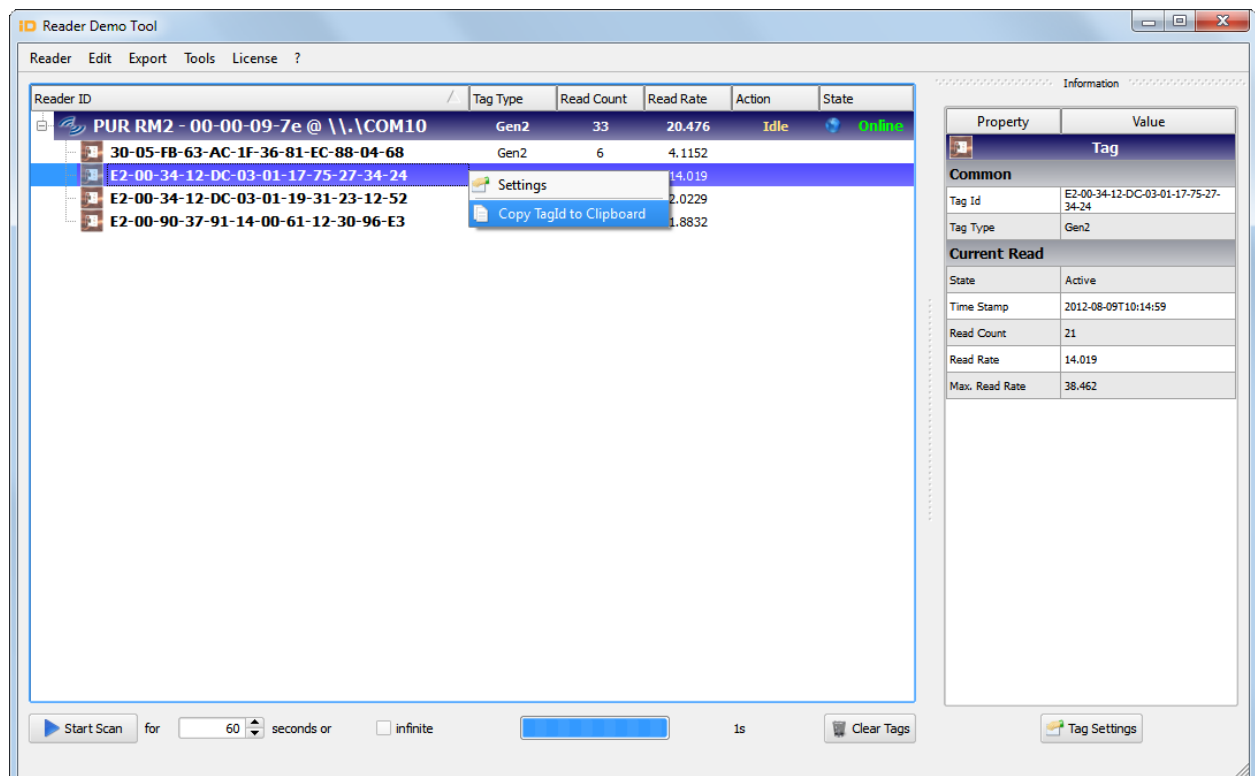

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<p>Engineering Mode</p>		

ENGINEERING MODE OF THE READER DEMO TOOL




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1 Engineering Mode

The Engineering Mode is an extension of the Reader Suite with which Engineers can analyse setups with the RFID reader. The Engineering dialogs are completely integrated into the Reader Demo Tool, but must be unlocked.

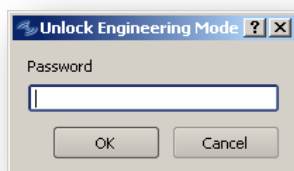
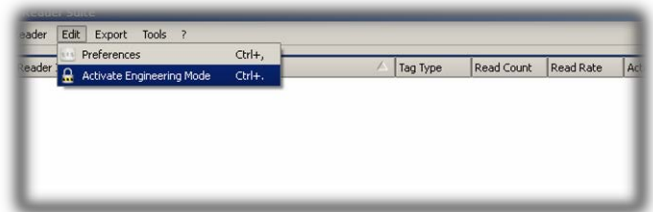
CAUTION!

Please be aware that measurements done within these dialogs can cause the reader to not comply the local regulatory or can harm the reader. Measurements in these dialogs should only be done by experts!

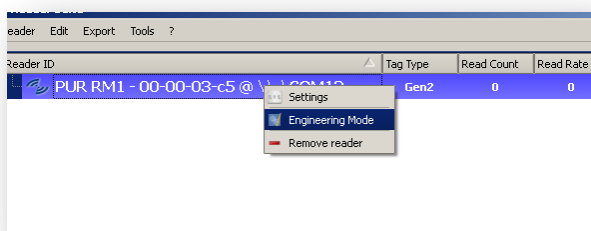
1.1 Unlocking the Engineering Mode

The Engineering Mode can be unlocked by entering the password: `engineering42`

The password must be entered into the “Activate Engineering Mode” dialog. This can be found in the menu bar of the Reader Suite. After this Item was clicked, the input dialog appears, into where the password should be entered.




If the password was entered right, a dialog appears that shows that the password was ok. If a wrong password was entered the input dialog disappears and nothing happens.



After the Engineering Mode was unlocked the context menu of reader and tags show an additional entry. By selecting the option “Engineering Mode” the reader and tag dependent engineering dialog appears.

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2 Engineering Dialog

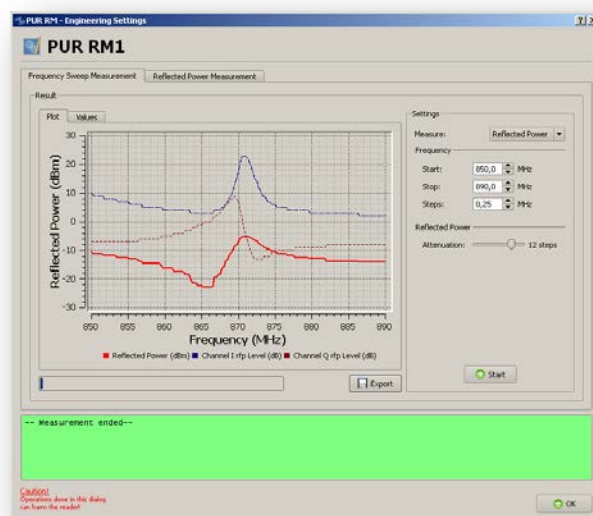
With the Engineering Dialog it is possible to measure the reader and its environment.

2.1 Frequency Sweep Measurement

With the “Frequency Sweep Measurement” it is possible to make either a “Reflected Power” or a “RSSI” measurement of a static environment. The reader sweeps over the configured frequency range with the configured steps and makes its measurements.

If the “Reflected Power” measurement is selected, the reader measures the power that is reflected by the antenna at the current set frequency. For the Reflected Power measurement an attenuation value has to be set. To not harm the reader the attenuation should be as high as possible.

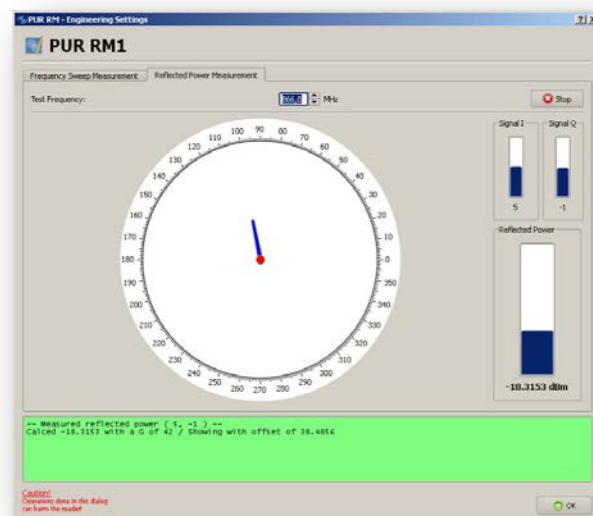
If the “RSSI” measurement is selected, the reader measures the signal strength of its environment at the current frequency.




Each of the two measurements generates a plot picture and a table of values. Dependent on what is currently selected, the “Export” function exports either the “Plot” as a PDF/picture or the “Values” as a CSV-file containing the data.

2.2 Reflected Power Measurement

The tab with the “Reflected Power Measurement” offers the functionality to measure the reflected power of the antenna at a static frequency for changing environments. The measured reflected power of the two channels I and Q, the calculated reflected power in dBm and the reflected power vector are shown in the dialog.



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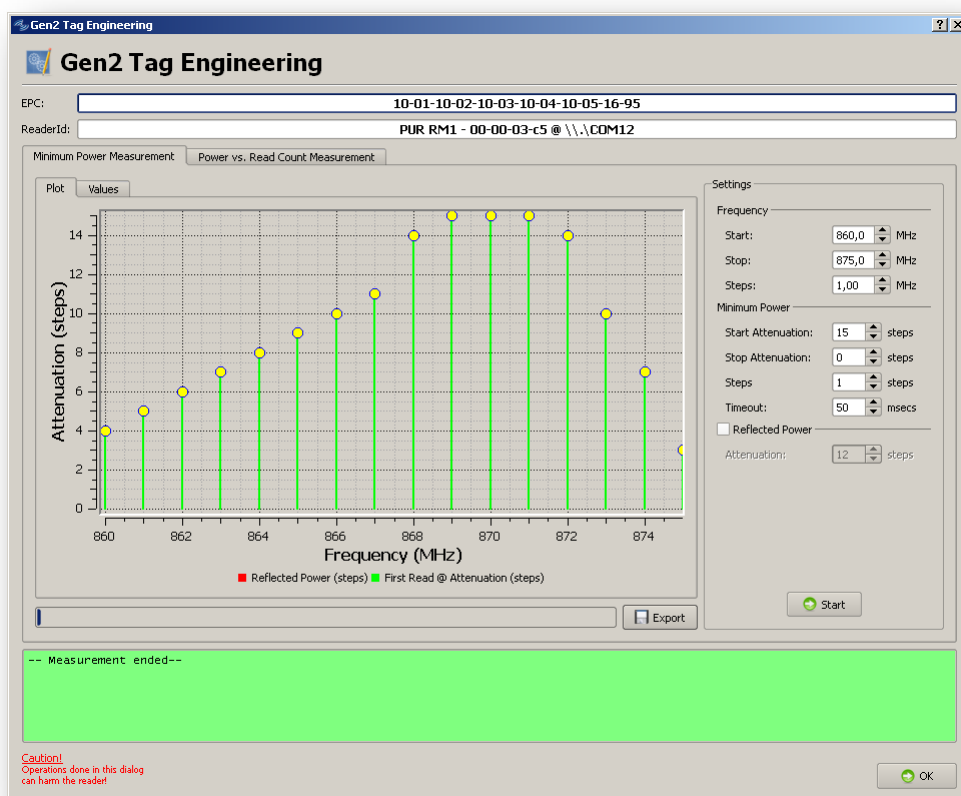
	<p align="center">Document</p> <p align="center">Technical Specification</p>	<p>version: v1.01</p> <p>status:</p> <p>date: 2012-11-21</p>
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3 Gen2 Tag - Engineering Dialog

The Gen2 Tag - Engineering Dialog offers the possibility to measure the combination of a reader with a tag in a certain static environment.

3.1 Minimum Power Measurement


With the Minimum Power Measurement it is possible to measure the minimum needed power of the reader to detect the certain tag at the current set frequency. Therefore the reader sweeps over the set frequency rang with the set steps. For each frequency the reader starts an inventory with the configured "Start Attenuation" for the configured "Timeout". If the reader does not detect the certain tag, it decreases the attenuation about the set step and starts again the inventory. This is done for each frequency until either the tag is detected or the "Stop Attenuation" is reached. After the measurement the plot shows the minimum needed power at each frequency.



Additionally to the Minimum Power Measurement the reflected power of the antenna can also be measured and shown in the plot.

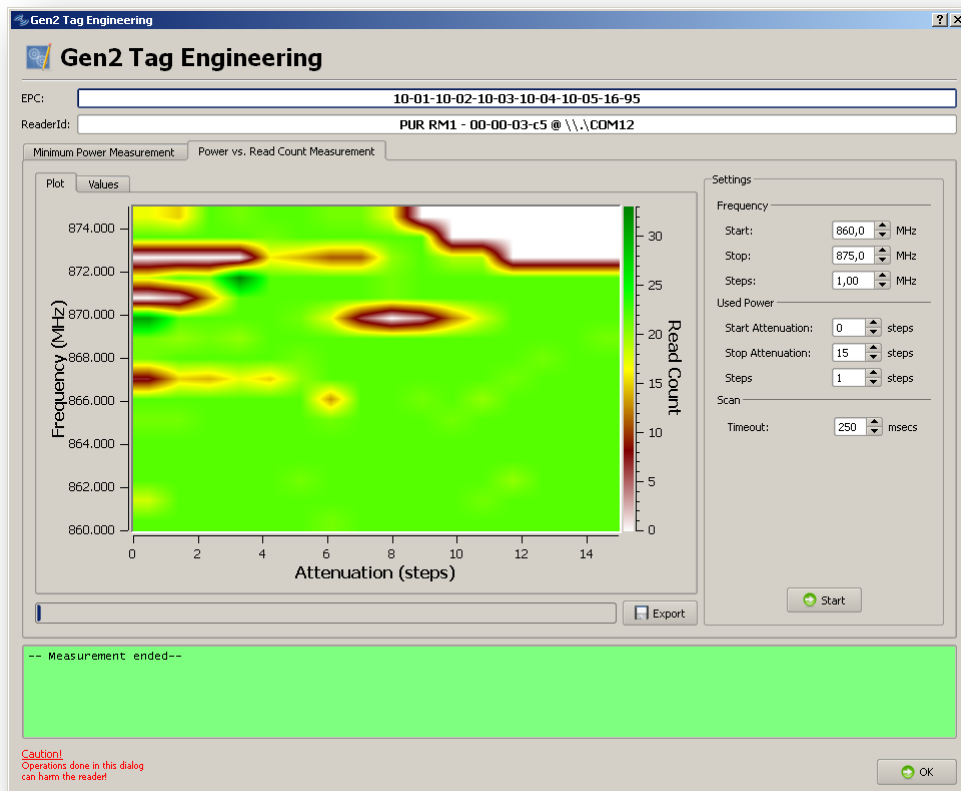
The measurement generates a plot picture and a table of values. Dependent on what is currently selected, the "Export" function exports either the "Plot" as a PDF/picture or the "Values" as a CSV- file containing the data.

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3.2 Power vs. Read Count Measurement

Different from the Minimum Power Measurement the Power vs. Read Count Measurement does not stop the measurement, when the tag is detected. The aim of this measurement is furthermore not to read the tag only once, the aim is to measure how often the tag is detected with the certain setup of power and frequency. So the illustration of the measurement results is adapted to the three parameters:

$$y(\text{Frequency}) - x(\text{Attenuation}) - z(\text{Read Count})$$


The measurement generates a plot picture and a table of values. Dependent on what is currently selected, the “Export” function exports either the “Plot” as a PDF/picture or the “Values” as a CSV- file containing the data.