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PAPER TITLE The Investigation of LiF:Mg,Cu,P Thermoluminescent Detectors;
The Dose Response to Gamma Radiation

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ABSTRACT (See instructions overleaf)

The dose response of LiF:Mg,Cu,P TLDs has been investigated for gamma radiation in the dose area between 0.001 to 100.0 Gy. It has been determined that the dose response for this dose range is non-linear. This effect can be explained by the following reasons:

- A) The dependence between the resolving time of the photomultiplier tube of the TLD reader and the photon fluence rate from the TLD during the heating, acquisition cycle.
- B) The relative dose response of the LiF:Mg,Cu,P TLD is a function of the number of free electron centers within the detector. Our data demonstrates a very close approximation with our theoretical model.