

“Roll Up” Ground Plane

Many EMC pre-compliance test set ups require a ground plane. Not every lab has the necessary space for permanent installation of a sheet metal ground plane. This is where the Tekbox TBGP-250/140 “roll up” ground plane comes handy. The ground plane can be rolled up after use and stored inside its cardboard tube in a corner of the lab. The ground plane is composed from a conductive fabric bonded to a fleece.



Picture 1: TBGP-250/140 “Roll-Up” Ground Plane

1 Specification

Fabric dimensions:	250 cm x 140 cm
Fabric thickness:	0.7 mm
Fabric weight:	1.1 kg
Fabric material:	Polyester 45% + Silver 55% conductive fabric, fleece
Contact block dimensions:	96 mm x 40 mm x 7.2 mm
Contact block weight:	0.23 kg
Contact block material:	brass, nickel plated

2 Warning

Make sure that your set up prevents main phase getting into contact with the fabrics of the ground plane. Always connect protective earth to avoid any hazard of electrical shock.

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3 Application

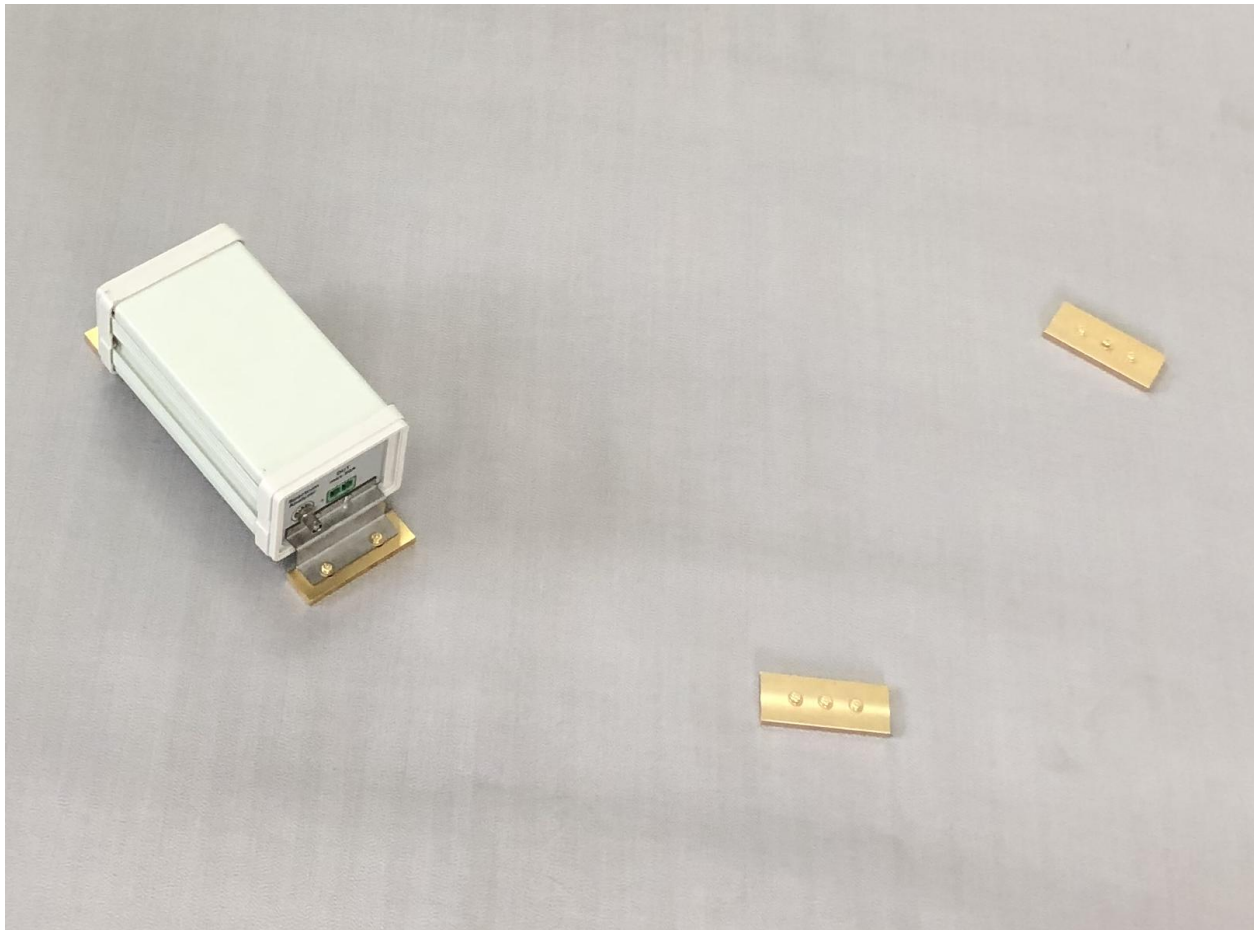
The ground plane can be used in full size, partially un-rolled, or easily cut to size by the user according to his requirements.

Tekbox suggests two methods of contacting the ground plane:

Contact blocks:

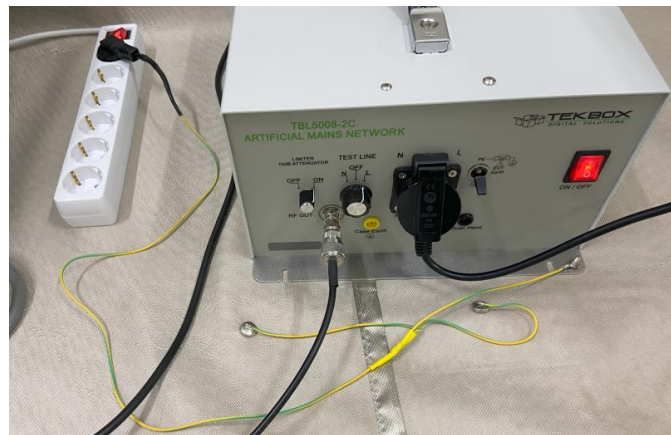
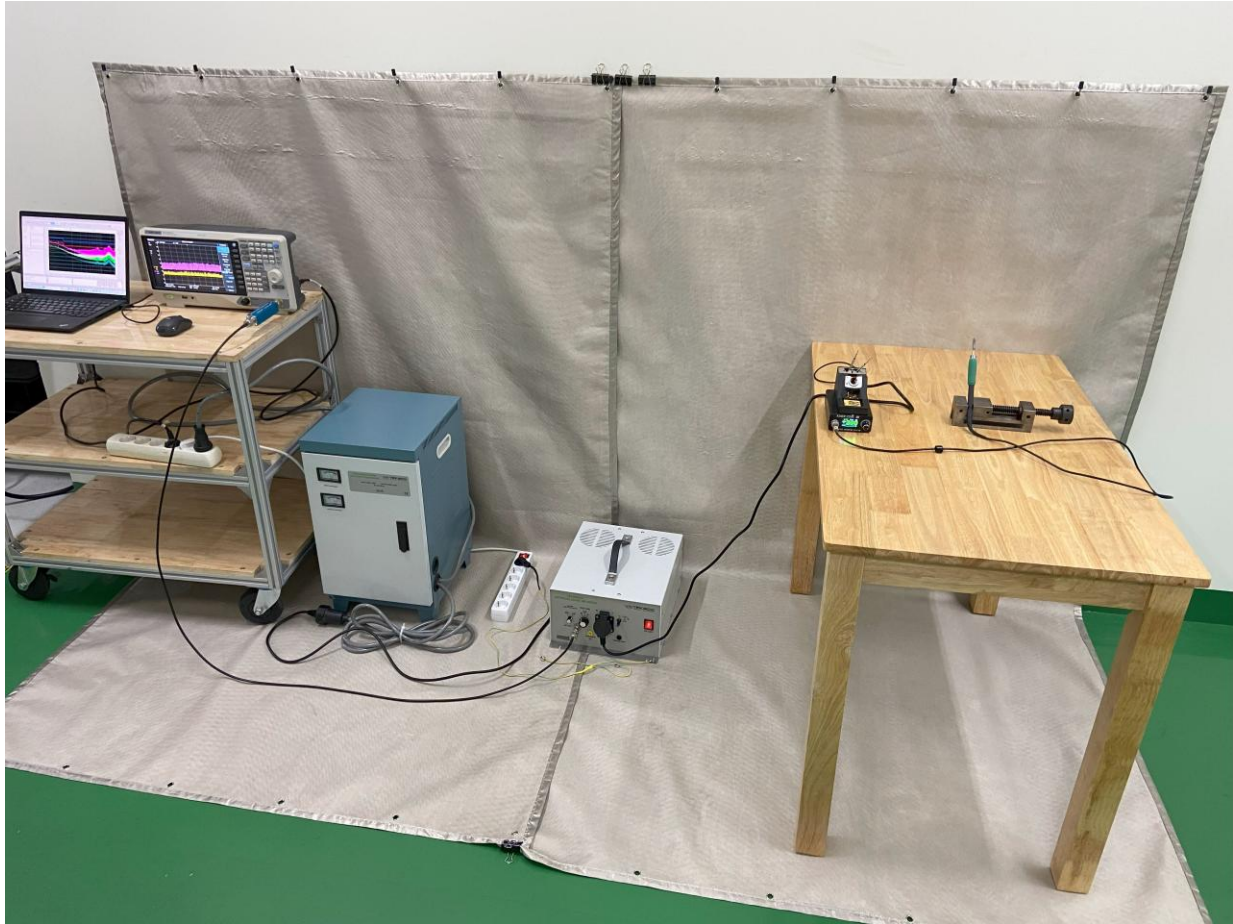
Tekbox provides 4 pieces nickel plated brass contact blocks together with the ground plane. Each block is equipped with three M5 threaded holes.

Each block has a weight of approximately a quarter kg. The blocks are placed on top of the ground plane and establish a good electrical contact, due to its weight and surface area. This method is very versatile, as the blocks can be placed and removed easily anywhere on the ground plane surface. The threaded hole spacing is matched with the dimensions of the ground brackets of older Tekbox LISN models. Newer LISN have an exposed metal bottom plate and contact the groundplane directly.



Picture 2: using contact blocks to establish electrical contact to the ground plane

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Picture 3: LISN placed directly on the groundplane; additional GND connectivity with rivets

Starting with 2025 groundplanes are equipped with eyelets on both short sides for convenient storage and deployment.

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Textile rivets:

Alternatively, or besides using contact blocks, the user can punch holes for standard male textile rivets according to his requirements anywhere into the fabrics. Female textile rivets can be used to clamp ground straps.

The photo below shows an example, using rivets from a low cost textile riveting set along with a woven ground strap. The ground strap is clamped in between the two halves of the female rivet.

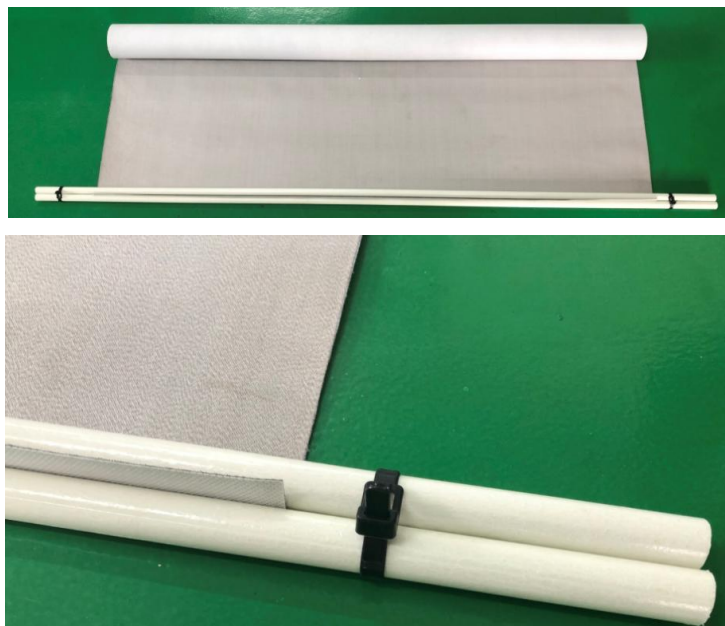


Picture 4: using textile rivets to establish electrical contact to the ground plane

4 Hint

In order to simplify tightly rolling up the ground plane, clamp one side of the ground plane in between two rods of suitable length. Clamp the rods together using cable binders. Then roll up the ground plane, remove the cable binders and slide it into the card board tube. Once inside the tube, pull out the rods.

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Picture 5: how to tightly roll up the ground plane

Over the time, the groundplane may darken due to the silver wire content of the fabric.

5 History

Version	Date	Author	Changes
V 1.0	20.05.2020	Mayerhofer	Creation of the document
V 1.1	22.05.2020	Mayerhofer	Type error corrected
V 1.2	26.05.2020	Mayerhofer	Update contact block dimensions
V 1.3	10.04.2024	Mayerhofer	Chapter 4 updated
V 1.4	10.02.2025	Mayerhofer	Groundplanes equipped with eyelets

6 Ordering Information

Part Number	Description
TBGP-250/140	“Roll-Up” Ground Plane 250 cm x 140 cm, 4 pieces contact blocks, packed in card board tube

Optional Accessory:

Part Number	Description
TBRS1	PRYM rivet set

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