



MD 102A ESD TARGET SET

USER MANUAL

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1 SAFETY



Please take note of the following explanations of the symbols used in order to achieve the optimum benefit from this manual and to ensure safety during operation of the equipment.

The following symbol draws your attention to a circumstance where failing to observe the warning could lead to inconvenience or impairment in the performance.

Example:



NOTE! Store this manual for future reference!

Keep this manual in such a way that it is always accessible for the operating personnel.

The location of this manual must be known by each operator.

1.1 Classification of dangers

All the safety instructions in this manual have the same structure.

A safety instruction consists of the signal word, an information of type and source of the danger, the procedure for averting the danger, and the standardized warning symbol.

The following table provides a description of the meaning for each warning symbol and signal word.

Warning Symbol	Signal Word	Definition
	DANGER!	Possibly dangerous situation, that may cause damage to persons or heavy damage to the tester and/or the equipment.
	CAUTION!	Situation, that may cause damage to the tester and/or the equipment
	NOTE	User tips and other important or useful information and comments
	DANGER!	Warning of voltages that might involve the risk of electric shock
	CAUTION!	Warning of a danger spot (refer to the documentation)

1.2 Safety of operation

Reliable function and safe operation of the test equipment is ensured only if the relevant general precautions as well as all safety instructions are observed. These instructions are given in this manual and especially in the hardware guide.

1.3 Range of Validity

These instructions are valid for the complete test system. Further safety regulations for components installed in this test system or additional installed devices are not covered by these instructions.

1.4 Responsibility for safety precautions

The owner, operation supervisor and/or operator of the equipment are responsible for safety. They are in charge of any safety measures that do not directly concern the tester itself. For details, see the relevant accident prevention regulations. See also the safety instructions in the manufacturer's manual included with any additional instrument or device you intend to use with your Teseq tester.

1.5 Safety rules

According to the EN 50191 standard, this equipment may involve the risk of electric shock. Conductive parts must not be touched, and the test station must have appropriate warning labels and signs. In general, observe the industrial health and safety standards pertaining to electrical test installations in your country.

1.6 Reduction of operational safety

If you have any reasons to suspect that the test equipment is not completely safe, you must shut it down and put it out of operation. Moreover, you must mark or label the equipment appropriately so it will not inadvertently be put in operation again. You should then call authorized service personnel for assistance.

2 THE ESD TARGET SET



An ESD target is a shunt for measuring the ESD discharge current flowing in a measurement circuit. The target is intended to emulate a discharge into a perfect ground plane. To minimize the error caused by any difference between a perfect conducting plane and the input impedance of the target, a 2.1Ω limit has been set for the input impedance.

The impedance of the MD 102A target is 2Ω .

A very important parameter of the target is the DC transfer impedance Z_{SYS} , this is the ratio between the voltage measured on the scope and the real current flowing through the target. For the exact value, please refer to the calibration certificate.

3 HANDLING OF THE TARGET SET



The target consists of the complete set with cable, attenuator and discharge part (target) like the pictures below.



The MD 102A is a precision device. Please handle with care and store it in the supplied case when not in use.



Leave the ESD target with the attenuator and the cable together and do not disassemble the set in parts, since the whole coupling path has been calibrated in one piece.



The case includes space for the optional INA 102A, which can be used to calibrate the target.

MD 102A Includes:

- Carrying case
- User manual (this manual)
- Calibration certificate
- ESD Target
- Attenuator
- Coaxial cable

4 INSERTION LOSS

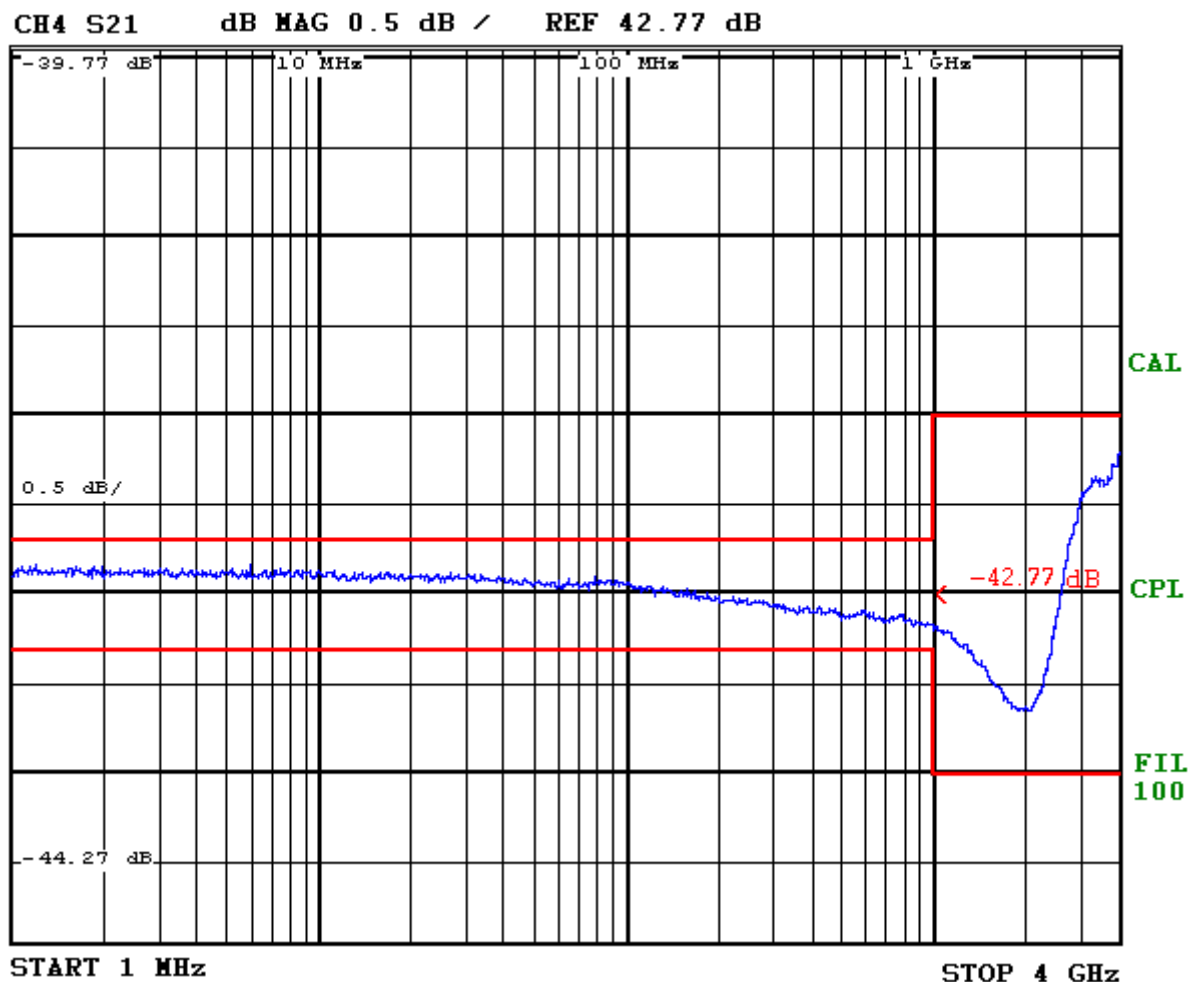


In order to improve the reproducibility between calibration laboratories, the frequency characteristic of the target are defined by IEC.

The variation in the insertion loss of the chain may not exceed:

- +/- 0.3 dB up to 1 GHz
- +/- 1 dB between 1 GHz and 4 GHz

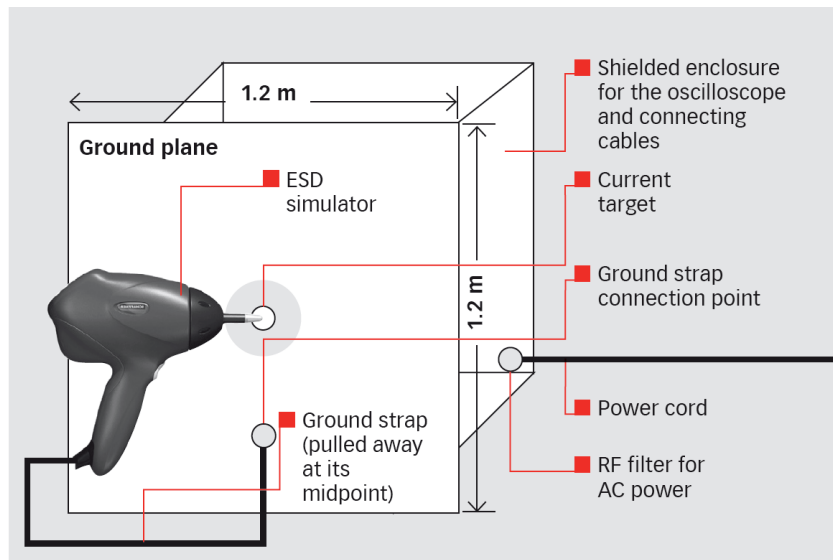
The MD 102A has a very good frequency response up to 4 GHz. The next figure shows the insertion loss of the permitted tolerances (red lines).



5 USING THE TARGET

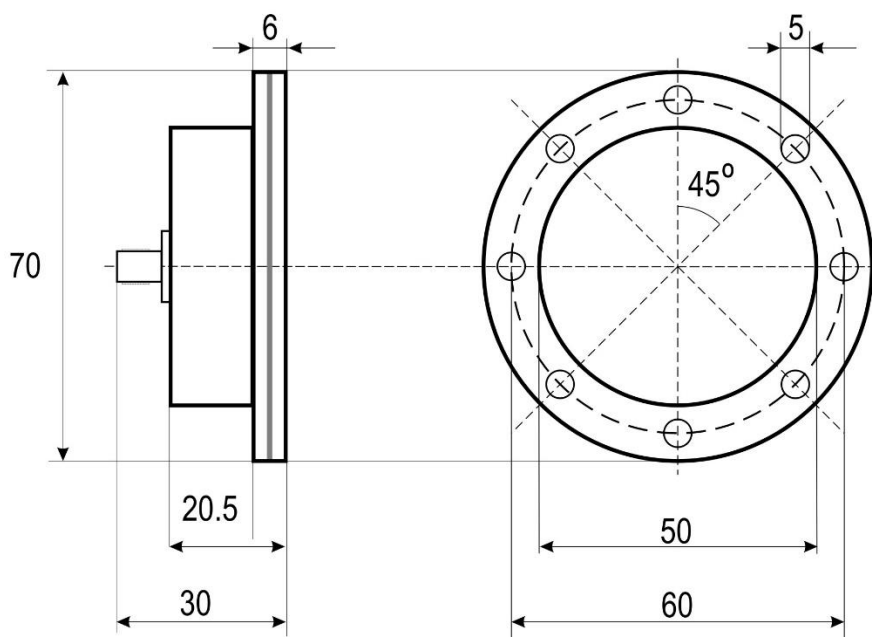


The MD 103 target comes fully assembled ready to be screwed into the reference plane. The plane should be at least 1.2 x 1.2 m in size and forms part of a HF-tight enclosure for cables, attenuators and the oscilloscope.

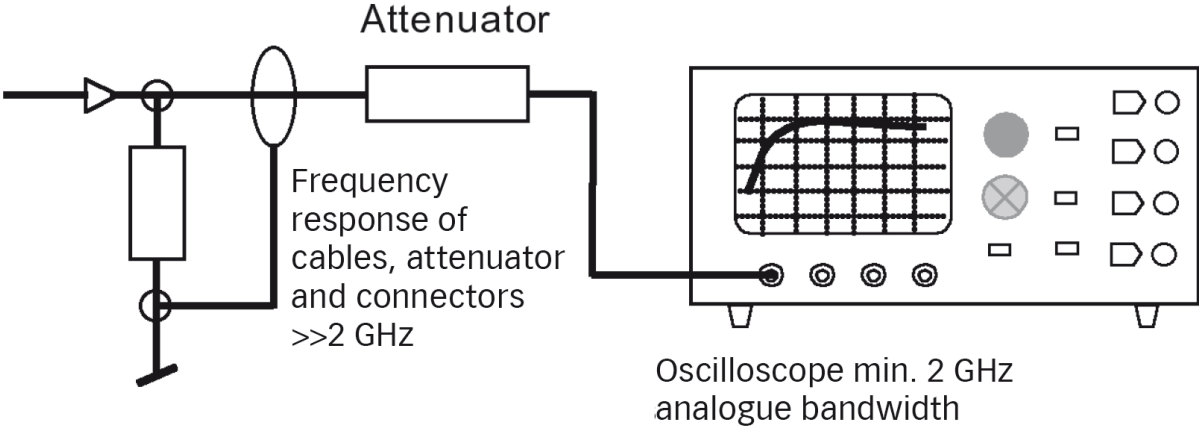


Typical arrangement for calibration of ESD simulator performance.

The following guide can be used for adapting/drilling the enclosure:



Schematically, the measurement chain looks like this:



6 TECHNICAL SPECIFICATIONS

Resistance	2 Ω \pm 5%
Design	As per IEC 61000-4-2, Ed.2:2008 and EN 61000-4-2:2009
Installation	The target shall be mounted into the wall of a shielded room or into a metal plate of at least 1.2m x 1.2m size.
Output	Coaxial SMA connector
Attenuator	An additional attenuator must be connected to the output of the target depending on the input capability of the oscilloscope.
Insertion loss	\pm 0.5dB up to 1 GHz and \pm 1.2dB up to 4GHz This must always be measured as a "Target-Attenuator-Cable" chain. The target itself must not be measured.
ESD test voltage	\pm 30kV
Dimension	70mm (diameter) x 30mm
Weight	Approx. 400g