



Internationale Kommission für Alpines Rettungswesen IKAR  
Commission Internationale de Sauvetage Alpin CISA  
International Commission for Alpine Rescue ICAR

## **ICAR - IKAR - CISA Statement** **(Avalanche Rescue and Terrestrial Rescue Commissions)**

### **Electromagnetic Compatibility of Avalanche Beacons**

**February 07, 2009**

Considering the recent public discussion on the EMC (ElectroMagnetic Compatibility) of some avalanche beacons, we state that

1. All electronic devices are subject to EMC issues. Various types of interaction are possible, e.g. via RF radiation, static magnetic fields or even by the presence of materials with high magnetic permeability near a device.
2. Interaction is not limited to particular products from specific manufacturers; it can be observed among all products with similar characteristics.
3. All avalanche beacons use antennas made of a ferrite rod and a coil, and such antennas are tuned to the nominal operating frequency of 457 kHz. Any piece of material exhibiting significant magnetic permeability near the antenna of an avalanche beacon may detune the antenna and thus cause a reduced performance in terms of transmitted signal strength or receiver sensitivity.
4. Some products use a combination of a Reed contact and a small permanent magnet to achieve waterproof switching of the main functions OFF - TRANSMIT – RECEIVE. Such devices may be sensitive to magnetic fields emanating from other devices, such as small loudspeakers in portable radios, detached speaker-microphones or even magnetic button closures on garments or magnetic name tags. However, such interaction is limited to very small distances, usually below 4 inches (10 cm). In case of an avalanche, the position of an avalanche beacon relative to other devices may not be under control. It is very simple to determine a minimum distance for no interaction by a practical test using the devices under investigation.
5. Users of avalanche beacons should carefully read the owner's manual that came along with the beacon and watch for statements about EMC.
6. The best way to avoid any EMC problems is to keep devices separated from each other as much as possible.

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