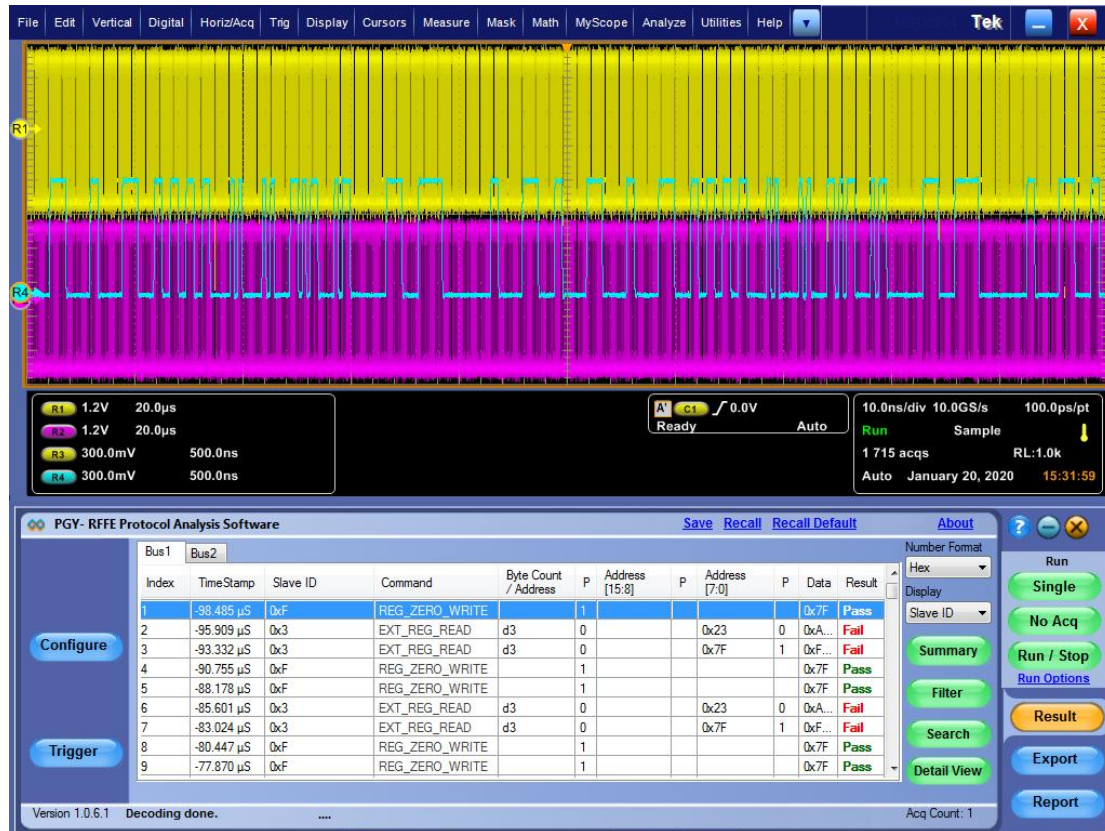# RFFE Electrical Validation and Protocol Decode Software

RFFE Protocol Decode Software offers protocol decoding as specified in the RFFE specification. PGY-RFFE Protocol decode software runs in Tektronix Oscilloscope and provides measurements for protocol decode at the click of a button. This allows engineers to quickly check for RFFE compliance and flexibility to debug the failure. In addition to this, engineers can decode the command and response of RFFE to debug the communication. PGY-RFFE takes advantage of digital channels of MSO and provides the decoding of RFFE data lines.

PGY-RFFE Software runs on Tektronix oscilloscopes such as DPO/MSO5000, DPO7000, DPO/DSA/MSO70000 and MSO5 series, MSO6 series oscilloscope series. PGY-RFFE utilizes the hardware-based real-time RFFE protocol aware trigger, and protocol analysis of long acquisition record length up to 125MB to provide superior RFFE Protocol Analysis results at the press of a button.

Key Features

✧ RFFE Protocol Analysis using oscilloscope live channel data or stored RFFE signals.

✧ Powerful RFFE real-time protocol aware hardware-based trigger capabilities.

✧ Displays the decoded data in RFFE frame format.

✧ Error checks for parity bits of command and data.

✧ Error checks for Byte count with actual data count and missing SSC.

✧ Flexibility to view Slave ID in Symbol or Hex value.

✧ Flexibility to view decoded data in hex, binary, Decimal, or octal format.

✧ Long duration data decode support to capture more number of RFFE protocol transactions.

✧ Search capabilities to locate protocol event.

✧ Filter capabilities to view information of Interest.

✧ Documentation by exporting data in CSV and TXT file format.

✧ Report Generation.

Easy RFFE Protocol Test Setup and Debug:

PGY-RFFE Software installed in Tektronix oscilloscopes can be launched by clicking the PGY-RFFE icon in the oscilloscope desktop folder. Now the user has simultaneous view and control of the oscilloscope as well as PGY-RFFE Software. Users can analyze RFFE in Single acquisition mode, Repetitive mode, and No Acq mode. In No Acq Mode, the RFFE software analyses an already captured RFFE signal that is present in the acquisition memory of the oscilloscope.

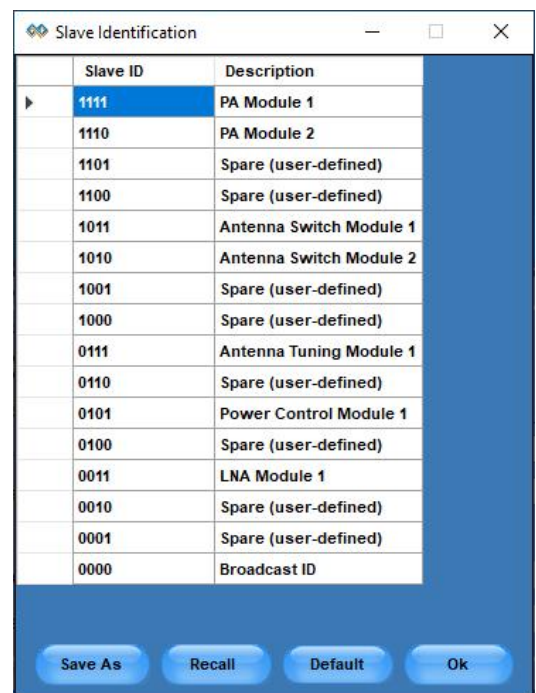### Powerful RFFE Protocol Aware Hardware-Based Real-Time Trigger:

The simple, easy-to-use RFFE protocol-aware trigger feature allows engineers to capture RFFE signals at specific events in the RFFE interface.
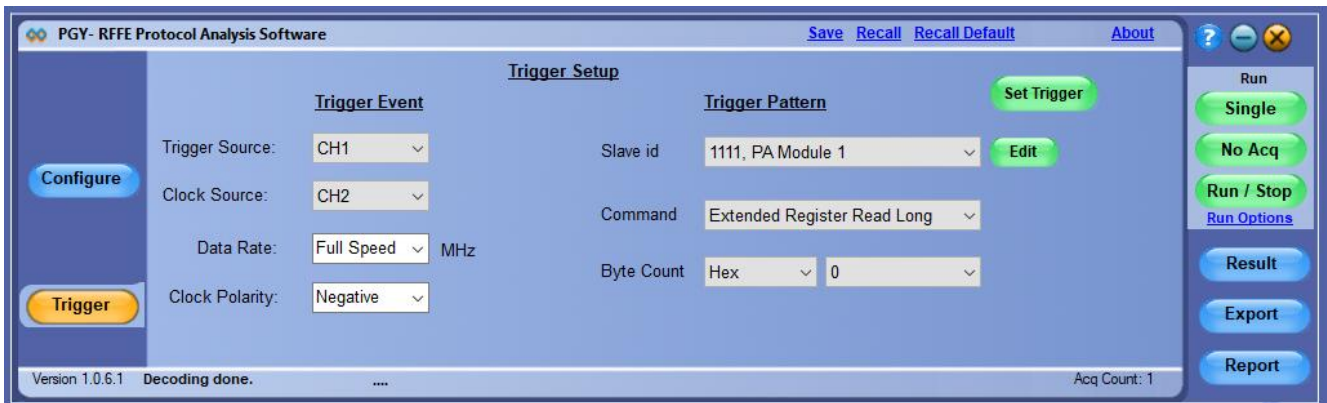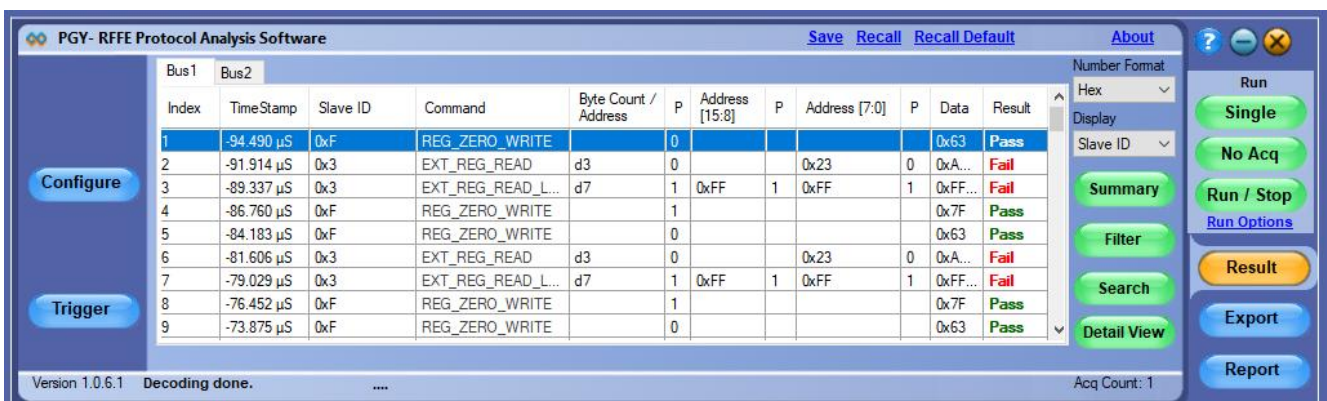
Select any of the live channels Ch1 to CH4 as trigger sources and set the trigger pattern. The trigger can be set to full speed, half speed, or any custom data rate. RFFE provides the flexibility to select a combination of any one of the sixteen slave IDs, any command, and command-dependent parameters such as Byte count, Address, or Data.

The symbol table for Slave ID:

PGY-RFFE Software provides the flexibility to view the decoded data in the symbol table. RFFE specification documents provide guidelines to describe the Slave IDs. PGY-RFFE software has the default slave ID table. However, the user can edit the default table and apply the custom described slave IDs for easy analysis of protocol activities. This symbol table is used for easy trigger setup, protocol analysis, filter, and search features.

| Slave ID	Description
1111	PA Module 1
1110	PA Module 2
1101	Spare (user-defined)
1100	Spare (user-defined)
1011	Antenna Switch Module 1
1010	Antenna Switch Module 2
1001	Spare (user-defined)
1000	Spare (user-defined)
0111	Antenna Tuning Module 1
0110	Spare (user-defined)
0101	Power Control Module 1
0100	Spare (user-defined)
0011	LNA Module 1
0010	Spare (user-defined)
0001	Spare (user-defined)
0000	Broadcast ID

Protocol Analysis of RFFE Signals:

RFFE Protocol decoded data is displayed as above. PGY-RFFE software processes up to 125MB record length and displays all the RFFE protocol packets. The software analyses each RFFE packet for missing SSC, parity bit error in address, command, and data bytes. PGY-RFFE software identifies any RFFE packet with missing SSC. This ensures that each RFFE packet meets the protocol specifications of RFFE. PGY-RFFE software displays result for each RFFE protocol packet whether pass or fail.

Protocol Summary:

Protocol Summary provides a quick result view of protocol analysis of RFFE signals. This view lists the pass/fail status of SSC, parity bit in command, address, and data in the acquired data. This helps in locating the cause of RFFE Protocol packet failure.
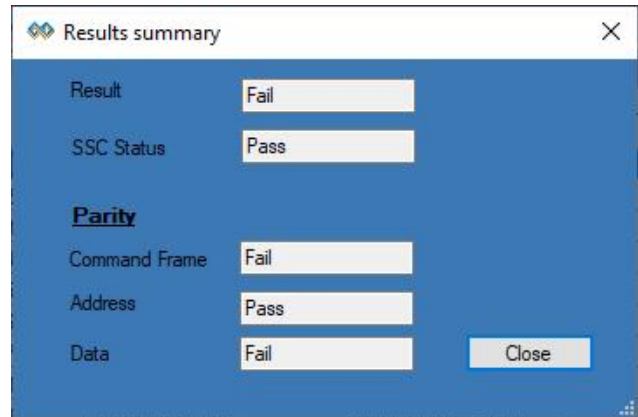

Filter feature:

It is extremely challenging to view information of interest while there are hundreds of protocol transactions taking place between various devices. These problems compound during protocol analysis of a long record length. PGY-RFFE software solves this problem using the filter feature. By filtering information for Slave ID or specific command, or parity error type, the user can view only specific data of interest. Filters provide filtering of information using individual packet content or a combination of packet contents.
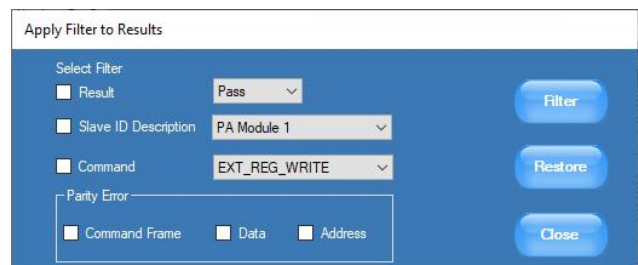
Search:

During protocol analysis, users tend to capture a large amount of data and capture any non-repeatable event. It is also extremely difficult to locate the RFFE packet of interest. RFFE Software's Search filter is able to quickly locate the required Slave ID or command or Combination of both.
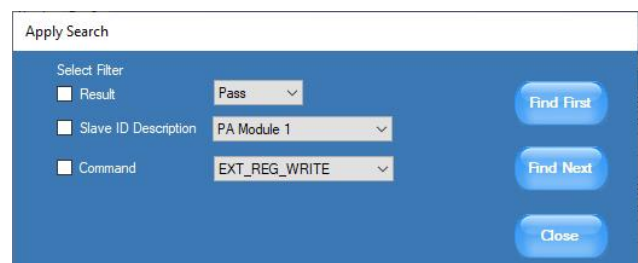
Documentation of Protocol Analysis:

PGY-RFFE Protocol Trigger and Decode Analysis software provide flexibility to export the decoded data in TXT and CSV file format. Report generation allows the user to include different wave forms images including the oscilloscope screenshot in a PDF report. Headers, comments, and test attributes can be added to the report.

Tektronix Oscilloscopes Supported:

- DPO/MSO5000 series
- DPO7000 series
- DPO/MSO/DSA 70000 series
- MSO5 series, MSO6 series

    All need to be windows 7 or higher OS based

Ordering Information:

The ordering information is as follows:

PGY-RFFE (shipment includes CD with PGY-RFFE Protocol Trigger and Decode Analysis Software). License is locked to the oscilloscope

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About Prodigy Technovations Pvt Ltd

Prodigy Technovations Pvt Ltd (www.prodigytechno.com) is a leading global technology provider of Protocol Decode, and Physical layer testing solutions on test and measurement equipment. The company's ongoing efforts include successful implementation of innovative and comprehensive protocol decode and physical layer testing solutions that span the serial data, telecommunications, automotive, and defense electronics sectors worldwide.