

Kongres Container

Sierra Leone high-frequency inverter structure



Overview

What is a high frequency variable load inverter architecture?

This thesis presents a high frequency variable load inverter architecture along with a physical prototype and efficiency optimizing controller. The inverter architecture consists of two constituent inverters, one connected directly through the load and the other connected through an impedance converter, which acts as a lossless power combiner.

How do hfvlis work?

The HFVLI system requires two inverters having adjustable relative phases and independently adjustable output voltages and an impedance converter. To reduce the prototype complexity, it was decided to utilize controllable lab power supplies to provide supply modulation. Here we detail the design of the constituent inverters and associated output.

How do inverters control load impedance?

By controlling the amplitude and relative phase of the two constituent inverters the loading seen by each constituent inverter can be kept in a desirable range for wide variations in load impedance.

Can hfvlis drive a wide load range RF inverter?

From these results it is evident that the HFVLI prototype is successful in the goal of driving a wide load range at high power levels. A physical prototype of a wide load range RF inverter based on the proposed high frequency variable-load inverter topology was designed and built along with an efficiency optimizing controller.

Which inverter has the most load current?

However, as can be seen in the system parameters for load (a), the majority of the load current is supplied by inverter A, which also experiences the majority of the losses. This disparity is due to the voltage dependent losses of

the inverters.

What is the operating frequency of an inverter?

At the operating frequency of the inverter, 13.56MHz, this current is of similar magnitude to the desired output current and represents a significant loss mechanism. Therefore, there it is desirable to have a device with both low on resistance and low output capacitance.

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