

Vladimir Gurevich

Protecting Electrical Equipment



New Practices for Preventing High Altitude
Electromagnetic Pulse Impacts

DE GRUYTER

Annotation

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Protecting Electrical Equipment: New Practices for Preventing High-Altitude Electromagnetic Pulse Impacts. – De Gruyter, Berlin, 2021.

This book is the continuation (part two) of *Protecting Electrical Equipment: Good Practices for Preventing High-Altitude Electromagnetic Pulse Impacts*, a monograph published in 2019 by De Gruyter. Here you will find the results of recent tests and researches, and further resources on researches discussed in the first part of the book (including new information related to the protection of power transformers and diesel generators). Also, the new book explains the author's opinion regarding some essential HEMP issues since it differs from the currently accepted view, and also a general concept (strategy) for the protection of power-system electronics against HEMP.

The book is intended for HEMP experts, electrical engineers, and power-system specialists engaged in the development, design, and operation of electronic and electrical equipment, and it can also be useful for faculty members and students.

Preface

The first part of the monograph “Protecting Electrical Equipment: Good Practices for Preventing High-Altitude Electromagnetic Pulse Impacts”, published in 2019 in English and Russian, was purchased by HEMP and power-system experts within the several months after publication. Their motivation was clear since, in contrast to hundreds of available purely theoretical reports, the larger part of the book was devoted to practical means and methods for the protection of electrical and electronic equipment against HEMP, HEMP immunity tests, and performance tests of facility protection. The comprehensiveness, novelty, depth, and practical significance of the proposed technical solutions made this book, in fact, an unprecedented HEMP encyclopedia in the book market.

Despite the apparent success, I decided not to rest on my laurels and continued to work actively on this subject. As a result, a wide range of new tests and researches not included in the first was performed. In particular, I developed a solution for the complex protection of power transformers and diesel generators, also testing the performance of filters, conductive fabric, varistors, TVS-diodes, etc. Since I wish to share all that information with experts, I wrote part two of the original monograph – the book you are holding in your arms, my dear Reader.

In addition to the test and research results, this book explains my personal and unique view on certain HEMP specifics, which is significantly different from the generally accepted thinking. For instance, I discuss the appropriateness of a combination of the infrastructure HEMP-protection measures with the means of cyber-attack prevention. I challenge the reasonability of testing the power electronics on military HEMP-simulating test benches and the application of the military standard MIL-STD-188-125-1 to civil equipment tests, as well as presenting my own strategic concept of power-electronics protection against HEMP.

I hope that the experts will give due regard to my work.

If you have any comments or suggestions, please email me at:
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