

Application Note



Antenna Crossing Technology



Application Note for Antenna Crossing Technology

Version 1.1
October 30, 2009

© 2009 Sirit Inc., All Rights Reserved. "Sirit", the Sirit Design, "RFID by Sirit", the RFID by Sirit Design and "vision beyond sight" are all trademarks of Sirit Inc. All other trademarks are the property of their respective owners. Specifications are subject to change without notice.

This product is covered by one or more of the following patents: U.S. Patent No. 7,199,713, 7,209,040, 6,346,881, and 6,617,962.

Disclaimer and Limitation of Liability

The content of this paper is for information use only and is subject to change without notice. Sirit assumes no responsibility or liability for any errors or inaccuracies that may appear in this publication. No part of this paper may be reproduced in any form or by any means, electronic, mechanical, recording, or otherwise, without the prior written permission of Sirit.

About Sirit

Sirit Technologies designs, develops, manufactures and sells Radio Frequency Identification (RFID) technology. Targeted at a diverse set of markets RFID technology has become a core technology for applications including: electronic toll collection, access control, cashless payment systems, product identification, and supply chain management systems including logistics, warehousing and manufacturing, and asset management.

Head Office - Canada

372 Bay Street, Suite 1100
Toronto, Ontario, M5H 2W9 Canada
Tel: 416.367.1897
Fax: 416.367.1435
Toll Free: 1.800.498.8760
Email: mail@sirit.com

Sirit Technologies - US

1321 Valwood Parkway, Suite 620
Carrollton, Texas 75006 United States
Tel: 972.243.7208
Fax: 972.243.8034
Toll Free: 1.866.338.9586

Web: www.sirit.com

1 Introduction

Antenna Crossing Technology provides an event driven indication that a tag is currently passing in front of a particular system antenna. This feature identifies which tag to perform operations on in the field.

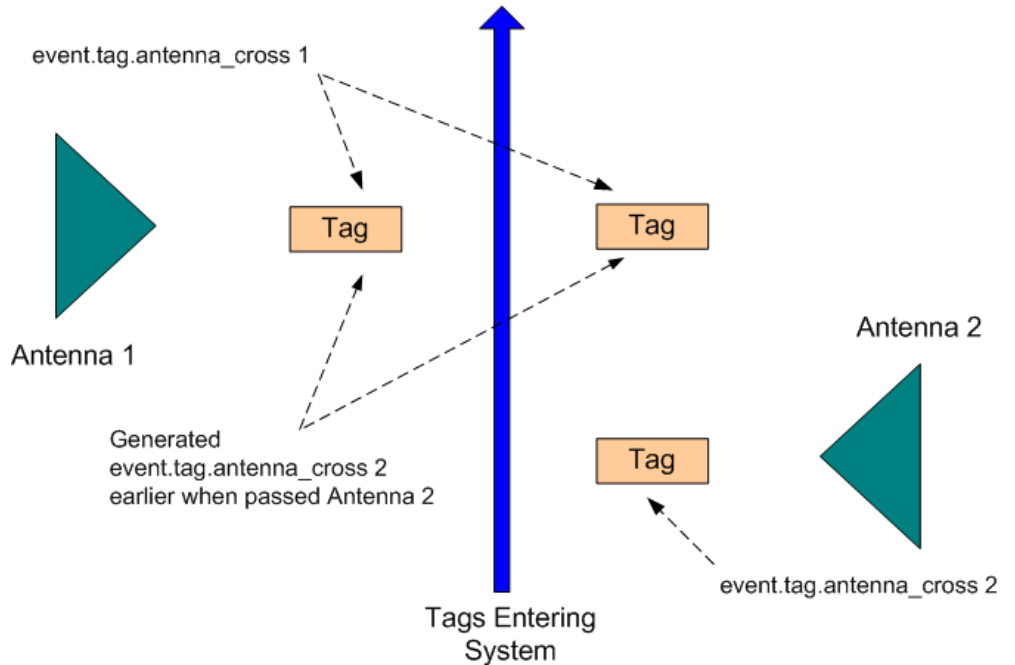


Figure 1 Example Antenna Crossing Configuration

2 Requirements

This feature requires Sirit 3.0 reader firmware to be installed as well as a software license for the Antenna Crossing Technology. Please contact your local Sirit partner or representative to obtain and install feature on your readers. Note that this feature only works for tags compliant with the ISO-18000-6C (Gen2) protocol.

3 Setup

To utilize Antenna Crossing Technology, perform the following:

- 1 Install the feature license.
 - a. Launch the Reader Startup Tool (RST) and select your reader.
 - b. Select **Configure** to access the embedded Reader Configuration Tool (RCT).
 - c. Under **Advanced Functions** select **Import/Export Configuration**.
 - d. Under **Import Licenses**, browse to the license file and press **Import License**.
- 2 Register for the Antenna Crossing event from the reader (`event.tag.antenna_cross`). This allows the application to monitor the event channel and determine when to take action on particular tags crossing specific antennas.
- 3 Using a Sirit C2 command/response channel or the web page, activate Antenna Crossing, by entering the enable command

```
tag.filter.antenna_cross.enabled=true
```

4 Optimization

Depending on your RF environment or other application requirements, optimization may be required. To optimize, set the following two variables:

- `tag.filter.antenna_cross.max_speed` - Set this variable to the maximum speed of tagged equipment moving across the antennas. The units are in tenths of meters per second (for example, 1 meter/sec is specified as 10). In systems with fast moving tagged assets, an accurate number is necessary to ensure consistent results.
- `tag.filter.antenna_cross.performance_metric` - Adjust this variable to either make the antenna crossing event more responsive (less latency between the tag crossing the antenna and the generation of the antenna crossing event) or prevent noise in the RF environment from causing premature or false antenna crossing events.

Increasing `performance_metric` makes the feature more robust in handling RF noise and stray tags. However, it may increase the latency of the tag event. Decreasing this number decreases the latency of the tag event and increases the chance of generating premature or false antenna crossing events. The ideal value depends on your environment and requirements.

- `tag.reporting.antenna_cross_fields` - This variable contains the fields to be reported with `event.tag.antenna_cross` events. Supported fields are `tag_id`, `type`, `time`, `antenna`, `freq`, and `rsi`.

Note that Antenna Crossing performance may begin to degrade when the total tag population seen by the reader reaches approximately five tags. Adjusting the optimization variables at this point of degradation will have minimal effect.

5 Summary

Antenna Crossing Technology allows you to know when a tag crosses specific antennas in your system. This technology is easily enabled and utilized, and also provides additional optimization adjustments in the event the default settings are not sufficient.

For additional information or engineering assistance in customizing the antenna crossing solution to your environment, please contact your local Sirit partner.



SIRIT - CANADA
372 Bay Street, Suite 1100
Toronto, ON M5H 2W9 Canada
Tel: 416.367.1897
Fax: 416.367.1435

SIRIT - USA
1321 Valwood Parkway, Suite 620
Carrollton, TX 75006 USA
Tel: 972.243.7208
Fax: 972.243.8034

For more Information
call toll free:
1.800.498.8760 (CA)
1.866.338.9586 (US)

www.sirit.com