

TOP LEVEL DESCRIPTION

The high power single channel (HPSC) transmission system generates a digitally modulated average power signal on all MDS, MMDS, and ITFS channels. The SD2500C generates 2-25 watts average power while the SD5000C generates 5-50 watts average power¹. The system architecture is based on advanced transistor technology, low loss power combining, and distributed control and power conversion. Some unique advantages of this new design are flexibility/scalability, lower downtime, and lower operating costs. The modular structure of this system allows for quick and easy replacement of malfunctioning plug-in modules, which means less downtime and convenient scalability. The high efficiency design and small size decreases operating expenses.

The transmitting system consists of a sub-chassis, upconverter plug-in module, LO plug-in module, power supply plug-in module, a front-end power supply, and power amplifier segments. Digital transmission techniques provide superior performance over analog methods, with reduced susceptibility to noise and co-channel interference. Advanced quadrature amplitude modulation provides exceptional throughput and spectral efficiency. The RF signal path of the system is shown below in Figure 1 and the system AC/DC power distribution is depicted in Figure 3.

This upgradeable series of transmitters provides maximum space efficiency and a modular system architecture. This allows the transmitter to be easily upgraded from 2 watts, using from one to four power amplifier segments at 12.5 watts each, to a total of 25 or 50 watts average output power, depending on model. Similarly, it may also be downgraded; and, the power amplifier segments may be used elsewhere or kept as spares for hot replacement. As the output power is modified, the model name and FCC identifier will change respectively. The FCC ID label will be replaced with each upgrade, as needed; refer to Figure 2 for label location.

One of the most prevalent user benefits of this series of transmitters is hot replacement, i.e. should a power amplifier segment be operating below parameters and need replaced, hot replacement allows the transmitter to continue operating with only slight power loss and little to no change in the noise floor. Similarly, should a plug-in module need replaced only a brief interruption will occur when it is removed and transmission will continue as soon as the replacement is plugged-in.

¹ For modulation scheme other than QAM the output power may need to be derated to keep the spectral occupancy according to the FCC rules.

All information contained in this document is confidential and proprietary to THOMCAST and shall not be disclosed without the prior written permission of THOMCAST.

CREATED: KAS 1/30/00

CHECKED: PRC 1/31/00

RELEASED: PRC 2/10/00

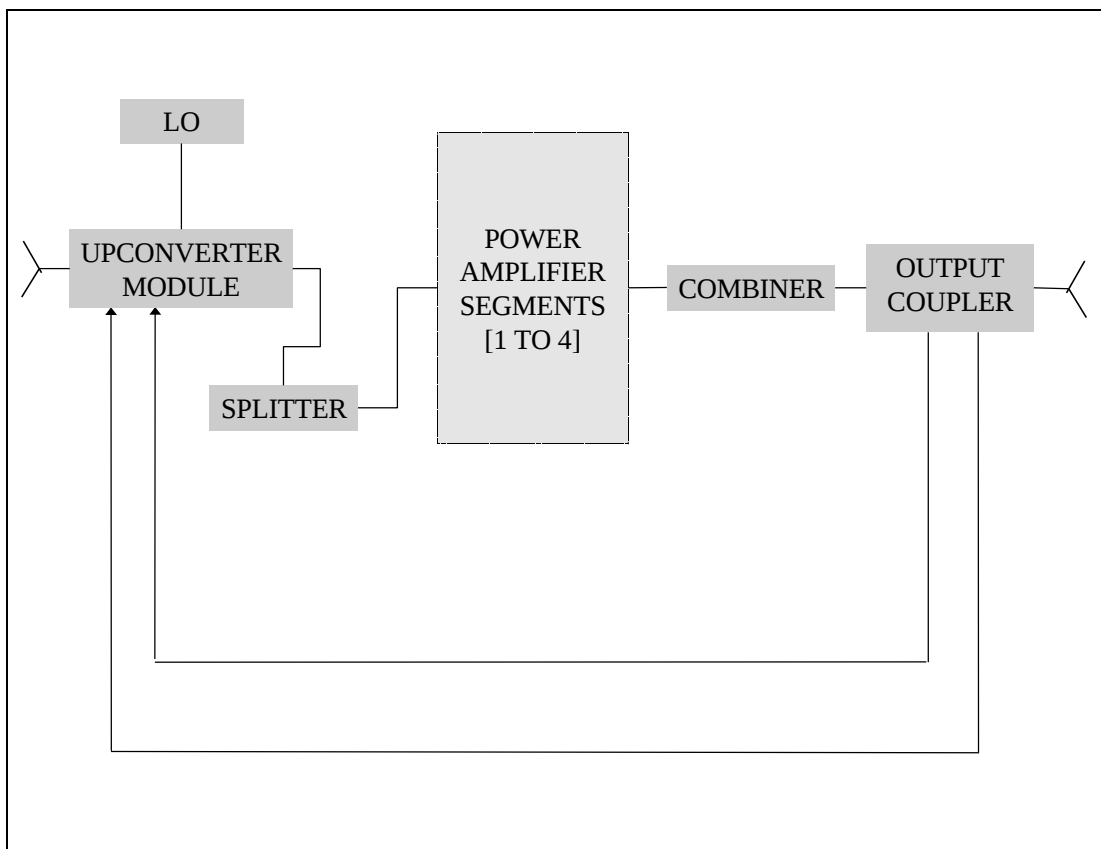


Figure 1: System RF signal path.

All information contained in this document is confidential and proprietary to THOMCAST and shall not be disclosed without the prior written permission of THOMCAST.

CREATED: KAS 1/30/00

CHECKED: PRC 1/31/00

RELEASED: PRC 2/10/00

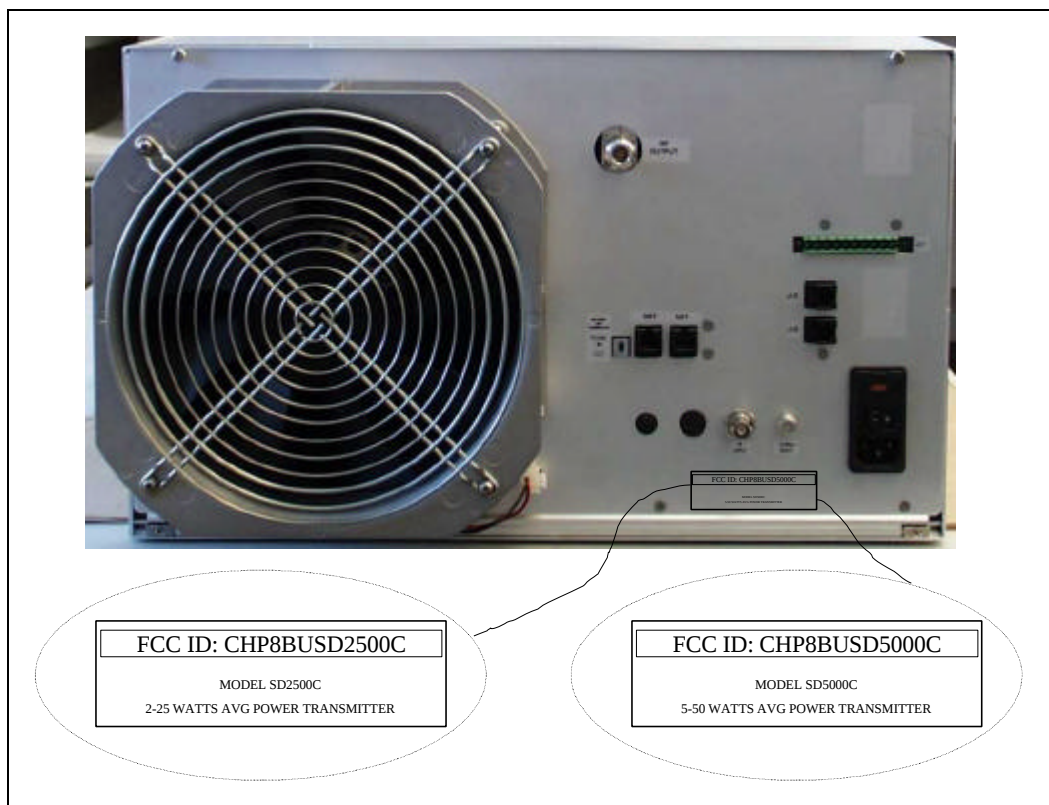


Figure 2: Location of FCC ID label.

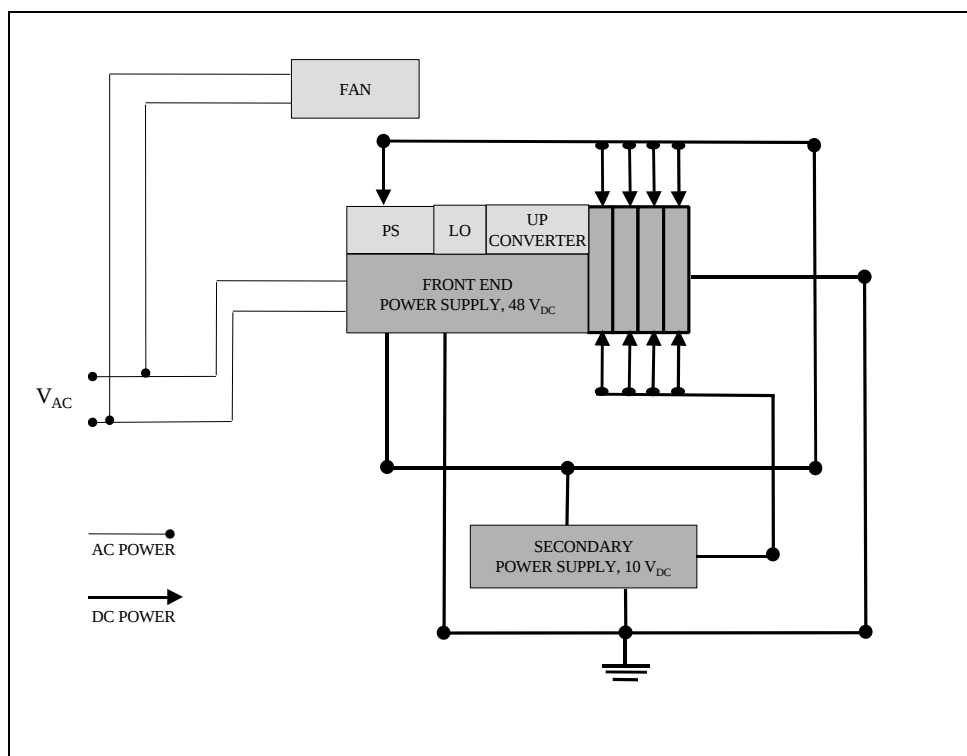


Figure 3: AC and DC power distribution.

All information contained in this document is confidential and proprietary to THOMCAST and shall not be disclosed without the prior written permission of THOMCAST.

CREATED: KAS 1/30/00

CHECKED: PRC 1/31/00

RELEASED: PRC 2/10/00