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## **Impact of the applied drain voltage on combined solid-state power amplifier modules**

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Solid-state power amplifier systems as RF sources for particle accelerator are paving their way into industrial products due to several advantages compared with established tube technology. Within this change a demand for optimized performance as trade off from power gain and efficiency rises to reach the high-power levels and for ensuring an electrical efficient operation. When combining hundreds of transistors within one system many parameters play a crucial role and the small design decision taken on the transistor amplifier module level will severely influence the overall performance of a multi hundred kW system. Within the development of a new generation of solid-state power amplifier we investigated the effect of the drain voltage applied on the system performance such as power gain, compression point, efficiency, and phase. In this presentation we will discuss the benefits and challenges which arise when changing the drain voltage in a running combined amplifier system as well as present measured data of the system performance. This is done by analyzing the performance of the individual subcomponents as well as the whole combined amplifier system. Thus, we are capable to understand more in detail the parameter affected by the drain voltage and hence being able to improve the efficiency of the high-power systems. Itage and hence being able to improve the efficiency of the high power systems.

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### **Footnotes**

### **I have read and accept the Privacy Policy Statement**

Yes

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