



4G Remote Radio Unit



Small Size,
Low Profile



High
Efficiency



High Temp
Operation

Facilitating a Base Station Performance Upgrade

The Customer's Challenge

In order to extend mobile signal coverage economically in remote areas this base station manufacturer wanted to leverage new GaN technology to effectively double the base station transmitter power. However, they needed to accomplish this upgrade without increasing the overall system size.

To accommodate the larger power amplifier needed, and the associated power supply, the design team were looking for ways to reduce the size of the power solution supplying the auxiliary rails.

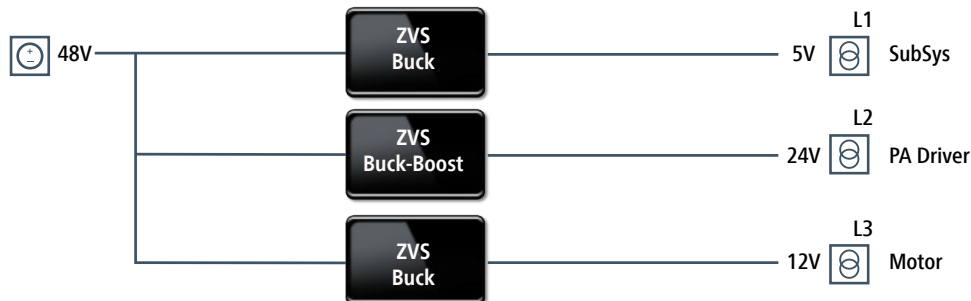


The Solution

The re-engineered auxiliary supply comprised two ZVS Buck regulators (10 x 10mm) that converted the 48V transmitter supply to 5.5V for the subsystem and to 12V for the motors

A ZVS Buck-Boost regulator (10 x 14mm) provided the tightly regulated 24V rail necessary for the driver for the new power amplifier.

[Link to Whiteboard »](#)



The Results

The small size and low profile of the regulators, in conjunction with the reduced size of the ancillary components (facilitated by zero-voltage switching topology, and resultant high operating frequency), dramatically reduced the size of the three auxiliary rails. At just 3.8cm², this was just 60% of the size of the previous solution. In addition, the space required for heat management was significantly reduced as a result of a 3% efficiency improvement over the previous auxiliary rail solution, and the high temperature derating of the regulators.

Product Family Key Specifications

Cool-Power® ZVS Buck Regulator Module

Input Voltages	12V, 24V, 48V (Nominal)
Output Voltage	Wide output range (1 – 16V)
Output Current	8A, 9A, 10A, and 15A versions
Efficiency	Up to 96.5% Light load and full load High efficiency performance
Dimensions	LGA SiP: 10 x 14 x 2.56mm LGA SiP: 10 x 10 x 2.56mm

Cool-Power® ZVS Buck-Boost Regulator Module

Input Voltages	16 – 34V, 21 – 60V
Output Voltage	12 – 34V, 21 – 36V, 36 – 54V
Output Power	Up to 240W continuous
Efficiency	Over 98% efficiency at >800kHz FSW
Dimensions	LGA SiP: 10 x 14 x 2.5mm