



BC127 Antenna Layout Guidelines

Application Note



SIERRA
WIRELESS®

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Important Notice

Due to the nature of wireless communications, transmission and reception of data can never be guaranteed. Data may be delayed, corrupted (i.e., have errors) or be totally lost. Although significant delays or losses of data are rare when wireless devices such as the Sierra Wireless modem are used in a normal manner with a well-constructed network, the Sierra Wireless modem should not be used in situations where failure to transmit or receive data could result in damage of any kind to the user or any other party, including but not limited to personal injury, death, or loss of property. Sierra Wireless accepts no responsibility for damages of any kind resulting from delays or errors in data transmitted or received using the Sierra Wireless modem, or for failure of the Sierra Wireless modem to transmit or receive such data.

Safety and Hazards

Do not operate the Sierra Wireless modem in areas where blasting is in progress, where explosive atmospheres may be present, near medical equipment, near life support equipment, or any equipment which may be susceptible to any form of radio interference. In such areas, the Sierra Wireless modem **MUST BE POWERED OFF**. The Sierra Wireless modem can transmit signals that could interfere with this equipment.

Do not operate the Sierra Wireless modem in any aircraft, whether the aircraft is on the ground or in flight. In aircraft, the Sierra Wireless modem **MUST BE POWERED OFF**. When operating, the Sierra Wireless modem can transmit signals that could interfere with various onboard systems.

Note: Some airlines may permit the use of cellular phones while the aircraft is on the ground and the door is open. Sierra Wireless modems may be used at this time.

The driver or operator of any vehicle should not operate the Sierra Wireless modem while in control of a vehicle. Doing so will detract from the driver or operator's control and operation of that vehicle. In some states and provinces, operating such communications devices while in control of a vehicle is an offence.

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Corporate and product information	Web: sierrawireless.com

Revision History

Revision number	Release date	Changes
1	March 22, 2017	Initial revision in SWI template.

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The BC127 requires specific layout conditions to achieve the maximum range from the on board Antenna. The module is designed to be placed in the top right hand corner or edge of an application board, ideally butted up to the edge of the board to allow for maximum free space radiation from the antenna. Orientate the front of the module to face the direction that you want the maximum range for your product.

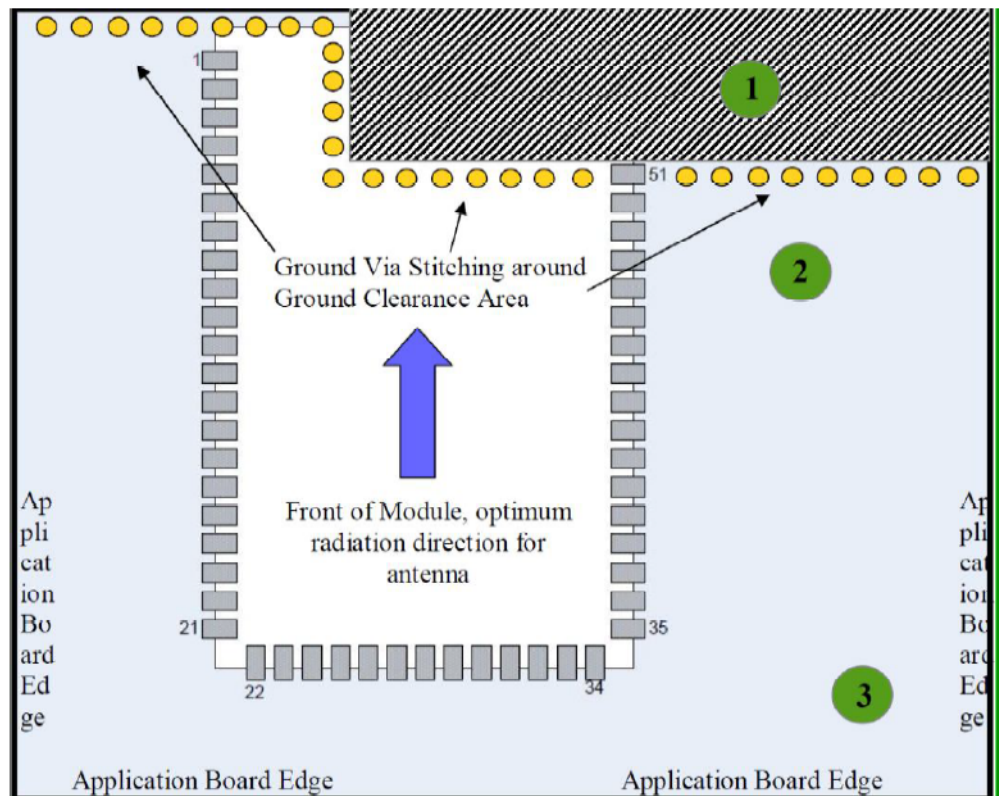


Figure 1-1: Antenna Layout

1. The ground clearance area is dimensioned in the BC127 data sheet, all copper on all layers should be removed from this area up to the application board edges on the top and right hand side of the board. Not metallic components can be placed in this area. If your application is to be housed in a case only use plastic or rubber materials and avoid any metallic coatings in this area. Avoid routing any signal or power tracks in this area.
2. Ground fill should be used where ever possible on the application board, tie all ground fill areas on multiple layers together with through ground via stitching.
3. The performance of the antenna depends on ground fill area and board size, small boards with smaller ground areas may not perform as well as larger boards with large ground areas.
4. The BC127 Module has been tuned for optimal performance for the Discovery Board you may not achieve the same range with smaller board sizes.