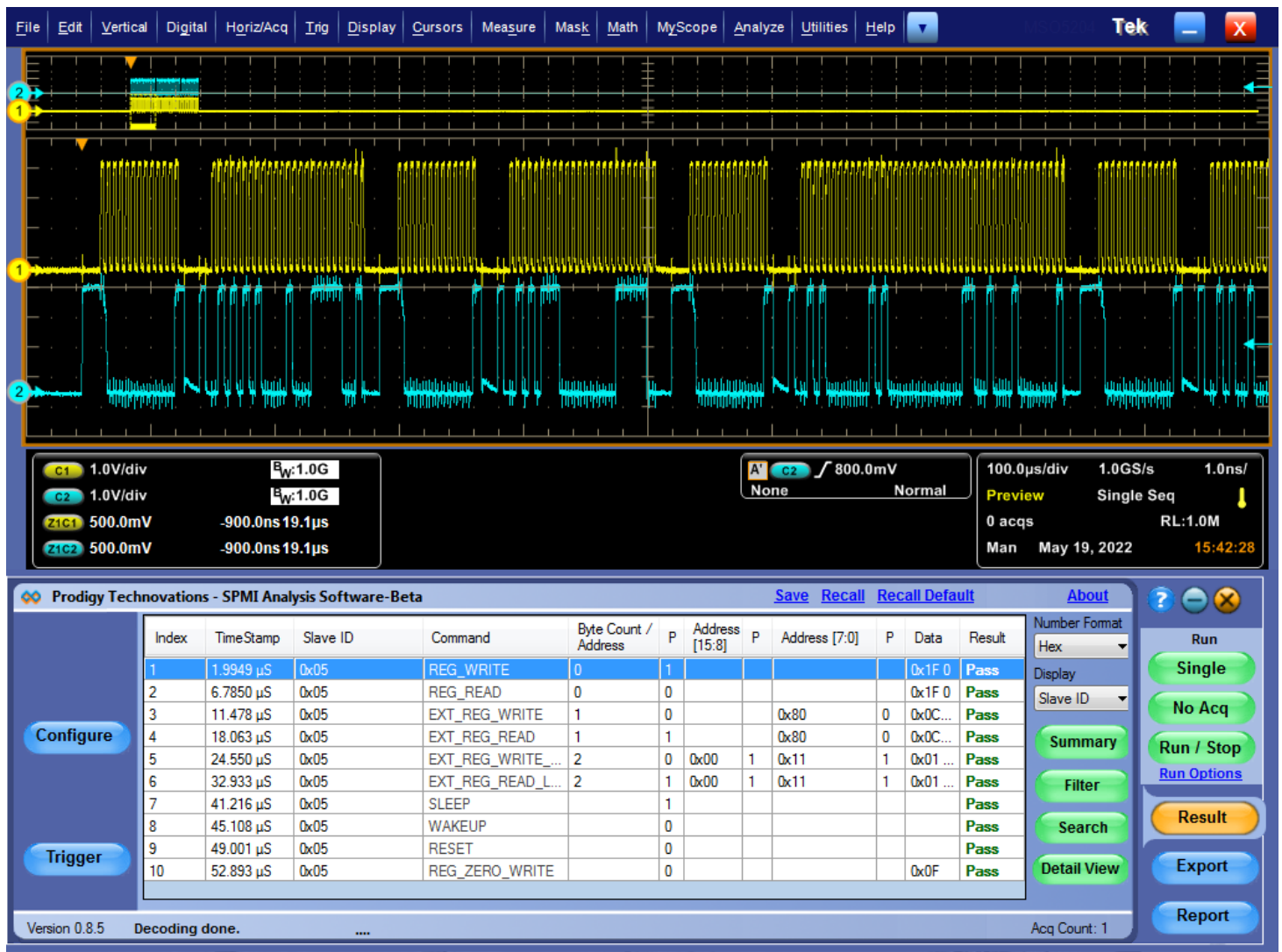


## PGY-SPMI Electrical Validation and Protocol Analysis Software



### SPMI Electrical Validation Software

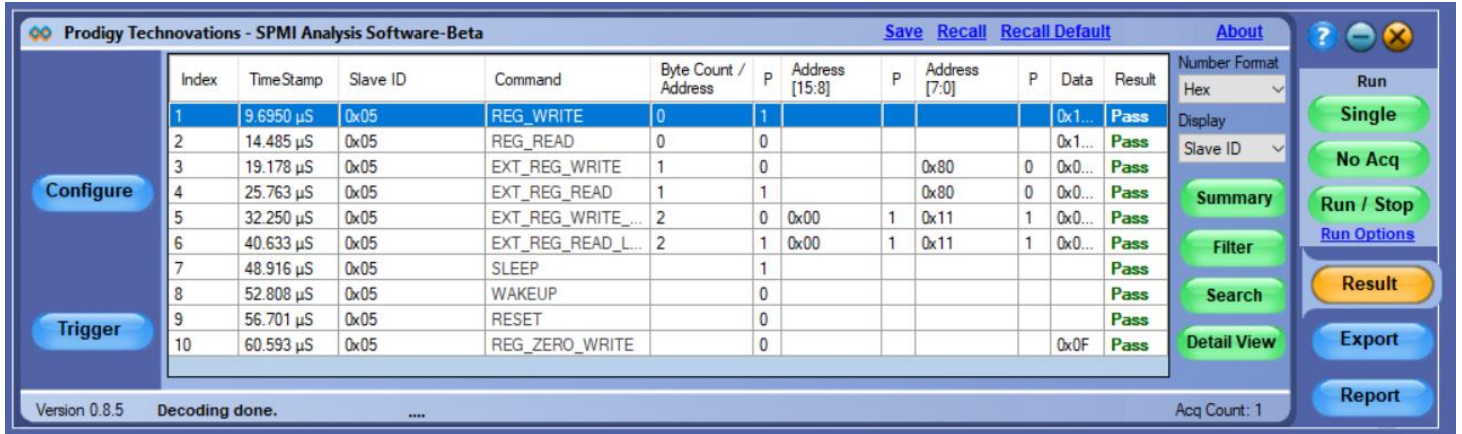
#### Features:

SPMI Electrical Validation and Protocol Decode Software offers electrical measurements compliance testing as specified in SPMI specification. PGY-SPMI Electrical validation and Protocol Decode software runs in Tektronix Oscilloscope provides electrical measurements and protocol decoding at click of button.

This software provides the flexibility to set reference levels for electrical measurement and customized limits makes it most versatile solution to meet different needs of characterizing SPMI Signals. Now design and test engineers can automatically make accurate and reliable electrical measurements and decode protocols in PGY-SPMI software using data acquired by Tektronix DPO5000, TDS7000, DPO/DSA/MSO7000, MSO5/6 series oscilloscope (Windows 7 or higher OS based scope only) to reduce the development and test cycle.

- SPMI Electrical Validation and protocol Analysis using oscilloscope live channel data or stored SPMI signals (wfm (default), h5, trc format ( with option)).
- Links the content to the electrical signal in the oscilloscope for easy understanding of the electrical characteristics of the protocol.
- Displays the decoded data in SPMI frame format
- Error checks for parity bits of command and data
- 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 SPMI 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 along with PDF Report Generation.
- API Support with Python.

## Seamless Integration with Oscilloscope



Prodigy Technovations - SPMI Analysis Software-Beta

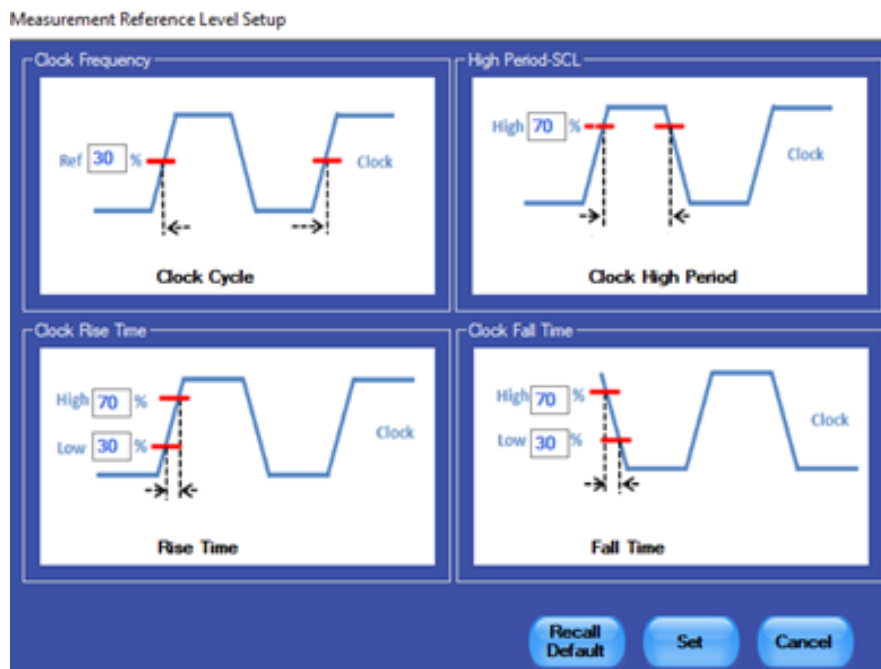
Index	Time Stamp	Slave ID	Command	Byte Count / Address	P	Address [15:8]	P	Address [7:0]	P	Data	Result
1	9.6950 $\mu$ S	0x05	REG_WRITE	0	1					0x1...	Pass
2	14.485 $\mu$ S	0x05	REG_READ	0	0					0x1...	Pass
3	19.178 $\mu$ S	0x05	EXT_REG_WRITE	1	0			0x80	0	0x0...	Pass
4	25.763 $\mu$ S	0x05	EXT_REG_READ	1	1			0x80	0	0x0...	Pass
5	32.250 $\mu$ S	0x05	EXT_REG_WRITE...	2	0	0x00	1	0x11	1	0x0...	Pass
6	40.633 $\mu$ S	0x05	EXT_REG_READ_L...	2	1	0x00	1	0x11	1	0x0...	Pass
7	48.916 $\mu$ S	0x05	SLEEP		1						Pass
8	52.808 $\mu$ S	0x05	WAKEUP		0						Pass
9	56.701 $\mu$ S	0x05	RESET		0						Pass
10	60.593 $\mu$ S	0x05	REG_ZERO_WRITE		0					0x0F	Pass

Version 0.8.5    Decoding done.    ...    Acq Count: 1

PGY-SPMI runs inside the Tektronix oscilloscopes and makes the electrical measurements, and displays the decoded data in a bus diagram, a table, and links the decoded data to electrical signal in the bus diagram.

## Reference Level Setup

PGY-SPMI-EV is not just for standard electrical compliance testing, you can also vary the limits and test your device with custom limits. The intuitive limits and reference level setup allow you to configure the limits and reference levels for your custom testing needs. This enables you to test your device beyond the specification and characterize it.



Measurement Reference Level Setup

**Clock Frequency**  
Ref: 30 %

**High Period-SCL**  
High: 70 %

**Clock Rise Time**  
High: 70 %  
Low: 30 %

**Clock Fall Time**  
High: 70 %  
Low: 30 %

Buttons: Recall Default, Set, Cancel

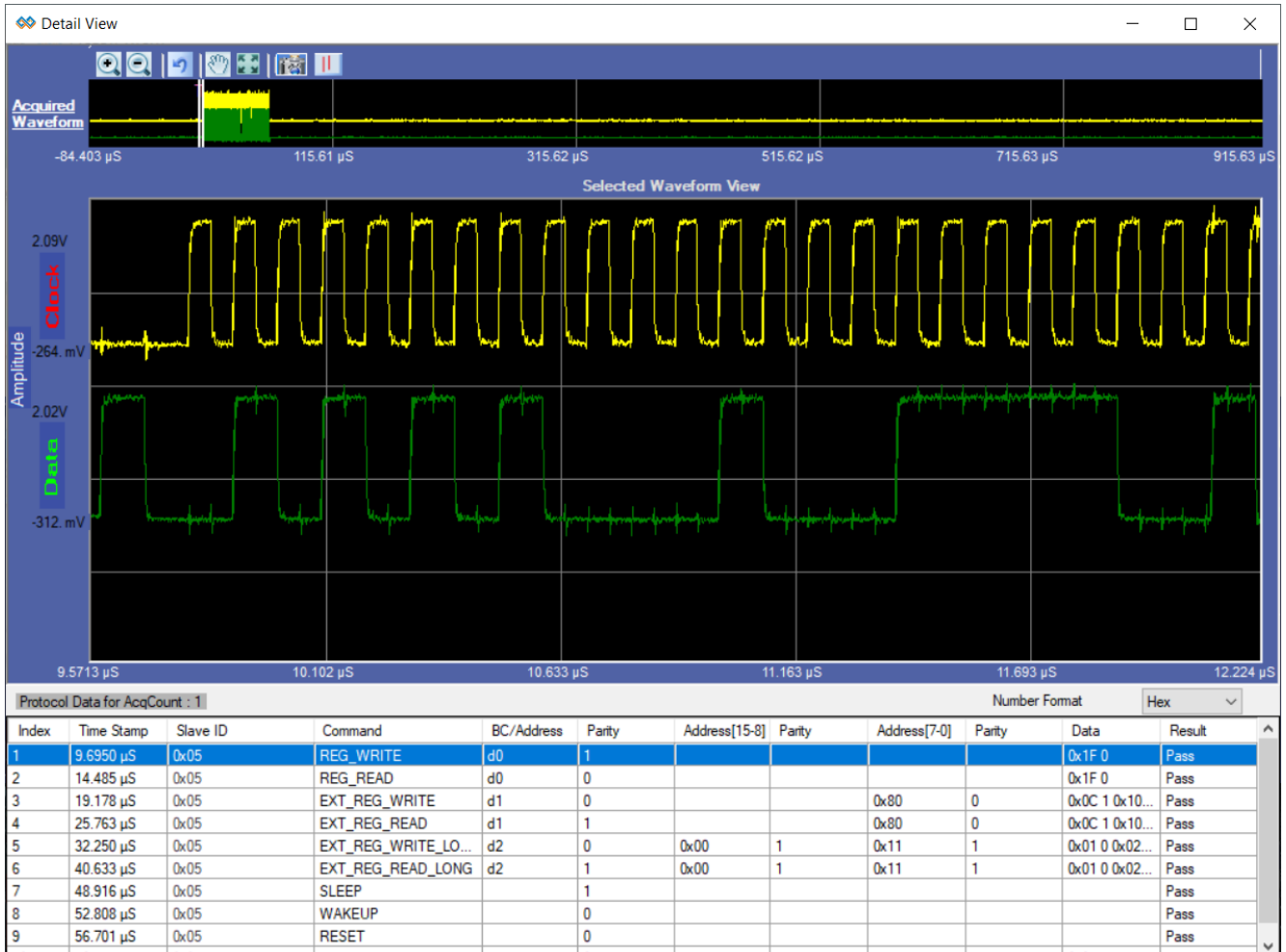
## Characteristics

### SPMI Timing Requirements

S.No.	Electrical Parameter	Symbol
1.	High Level input voltage (SDATA, SCLK)	VIH
2.	Low Level input voltage (SDATA, SCLK)	VIL
3.	Input threshold hysteresis (SDATA, SCLK)	VHYS
4.	Output logic high	VOH
5.	Output logic low	VOL
6.	SCLK Clock Frequency	fSCLK
7.	SCLK output transition (rise/fall) time from Master SCLK driver	tSCLKOTR
8.	SCLK high time	tSCLKIH
9.	SCLK low time	tSCLKIL
10.	Time for SDATA output valid from SCLK rising edge	td_SDATA
11.	SDATA output transition	Tsdataotr
12.	SDATA setup time	tSU_STA
13.	SDATA rise time	tr_SPMI
14.	SDATA fall time	tf_SPMI

Table 1.SPMI Timing Requirements

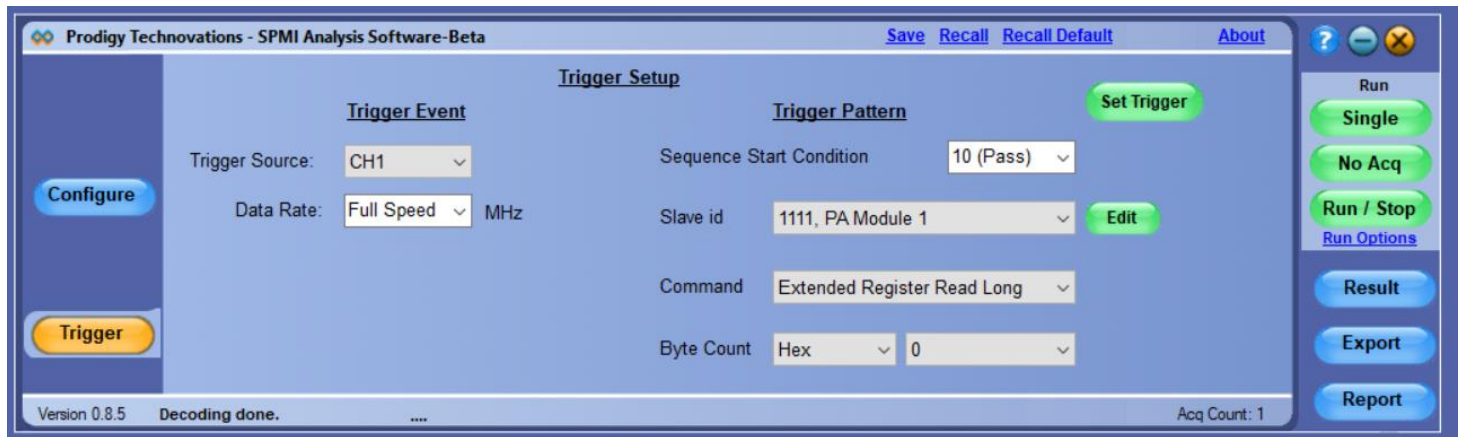
## Detail View



In Detail View, engineers can view the analog waveform, details of electrical measurements in single view. If there is any failure in electrical measurement, designers can quickly correlate with the analog waveforms. User can select any row in the detail view; corresponding analog waveform will be zoomed and displayed. In the same row, engineers can view all the electrical measurements corresponding to the selected row. Utility features such as zoom, cursors, and markers make custom measurement while debugging.

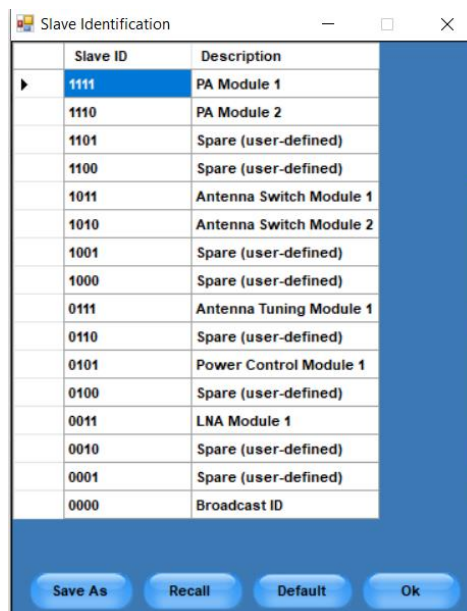
### Powerful SPMI Protocol Aware Hardware Based Real-Time Trigger

Simple, easy-to-use SPMI protocol-aware trigger feature allows engineers to capture SPMI signals at specific event in SPMI interface.



Select any of the live channels Ch1 to CH4 as trigger source and set the trigger pattern. The trigger can set to full speed, half speed or any custom data rate. SPMI 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.

### Symbol table for Slave ID

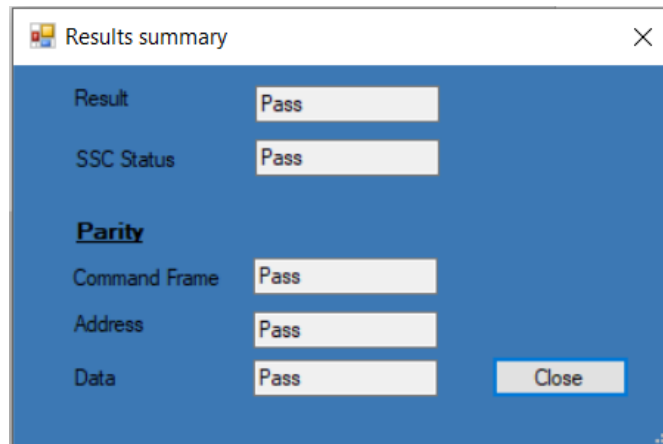


Slave ID	Description
1111	PA Module 1
1110	PA Module 2
1101	Spare (user-defined)
1100	Spare (user-defined)
1011	Antenna Switch Module 1
1010	Antenna Switch Module 2
1001	Spare (user-defined)
1000	Spare (user-defined)
0111	Antenna Tuning Module 1
0110	Spare (user-defined)
0101	Power Control Module 1
0100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

Buttons at the bottom: Save As, Recall, Default, Ok

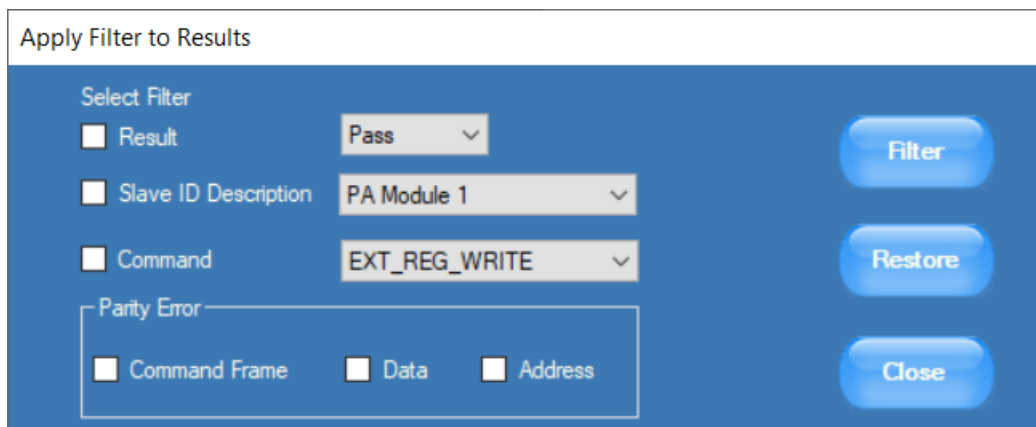
PGY-SPMI Software provides the flexibility to view the decoded data in symbol table. SPMI specification documents provide guidelines to describe the Slave IDs. PGY-SPMI software has the default slave ID table. However, the user can edit the default table and apply the custom described slave IDs for easy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

## Results Summary



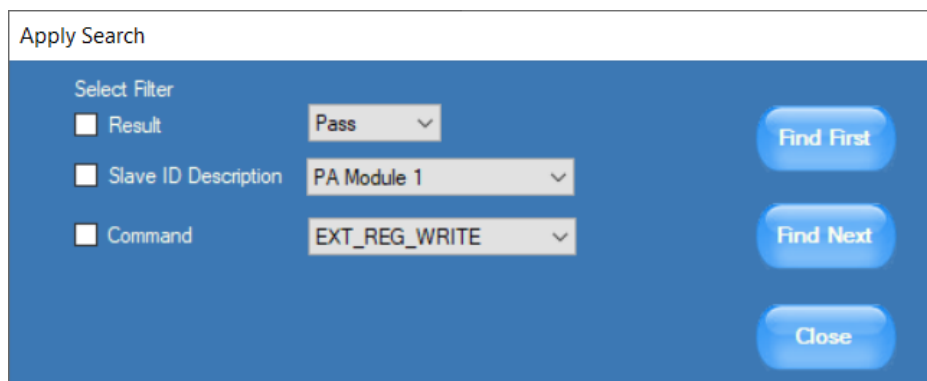
Protocol Summary provides a quick result view of protocol analysis of SPMI signals. This view lists pass/fail status of SSC, parity bit in command, address and data in the acquired data. This helps in locating the cause of SPMI Protocol packet failure.

## Filter



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-SPMI software solves this problem using the filter feature. By filtering information for Slave ID or specific command, or parity error type, user can view only specific data of interest. Filters provide filtering of information using individual packet content or combination of packet contents.

## Search



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

### Oscilloscopes Supported

DPO/MSO5000 series

DPO7000 series

DPO/MSO/DSA 70000 series

MSO 5 series MSO MSO54, MSO56, MSO58, MSO58LP

MSO 6 series MSO64, MSO64B, MSO66B, MSO68B series.

**Note:** We only support Window 7 or higher OS based models from the above.

### Ordering Information:

PGY-SPMI Electrical Validation and Protocol Decode Software (shipment includes CD with PGY-SPMI Electrical Validation and Protocol Analysis Software) License is locked to oscilloscope.

### Contact Information

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<b>Website:</b>	<a href="http://www.prodigytechno.com">www.prodigytechno.com</a>
<b>Technical Support:</b>	<a href="mailto:contact@prodigytechno.com">contact@prodigytechno.com</a>
<b>Phone:</b>	+91-80-42126100

### About Prodigy Technovations Pvt Ltd

Technovations Pvt Ltd ([www.prodigytechno.com](http://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.