

# Burst Index Macros for RFID Demodulation in the 89600 VSA

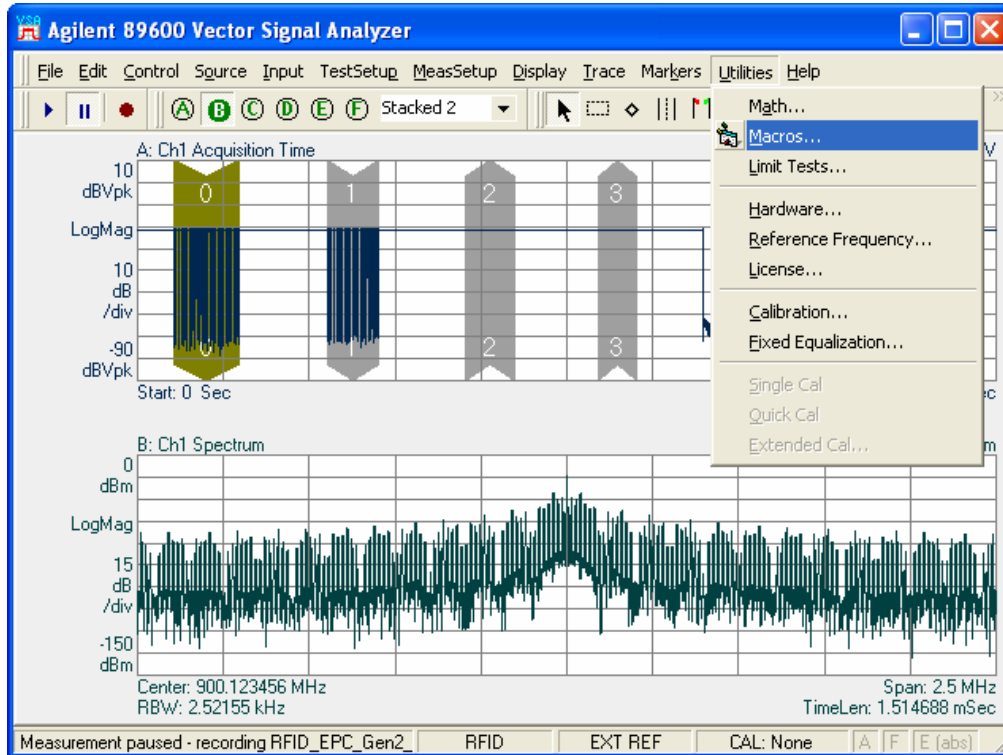
06/29/07

## Introduction:

This application note describes a macro that selects the RFID burst for analysis by changing the burst index number via a button on the toolbar rather than by going into the MeasSetup and Demod Properties menu for RFID.

## Macro Operation:

Load the macro by selecting **Utilities > Macros** on the 89600 VSA menu toolbar.



**Figure 1 - Opening the Macros dialog window**

From the Macros dialog window, click **Recall**. From here, find the directory where the macros were downloaded. Next, highlight **RFID Up**, and click **Open**. The macro, **RFID Up**, will appear on the left hand side of the Macros dialog window. Repeat these steps to open the macro, **RFID Down**, as well.

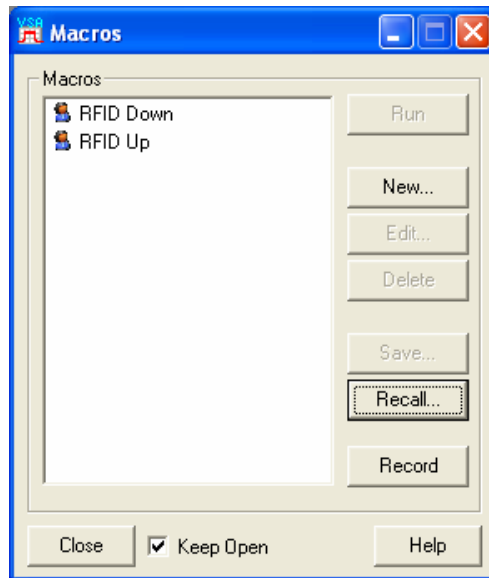


Figure 2 - Opening the Macro from the dialog window

On the 89600 VSA menu toolbar, click **Display > Menu/Toolbars** and check **Macros**. Two buttons will appear below the toolbar labeled “RFID Up,” and “RFID Down.” Click one of the buttons to start the macro.

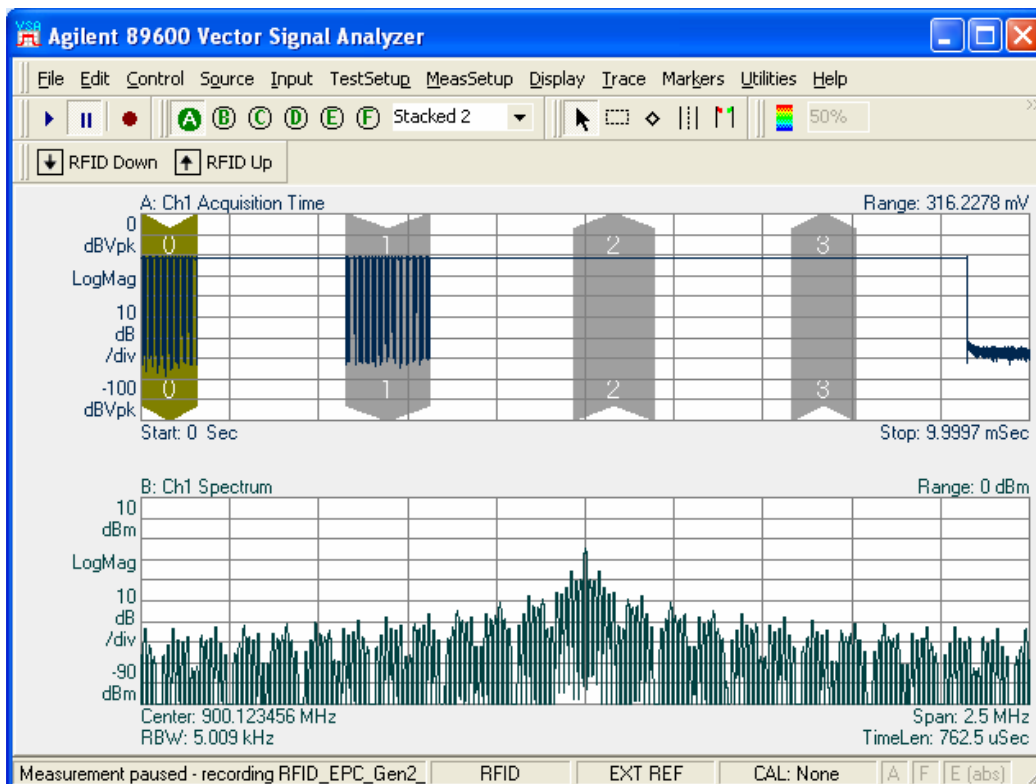


Figure 3 - Displaying the Macros toolbar and the macro running

If you did not start RFID demodulation, or if the tari is incorrect an error message will be displayed. Otherwise, the burst index number will be increased by one if the “RFID Up” button is clicked, or decreased by one if the “RFID Down” button is clicked.

**Macro Function:**

A macro is a shortcut to complete a repetitive task. They are used to create one button applications to simplify more complex settings or measurements. More information about macros and their function can be found under **Help > Macros** in the 89600 VSA main toolbar. This macro takes the current burst index number, and increments or decrements its value based on which macro is run.

**Writing Your Own Macro:**

There are several resources to help you get started when writing macros. The **Help** function in the 89600 VSA menu toolbar contains a basic library for most of the commands, as well as links to web pages for additional help.

Another resource is the ability to create a macro using the **Record** feature. At times you may want to know the precise syntax for measuring or setting specific parameters within the 89600 VSA software. You can create a test macro by clicking **Record** from the Macros dialog window. This feature will now record your mouse clicks, and create a script from them. Choose the setting you would like to change from the 89600 VSA menu toolbar by clicking on it with your mouse, change the setting to a new value, and then click **End Record**. In the Macros dialog window, select the macro that was recorded (ex: *Macro1*), and click **Edit**. This window shows the script that was created during the recording. You can then copy this syntax into your own program to set the desired parameters.

## Understanding This Sample Macro:

The first area the macro considers is verifying that you are in the RFID demodulation mode.

```
if Measurement.DemodConfig <> vsaMeasDemodCnfRFID then
    errmsg = VsaMsgBox("This application works only for RFID
        demodulation.", vbOKOnly)
    exit sub
end if
```

If you are not in this mode an error message will be displayed informing you of the problem, and the program will exit without changing any parameters.

The next step is to determine the number of bursts that are available for analysis. To do this, the burst summary information collected by the 89600 VSA software must be read from a table (**Burst Summary**), and looped until all the bursts have been detected.

```
Display.Traces(6).DataName = "Burst Summary1"
i = 0
bDone = False
While Not bDone
    nItem = Display.Traces(6).RawDataValue(i)
    If Not IsNumeric(nItem) Then
        bDone = True
    Else
        i = i + 4
    End If
Wend
nBurstsFound = (i / 4) - 1
```

Finally, the macro increments or decrements the current burst number, based on the button that was clicked. The code below is for the “RFID Up” macro. The “RFID Down” macro code is identical, with two exceptions. The `currentBurst = currentBurst + 1` line becomes a “-” instead of a “+,” and the if statement becomes a “<” comparison, and sets `currentBurst = nBurstsFound`. The if statement ensures that if the user goes “off the end” of the burst index, that it will wrap back around to the other side (i.e. decreasing by 1 when the current burst index number is 0 sets the burst index to `nBurstsFound`).

```
currentBurst = Measurement.DigDemodRFID.BurstIndex
currentBurst = currentBurst + 1
if currentBurst > nBurstsFound then
    currentBurst = 0
end if
Measurement.DigDemodRFID.BurstIndex = currentBurst
```

## Error Message Descriptions:

1) *This application works for RFID demodulation only.*

Only RFID demodulation is supported for this application. Select this demodulation type, and then run the macro again.

2) *Macro run time error.*

*Macro 'RFID Up(/Down)', line 20.*

*Parameter out of range*

This error occurs when the tari is not set correctly. Go to **MeasSetup >**

**DemodProperties**, click the **Format** tab and change the value in the **Tari** box. For help in determining the correct tari value refer to the RFID user’s guide.