Electrostatic features for RF receivers - Antenna isolation

In order to obtain the best performances from the receiver and to comply with the security rules requested by the Certification, electrical and mechanical protection of the receiver has to be guaranteed by the User by means of suitable enclosures and applying the appropriate isolation techniques. The use of the receiver is planned to be inside housings that assure the overcoming of the provision EN 61000-4-2, not directly applicable to the module itself.

In particular, it is at the user’s care the isolation of the external antenna connection and of the antenna itself since the RF input of the receiver is not built to directly bear the electrostatic charges foreseen by the above mentioned provision. AUREL suggests to use an air coil inductance connected between the antenna pin and GND in order to unload towards ground possible electrostatic discharges.

The inductance’s value has to be appropriately chosen in order not to modify the antenna performances. For example, for receivers working at 434MHz, it can be used a 100 nH inductance with the following features:

1. n° of turns 8
2. internal diameter ø 3 mm
3. thread diameter ø 0,5 mm