

Antenna Detection Application Note

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1. Introduction

1.1. Scope

This application note outlines the limitations and boundaries of antennas detection and diagnosing, specifically in relation to the automotive environment.

1.2. Audience

This document is intended for Telit customers, who are integrators, mainly of automotive applications.

1.3. Contact Information, Support

For general contact, technical support, to report documentation errors and to order manuals, contact Telit's Technical Support Center (TTSC) at:

TS-EMEA@telit.com

TS-NORTHAMERICA@telit.com

TS-LATINAMERICA@telit.com

TS-APAC@telit.com

Alternatively, use:

<http://www.telit.com/en/products/technical-support-center/contact.php>

For detailed information about where you can buy the Telit modules or for recommendations on accessories and components visit:

<http://www.telit.com>

To register for product news and announcements or for product questions contact Telit's Technical Support Center (TTSC).

Our aim is to make this guide as helpful as possible. Keep us informed of your comments and suggestions for improvements.

Telit appreciates feedback from the users of our information.



3. Application Reference Circuitry

The following assumes that the application is using a commonly found 10KΩ DC terminated antenna.

The figure below outlines the reference implementation, please keep in mind that these components are in the RF path and care must be taken when implementing this circuit, and refer to the “Hardware User Guide” of the actual wireless modem used for more information on this subject.

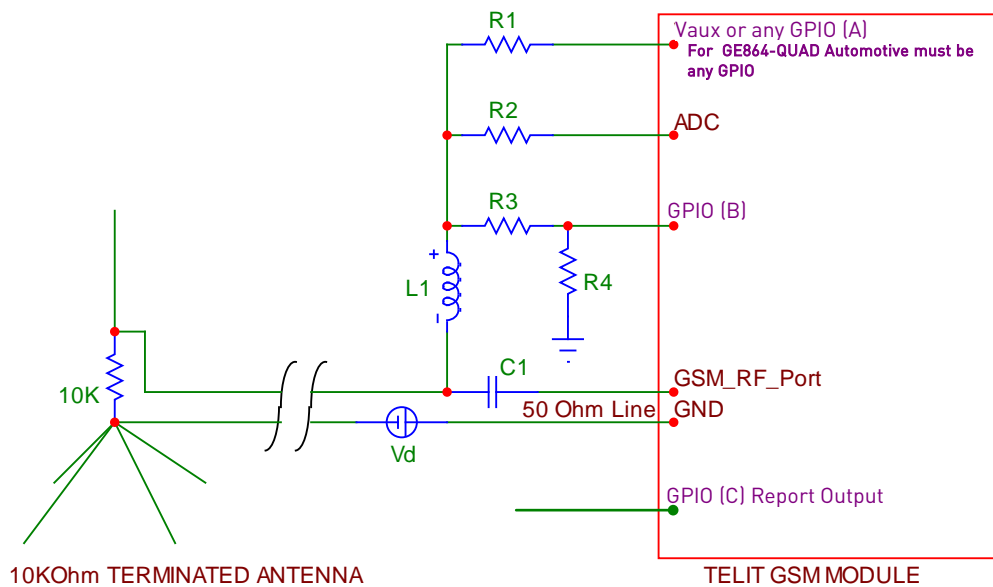


Figure 1, Antenna Diagnostics reference schematic

Where available, the Vaux is a 2.85V regulated power source output from the module. ADC is a 0÷2000mV 11-bit Analog to Digital Converter input.

When GPIO (A) is used as reference instead of VAUX (e.g. GE864-QUAD Automotive), the selected GPIO(A) must be chosen among the available ones for the product and must be set as Output HIGH with the specific GPIO AT command.

The GPIO(B) and GPIO(C) must be defined among the available ones for the product and set into the specific AT command (see **AT#GSMAD parameters <detGPIO>, <repGPIO>**).



5. AT Command Interface

AT command that implements the antenna detection algorithm will be included in the software with the following definition:

#GSMAD - GSM Antenna Detection	
<pre>AT#GSMAD= <mod>, [<urcmode> [,<interval> [,<detGPIO> [,<repGPIO>]]]]</pre>	<p>Set command sets the behaviour of antenna detection algorithm</p> <p>Parameters:</p> <p><mod></p> <ul style="list-style-type: none"> 0 - detection algorithm not active 1 - detection algorithm active; detection is started every <interval> period, using <detGPIO> for detection. 2 - triggers the new measurement of the antenna presence, reporting the result in the format: <p>#GSMAD: <presence></p> <p>where:</p> <p><presence></p> <ul style="list-style-type: none"> 0 - antenna connected. 1 - antenna connector short circuited to ground. 2 - antenna connector short circuited to power. 3 - antenna not detected (open). <p><urcmode> - URC presentation mode. It has meaning only if <mod> is 1.</p> <ul style="list-style-type: none"> 0 - it disables the presentation of the antenna detection URC 1 - it enables the presentation of the antenna detection URC, whenever the antenna detection algorithm detects a change in the antenna status; the unsolicited message is in the format: <p>#GSMAS: <presence></p> <p>where:</p> <p><presence> is as before</p> <p><interval> - duration in seconds of the interval between two consecutive antenna detection algorithm runs (default is 120). It has meaning only if <mod> is 1.</p> <p>..1..3600 - seconds</p>



