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STUDY OF LASER DIODE DEGRADATION IN A GAMMA RADIATION ENVIRONMENT FOR
OPTICAL COMMUNICATIONS**Abstract**

To verify the potential space radiation-induced degradation of optical satellite communication system, the γ ray radiation experiment of the 850nm laser diode have been designed through irradiating the diode with a radioactive source of Co-60, indeed we analyze the initial light output and the light output after irradiation at room temperature, in turn We develop a degradation equation of the signal:

$$[I_0/I]^n - 1 = K\tau_0\Phi$$

No obvious performance degradations of the diode laser were found at the total dose less than 2 kGy. It is believed that the high energy particles' radiation effect should be first considered when it refers to the optical terminals' applications in the space.