

Solid-State Switch Modulator Deck for the MIT-Bates S-Band Transmitter, R. CAMPBELL, A. HAWKINS, W. NORTH (Consulting), L. SOLHEIM, B. TREPSAS, C. WOLCOTT, A. ZOLFAGHARI, MIT; M. GAUDREAU, Diversified Technologies, Inc. - This paper describes how to modernize and simplify cathode pulse modulators (modulator deck) for the klystron power amplifiers. The circuitry which accomplishes this was state-of-the-art thirty years ago, but in recent years has proven difficult and expensive to maintain. The new design will replace this circuitry with a single switch, comprised of multiple series-connected, high voltage, high-current Insulated-Gate-Bipolar Transistors (IGBT's). This switch is connected in series with beam switchtube (BST) cathodes and the negative high-voltage DC source, in a cathode-switching configuration, with the modulating anodes of the BSTs connected to an adjustable DC source of positive voltage with respect to BST cathodes. The high speed, voltage sharing circuitry for such a solid state has been engineered by Diversified Technologies Inc.