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## New high power linear accelerator ABC and platform

*Monday, 20 May 2024 16:00 (2 hours)*

At Varex Imaging Corporation, we have started a transition to our in-house supply of Accelerator Beam Centerlines (ABC), replacing Varian as a supplier. As part of this program we are considering changing design of our K-15, the only standard production unit capable of delivering Bremsstrahlung at 12000 R/min@1m by striking a copper target with high energy electron beam at 15 MeV. We plan on changing the RF source from frequency of 2856 MHz, used by Varian to 2998 MHz, establishing one common frequency for all our S-Band linear accelerator supply. We may be using a two-section design of the new 15 MeV ABC and yet various designs are being investigated, including, but not limited to two collinear standing wave (SW) sections and a patented combination of SW and Traveling Wave (TW) Sections with reverse feed. We have analyzed both concepts and present the preliminary analysis results. The platform can be used for running guides at various energy levels from 2 to 20 MeV, continuously changing energy or doing that selectively, various combinations of energy levels will be possible, also, upgrading the platform to higher average beam power levels. Indeed, operating at high average beam power above 1-2 kW level may require new advanced target development, and in case of e-beam applications, a scan horn will be required for extracting e-beam from vacuum to air.

### Footnotes

### Funding Agency

### Paper preparation format

Word

### Region represented

North America

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