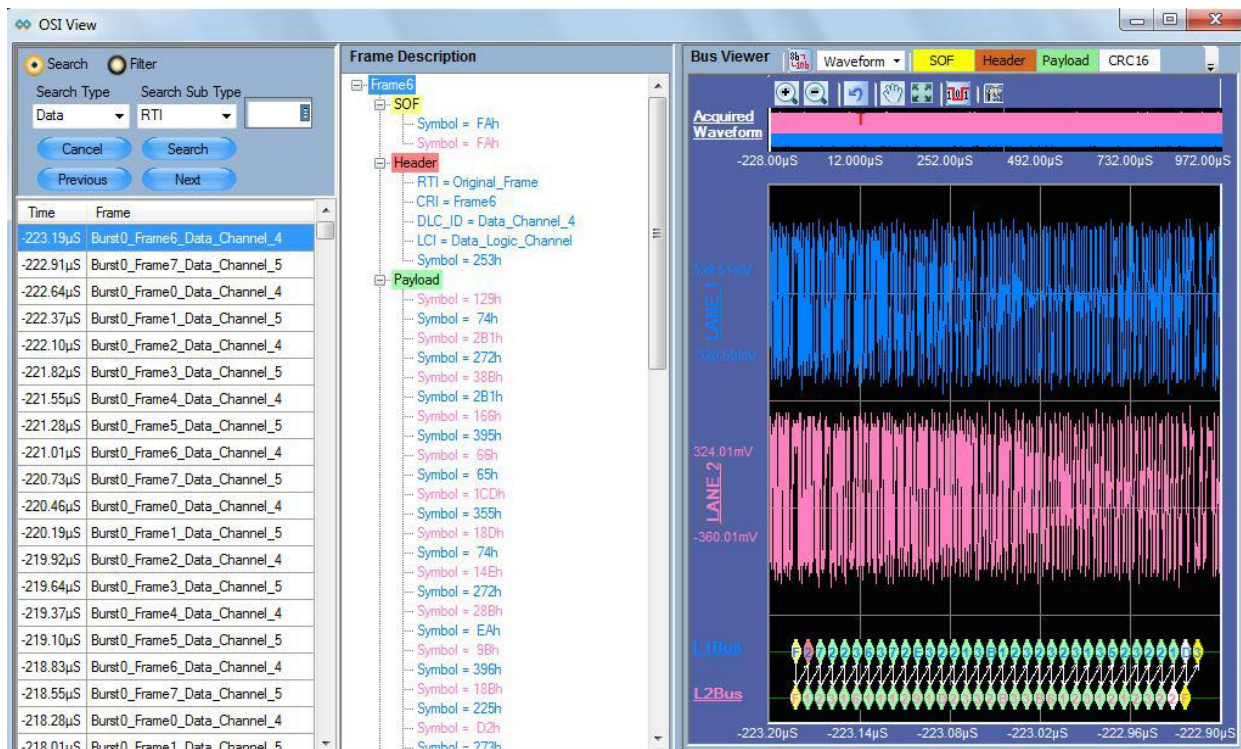


## PGY-DGRF DigRF v4 Protocol Analysis Software



### DigRF v4 Protocol Analysis Software

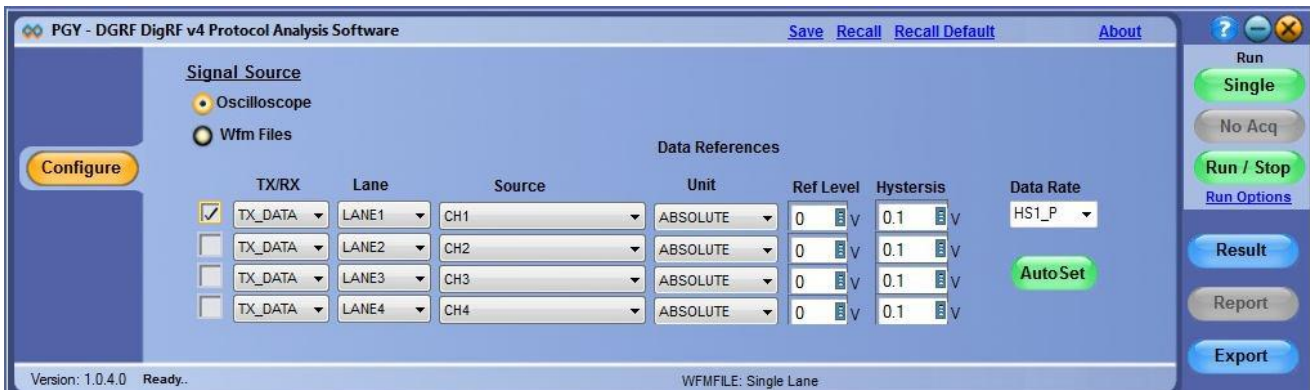
PGY-DGRF DigRF v4 Protocol Analysis Software is the oscilloscope-based tool available that provides a merging of data lanes for seamless view of Protocol representation for the transmitted DigRF v4 frames (HS-Burst/Sys-Burst) on multilane implementation. Design and test engineers can automatically make accurate and reliable decode of multi-lane DigRF v4 protocol, protocol validation and debug the designs by correlating upper layer protocol info with electrical waveforms using PGY-DGRF software.

#### Features:

- Automated frame detail as per the DigRF v4 standard.
- Automated Frame listing and frame description provides comprehensive protocol layer information.
- Software automatically identifies the operating mode and link rate for hassle free protocol analysis.
- Automated error check for HS-Burst/Sys-Burst in High Speed Mode and Low Speed mode.
- Automated merged lane representation for multi lane decoded data.
- Automated oscilloscope setup assistance for data captures.
- Protocol view lists the protocol frame activities in tree structure and tabulated form to assist designers to know the header and payload details for each HS-Burst/SYS-Burst.
- Protocol test checks for CRC, SOF, EOF violation.
- Software seamlessly integrates with Tektronix windows-based oscilloscope and supports signal analysis using live channels of oscilloscope.
- Search and filter capabilities to locate protocol event.
- Long duration data decode support to capture more numbers of events.
- Offline analysis capabilities using WFM files.
- Documentation by exporting data in CSV and TXT file format.
- Report generation in PDF format.

## Seamless Integration with Oscilloscope

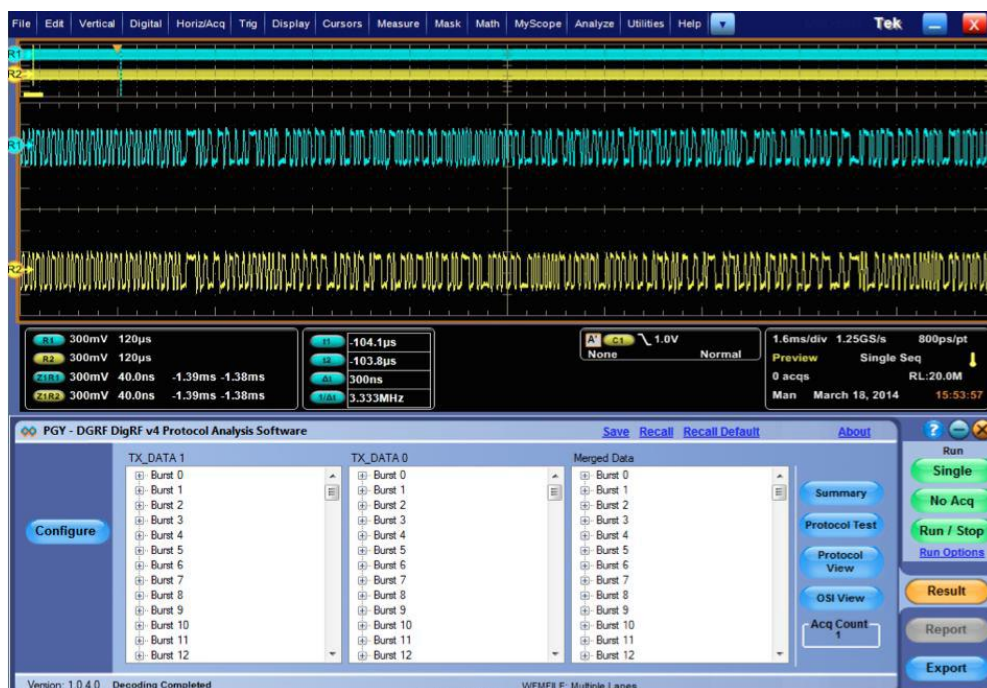
PGY-DGRF DigRF v4 Protocol Analysis Software runs inside the Tektronix high performance windows oscilloscopes. Engineers can configure the PGY-DGRF Software to automatically import the data from oscilloscopes live channels or wfm file format. This enables live and offline protocol testing of DigRF v4 protocol.



- “Auto Set” feature in PGY-DGRF automatically set the oscilloscope for data capture.
- “Save” and “Recall” of application, feature saves setup time for repetitive test needs
- Supports single acquisition, Repetitive and No Acq mode using oscilloscope live data.

## PGY-DGRF DigRF v4 Result Analysis

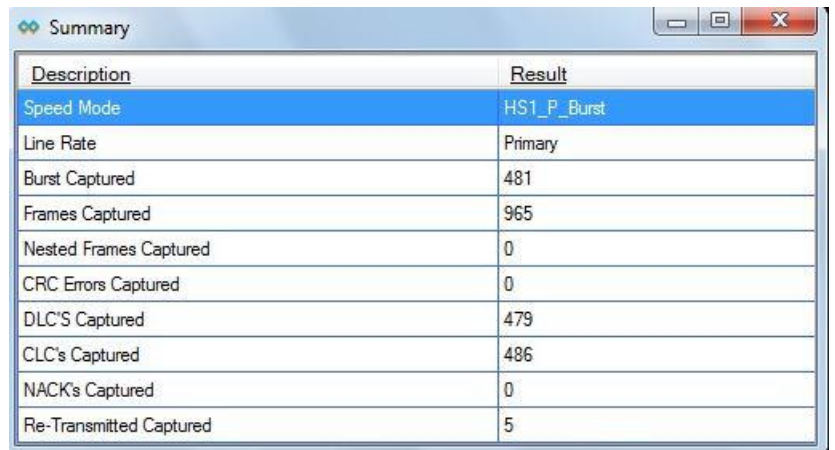
**Result Pane:** Provides results from PGY-DGRF Protocol Analysis Software. PGY-DGRF Software displays each lane decoded data along with merged lane data. By collapsing each burst packet provides different frames and content within each frame. PGY-DGRF software links decoded frame of individual lane to corresponding electrical waveform in oscilloscope display helps in correlating protocol activity with physical layer information. Color annotation in merged data makes easy to interpret the overhead and payload byte information in DigRFv4 protocol packets.



For Protocol validation and debugging PGY-DGRF software provides Summary, Protocol Test, Protocol view and OSI view.

**Summary:**

PGY-DGRF Software lists all the protocol activity communicated between the RFIC and BBIC. Software Provides statistical data for all Burst and Frames communicated over the DigRF interface.



Description	Result
Speed Mode	HS1_P_Burst
Line Rate	Primary
Burst Captured	481
Frames Captured	965
Nested Frames Captured	0
CRC Errors Captured	0
DLC'S Captured	479
CLC's Captured	486
NACK's Captured	0
Re-Transmitted Captured	5

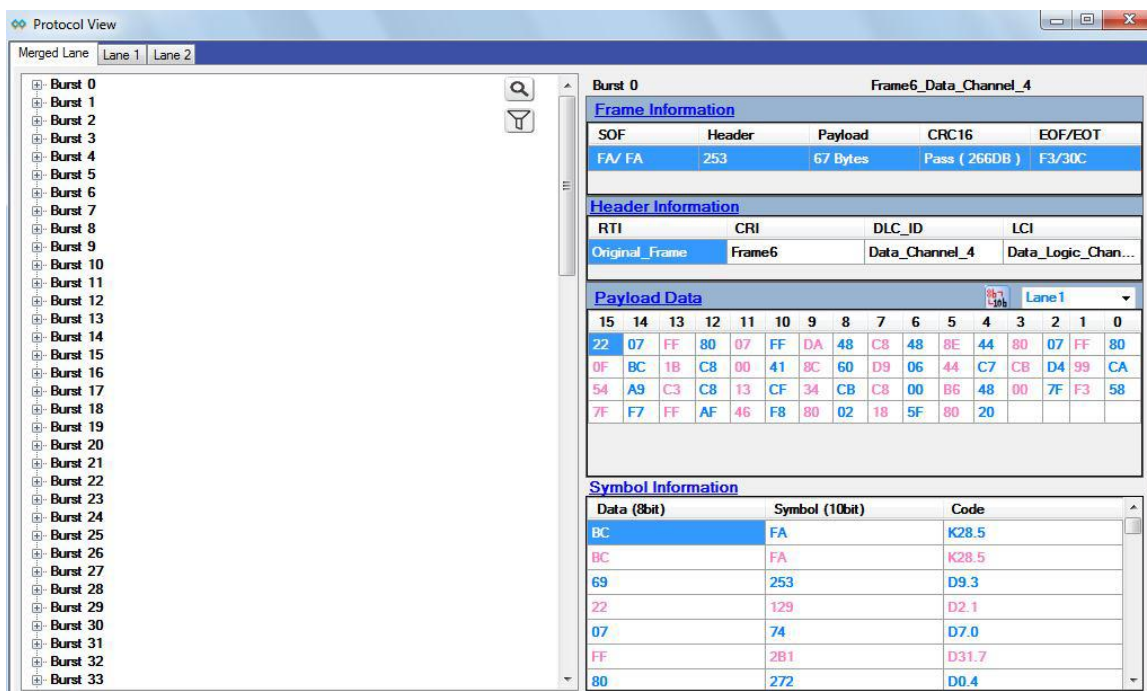
**Protocol Test:**

PGY-DGRF Software provides protocol validation by SOF, EOF, data and CRC error checks. PGY- DGRF provides protocol validation results a click of button by saving development time.



Description	Result
SOF Integrity	Pass
Data Integrity	Pass
CRC16 Integrity	Pass
EOF Integrity	Pass

**Protocol View:** PGY-DGRF Software decoded data related to all the frames communicated over Lane0, Lane1, Lane2 and Merge Lane Data (i.e. Lane0+ Lane1+Lane2) are displayed in a tree structure format for quick analysis. Protocol view also provides tabulated display for each selected frame and cross correlation of frames details such as, header information, payload and symbol information.



**Protocol View**

Merged Lane | Lane 1 | Lane 2

- Burst 0
- Burst 1
- Burst 2
- Burst 3
- Burst 4
- Burst 5
- Burst 6
- Burst 7
- Burst 8
- Burst 9
- Burst 10
- Burst 11
- Burst 12
- Burst 13
- Burst 14
- Burst 15
- Burst 16
- Burst 17
- Burst 18
- Burst 19
- Burst 20
- Burst 21
- Burst 22
- Burst 23
- Burst 24
- Burst 25
- Burst 26
- Burst 27
- Burst 28
- Burst 29
- Burst 30
- Burst 31
- Burst 32
- Burst 33

**Burst 0** | **Frame6\_Data\_Channel\_4**

**Frame Information**

SOF	Header	Payload	CRC16	EOF/EOT
FA/ FA	253	67 Bytes	Pass ( 266DB )	F3/30C

**Header Information**

RTI	CRI	DLC_ID	LCI
Original_Frame	Frame6	Data_Channel_4	Data_Logi...

**Payload Data**

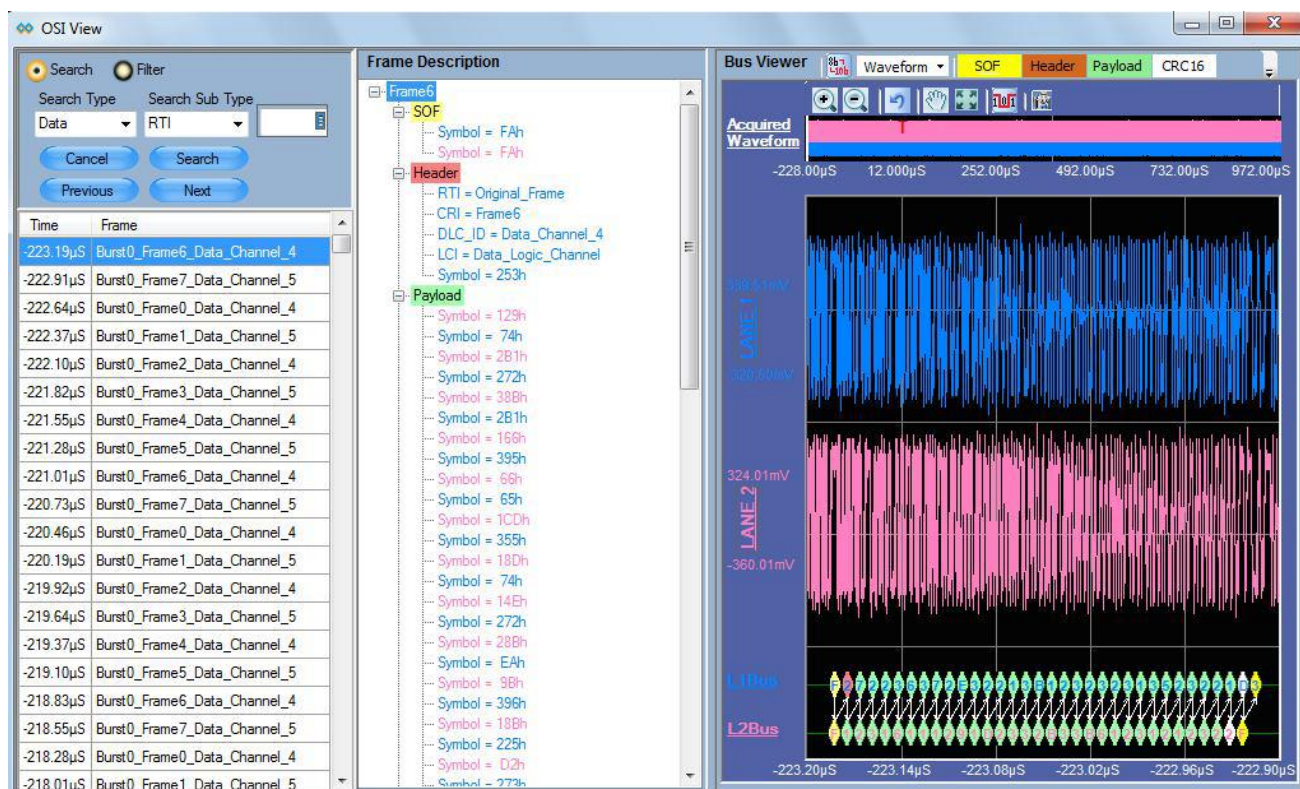
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
22	07	FF	80	07	FF	DA	48	C8	48	8E	44	80	07	FF	80
0F	BC	1B	C8	00	41	8C	60	D9	06	44	C7	CB	D4	99	CA
54	A9	C3	C8	13	CF	34	CB	C8	00	B6	48	00	7F	F3	58
7F	F7	FF	AF	46	F8	80	02	18	5F	80	20				

**Symbol Information**

Data (8bit)	Symbol (10bit)	Code
BC	FA	K28.5
BC	FA	K28.5
69	253	D9.3
22	129	D2.1
07	74	D7.0
FF	2B1	D31.7
80	272	D0.4

Protocol view also provides any error in SOF, Data, EOF and CRC for respective frames. This helps in pinpointing protocol related problems to specific frames.

**OSI View:** In OSI View, you can view the analog waveform, Burst/frame detail and protocol details in single view. If there is any failure in protocol overheads or error in protocol messages, designers can quickly correlate the protocol data with analog waveforms. User can select and analyze any frame in a row in the OSI view, corresponding frame description, along with the bus diagram representation for Single/Multi lane analysis and analog waveform will be zoomed and displayed. Color annotation for protocol overheads and Multi lane data analysis is also provided in the OSI view. Utility features such as search, filter, and zoom provide assistance while debugging



### Documentation of PGY-DGRF DigRF v4 Protocol Analysis

PGY-DGRF DigRF v4 Protocol Analysis software provides flexibility of exporting the decode data in txt and csv file format. Report Generation capability allows user to have different waveforms images including the oscilloscope screenshot in pdf format report. Report header, comments and Test attributes can be added to report.

### Oscilloscopes Supported

Following Tektronix Oscilloscopes are supported

- DPO70000 Series Oscilloscope
- MSO70000 Series Oscilloscope
- DSO70000 Series Oscilloscope

### Ordering Information:

PGY-DGRF DigRF v4 Protocol Analysis Software

(shipment includes PGY-DGRF DigRF v4 Protocol analysis Software CD)

### Contact Information

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### 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.