מכון טכנולוגי חולון
Holon Institute of Technology
איכות ומצוינות

HIT SAR Lab

ELF Measurements Report

Report Number: 0112

Ordered by: Dr. Noah Bell**,** and Dr. Yafim Perlov, Aderet Innovations Ltd.

Test Protocol: The effectiveness of the Apron-m magnetic materials, provided by the customer. This family of material is intended to screen ELF magnetic fields.

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Content

1. General Information

Client Information

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2. Description of the material

Apron-m

This material is of fabric strcture, aimed at minimizing the effects of magnetic fields around elctrical devices and installations.
It is a low-frequency magnetic shielding material eliminating the radiation emission associated with fuse boxes, high voltage cables, electric stations, wires, electric motors, electric generators, electrical devices and electrical sockets.

The material is provided a special metal alloy sheets or rolls:

Width: 25 cm

Thickness: 0.7 mm

3. Experimental Results

This test is intended to evaluate the screening capabilities of the proposed materials.
In these tests, a transformer (unloaded), connected to a 50Hz, 230V line, was used as the souce. The transformer was held in a screend chamber (nearly a Farady chamber), so as to avoid any parasitic effects and/or stray fields.
The magnetic field was measured by Aaronia magnetic field meter

Magnetic field emitted by the transformer was measured in the two following set-ups:

1. The transformer was held inside the chamber, when totally closed. The magnetic field was measured at a distance of 15cm around the chamber with/without the presence of Apron-m sheet, as depicted in Fig. 1.

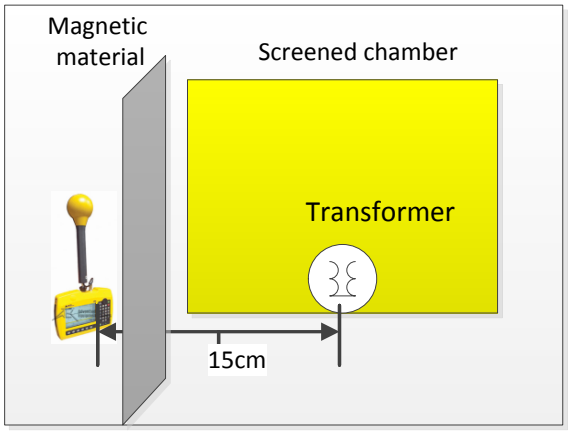

Fig. 1- experimental set-up 1

2. The transformer was held inside the chamber (open top), at a depth of about 2 cm, relative to its opening. The magnetic field was measured at a distance of 4 cm above the transformer, as depicted in Fig. 2.

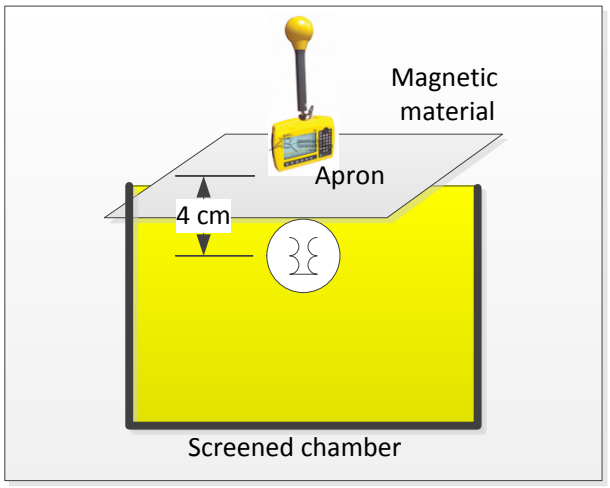

Fig. 2- set-up 2

The results are shown in Table 1. It is shown that the proposed Apron-m material reduces the magnetic field by more than 75%.

Table 1- the measurement results

Prob positios	Magnetic field Without Apron	Magnetic field With Apron	Nagnetic Field Attenuftion
Set-up 1	1250 mG	300 mG	76%
Set-up 2	430 mG	90 mG	80%