APPLIED WIRELESS ID

**Applied Wireless Identifications Group, Inc.**
382 Route 59 - Section 292, Monsey NY 10952 • Tel: 845-369-8800 • Fax: 845-369-1195

# Technical Reference [*Draft*]

# SUPPRESSING RADIO FREQUENCY INTERFERENCE

*[Introduction, brief]*

o Tweak the aiming of the reader. A small change in aiming might not affect the ability of the vehicle tags and the reader to communicate with each other, but could cure a problem 2-1/2 miles away (if that is the problem).

o Move the reader to the correct side of the lane. This will necessarily change the aiming of the reader.

o Experiment with shielding around the reader. Try a hemisphere of aluminum foil at the sides and the rear of the reader, but leave the front of the reader open.

o Check the cable running from the reader to the controller. Does it meet our specifications completely?

o Check the wiring of the reader. Does it follow our wiring exactly?

o Check the grounding of the reader carefully. We have three "grounds" that are entirely independent from each other (black, blue and drain wires). None of these should be connected to a chassis ground or an earth ground.

o Check the power supply's wiring. The power supply must be connected to nothing else in the system except perhaps a second LR-911 reader.

o Ask the ISP people to identify the precise RF frequency at which the interference occurs, and the time frequency (continuous, or a pulse every *n* seconds, or what?).

o Check the access control system to be sure that it isn't contributing to propagation of the interfering RF. For example, disconnect the LR-911 reader from the system, power it by a backup 12 volt battery, and use the test unit that is a component of our LRIN Installation Test Kit, with the test tags that can be held by hand. This will isolate the problem to the reader, if that is the cause, and not to the system and cabling.

o Install ferrite doughnuts on all of the cables between the reader and the controller, to block surface-effect RF noise.

o Use the reader's yellow wire to arm the reader only when the vehicle is present with its tag at the reader. The sensor might be a light-beam type, or infrared (as you suggested), or a ground loop, or a pressure pad, or whatever. As you said, all that you need is a contact to ground the yellow wire when the reader is to transmit RF, and otherwise to float the yellow wire.

[Attachments: FCC compliance statement – attach from Installation sheets or MPR-2010AR manual.
LR-911 output characteristics – TechRef
LR-911 Instructions Part 2 – wiring diagrams etc.]

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