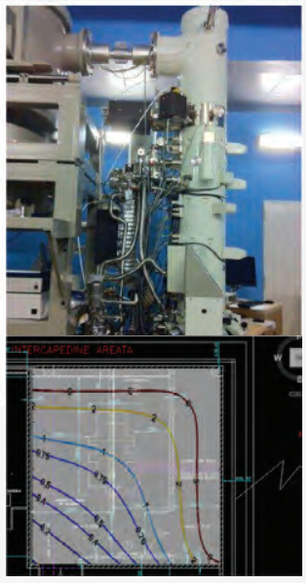
SATISHIELDING

ELECTRONIC MICROSCOPE SHIELDING

Description of the problem

Electronic microscopes are extremely sensitive to magnetic fields and do not tolerate magnetic induction values over 0.1-0.2 microT.
The case presented here refers to the microscope in a materials research centre, installed in an area bordering with ducting that carries lines with currents of several hundred amperes. The measured and estimated induction levels are around 5- 10 microT.
It is therefore necessary to proceed with a system to reduce the magnetic fields generated by these sources so as to achieve a shielding factor of up to approximately 100 times.

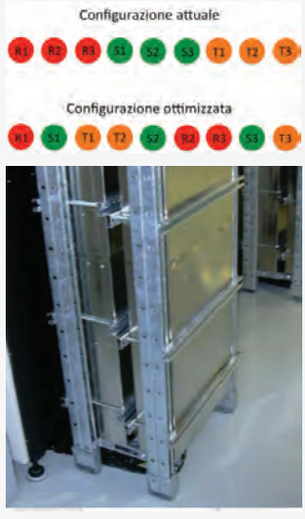


Solution

The proposed and implemented solution works on two aspects: the transposition of the wires and the installation of shielding ducts.

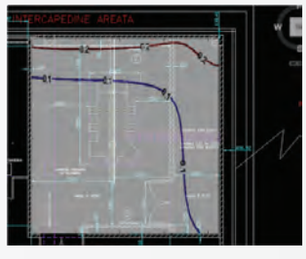
The figures illustrate the set-up of the wires with and without transposition.

Transposition, along with shielding, makes it possible to achieve very high magnetic induction reduction factors.



Results

The figure shows the magnetic induction map obtained after the application of the mitigation solutions, where you can see that the levels fulfil the requested specification.



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