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An ECCD- Electronic charge compensation device - As a quantum dissipative system

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Abstract-

An electronic charge compensation device (ECCD) is a passive device that carries electrical currents away, on time, to the electrical Earth field. It prevents lightning’s impacts, derivative electric current pulses, and reduces the radiofrequency disturbances in the protected area. The objective of this paper is to give a physical explanation of the operation of an ECCD’s performance and advantages. The operation of an ECCD is the result of two actions: the static electric field and the evanescent and resonant electrical radiofrequency field in the nearby external adjoining to dielectric-metal zone of ECCD. The energy absorption only is logically justified considering a super-absorption process as an end of chain of resonant quantum event. In this study, a multi-resonant process was inferred from an exhaustive radiofrequency simulation analysis made on an ECCD. The primary experiment was a long-time-frame statistical analysis of seven different, real stations. Those empirical results were derived from real METEORAGE environmental services data. Finally, a prospective for new applications is given.

Index Terms- security; radiofrequency electromagnetic protection; dissipative quantum system at RF domain

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