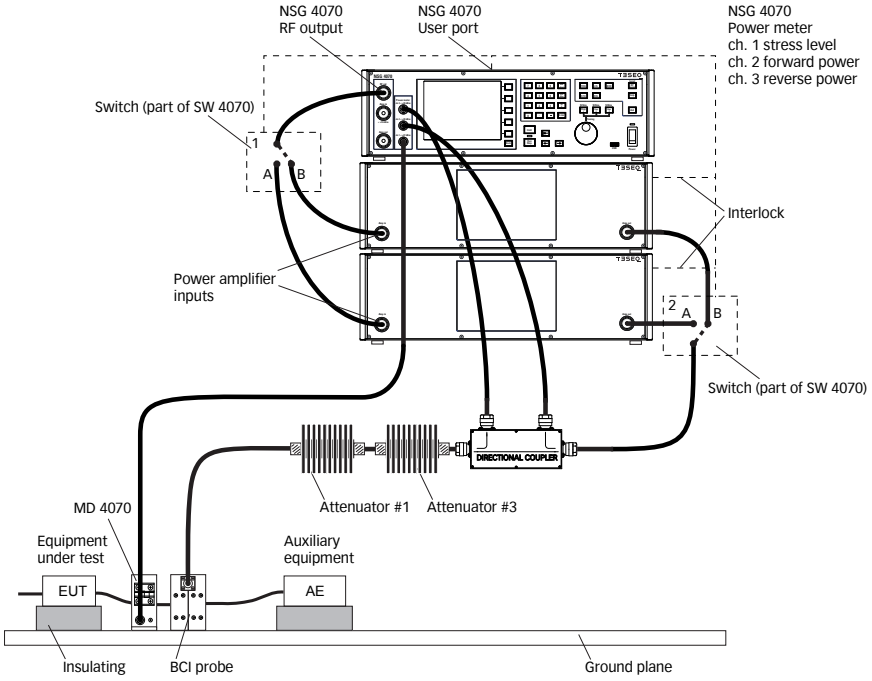
Calibration set-up (for curve #4)



Attenuator #1: 10 dB, 30 W
Attenuator #2: not in use
Attenuator #3: not in use
Termination: 50 Ω 10 W

Remarks:
No additional attenuator required.

Test set-up with monitoring probe (for curve #4)



Attenuator #1: 10 dB, 30 W
Attenuator #2: not in use
Attenuator #3: not in use
Termination: 50 Ω 10 W

Remarks:
No additional attenuator required.

Use of MD 4070 on PM ch.1:
The monitoring probe is in the linear measuring range above 66 dBµA stress level (above 30 kHz). The MD 4070 needs to be used in the active mode from 10 to 300 kHz and in the passive mode above 300 kHz.

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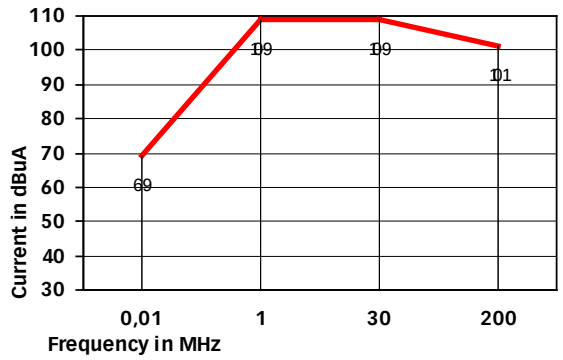
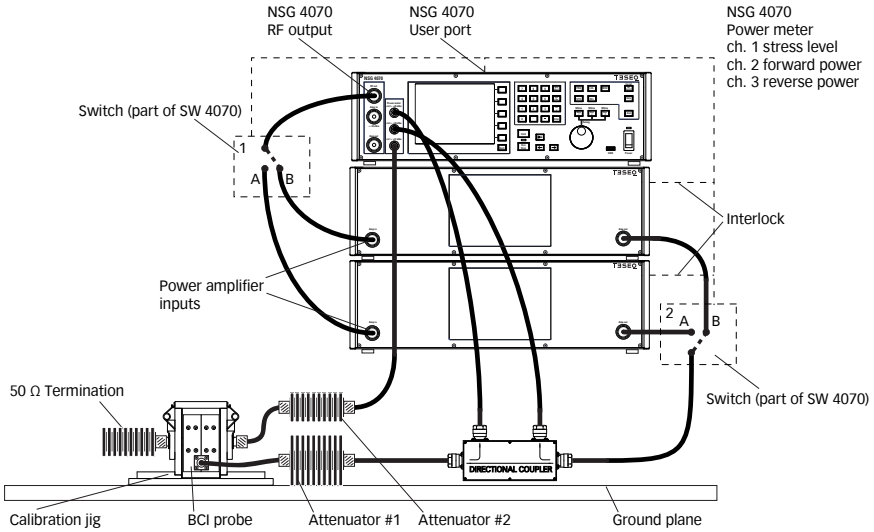
Test level — for MIL STD 461F CS114 curve #5



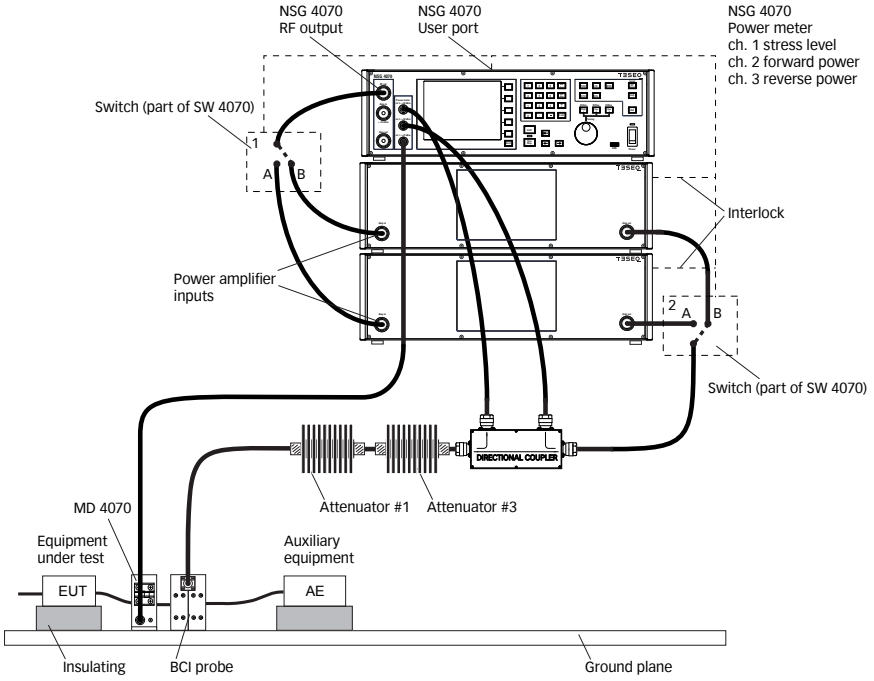
Calibration set-up (for curve #5)



Attenuator #1: not in use
Attenuator #2: 10 dB, 30 W
Attenuator #3: not in use
Termination: 50 Ω 10 W

Remarks:
Power meter channel 1 needs to be protected with a 10 dB attenuator.

Test set-up with monitoring probe (for curve #5)



Attenuator #1: not in use
Attenuator #2: not in use
Attenuator #3: not in use

Remarks:
No additional attenuator required.

Use of MD 4070 on PM ch.1:
The MD 4070 needs to be used in the active mode in the range 10 kHz to 70 kHz and in the passive mode above 70 kHz.

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