

Agilent OBSAI Protocol Tester

User's Guide



Agilent Technologies

Notices

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Indicates that antistatic precautions should be taken.



Indicates hot surface. Please do not touch.



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CE compliance marking to the EU Safety and EMC Directives.

ISM GRP-1A classification according to the international EMC standard.

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Before operation, review the instrument and manual for safety markings and instructions. You must follow these to ensure safe operation and to maintain the instrument in safe condition.

General

This product is a Safety Class 1 instrument (provided with a protective earth terminal). The protective features of this product may be impaired if it is used in a manner not specified in the operation instructions.

All Light Emitting Diodes (LEDs) used in this product are Class 1 LEDs as per IEC 60825-1.

Environment Conditions

This instrument is intended for indoor use in an installation category II, pollution degree 2 environment. It is designed to operate at a maximum relative humidity of 95% and at altitudes of up to 2000 meters.

Refer to the specifications tables for the ac mains voltage requirements and ambient operating temperature range.

Before Applying Power

Verify that all safety precautions are taken. The power cable inlet of the instrument serves as a device to disconnect from the mains in case of hazard. The instrument must be positioned so that the operator can easily access the power cable inlet. When the instrument is rack mounted the rack must be provided with an easily accessible mains switch.

Ground the Instrument

To minimize shock hazard, the instrument chassis and cover must be connected to an electrical protective earth ground. The instrument must be connected to the ac power mains through a grounded power cable, with the ground wire firmly connected to an electrical ground (safety ground) at the power outlet. Any interruption of the protective (grounding) conductor or disconnection of the protective earth terminal will cause a potential shock hazard that could result in personal injury.

Do Not Operate in an Explosive Atmosphere

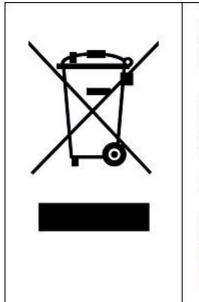
Do not operate the instrument in the presence of flammable gases or fumes.

Do Not Remove the Instrument Cover

Operating personnel must not remove instrument covers. Component replacement and internal adjustments must be made only by qualified personnel.

Instruments that appear damaged or defective should be made inoperative and secured against unintended operation until they can be repaired by qualified service personnel.

Environmental Information



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Do not dispose in domestic household waste.

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About this document

Purpose

This document provides the information of Open Base Station Architecture Initiative (OBSAI) protocol tester. Every OBSAI system specification is in accordance with the Open Base Station Architecture Initiative rules and procedures.

Scope

The document defines the overall architecture and the interfaces involved in it. This provides a more detailed specifications and implementation of OBSAI protocol tester. OBSAI protocol tester has two interfaces: GUI and API. This document covers only the GUI aspect of the OBSAI protocol tester. For information on API, please refer to the online help.

Audience

The document defines the overall architecture and the interfaces involved in it. The intended audience of this document are Research and Development (R&D) professionals, trained personnels, integration and verification teams. Also, the production might be interested of using the OBSAI protocol tester.

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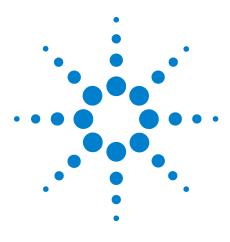
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Agilent OBSAI Protocol Tester User's Guide

Introduction

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About OBSAI Protocol Tester 10 OBSAI Architecture Overview 11 Scope of OBSAI Tester 13 Session Concept 16 Accessing and Exiting Protocol Exerciser for OBSAI 18

This chapter introduces you to the Open Base Station Architecture Initiative (OBSAI) protocol tester. It gives an overall information about the system. It includes, architecture information, scope and accessing and exiting of OBSAI protocol tester.



About OBSAI Protocol Tester

Agilent OBSAI protocol tester is an advanced verification system that allows you to generate and capture data traffic simultaneously. This physical layer data which you capture, you can view and analyze to identify problems. You can also find their root cause and troubleshoot them. This makes OBSAI protocol tester a very effective tool to control as well as speed up the testing.

A brief list of features of OBSAI is given below:

- Enables to verify traffic between Baseband Module (BBM) and Radio Frequency Module (RFM).
- Provides multiple active links.
- Enables flexibility to configure complete frames
- Enables multiple error insertion points to test designs in faulty conditions.
- Enables in quick analysis with the use of trigger conditions.
- Generates and captures data traffic which includes error insertion and detection simultaneously.
- Enables to perform root cause and performance analysis.
- The OBSAI protocol tester is compliant to Reference Point 3 specification (RP3) version 4.0, and Reference Point 1 specification (RP1) version 2.0.
- Provides a stable and reliable system in order to execute verification without debugging the test equipment.
- The test equipment supports the following OBSAI interfaces RP1, RP3 and RP3-01 (optical).

OBSAI Architecture Overview

The OBSAI family of specifications provides the architecture, function descriptions and minimum requirements for the integration of a set of common modules into a Base Transceiver Station (BTS). As a minimum, the BTS has the capability to be configured from a set of common modules in order to support more than one current or future wireless network access standards. Internal interfaces between BTS functional blocks designated as Reference Point 1 (RP1), Reference Point 3 (RP3).

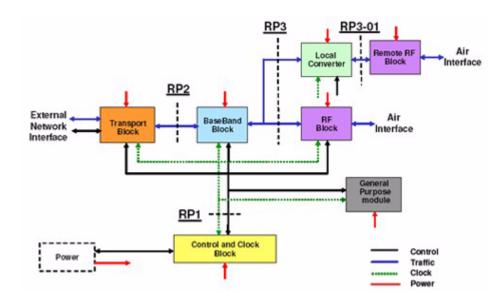


Figure 1OBSAI Architecture

In Figure 1, each block represents a logical separation of BTS functions in protocol processing. A block represents a logical grouping of a set of functions and attributes. A block may consist of one or more modules, each of which represents a physical implementation of a subset of the block functions.

Reference Point Functions

Reference Points are the connectivities between RF and Baseband modules of a base station:

- Reference Point 1(RP1)
- Reference Point 3(RP3)

Reference Point 1(RP1)

RP1 interchanges control, performance, status, alarm and data provision between the Control and Clock Block and other BTS blocks with the protocol specified in the OBSAI RP1 specification. RP1 also defines an open, standardized interface for exchange of clock and synchronization signals that meet the timing, frequency stability, phase noise and jitter constraints of supported air interfaces. The interface employs a common clock rate for generation of system clock signals for all blocks and modules within each block.

Reference Point 3(RP3)

RP3 interchanges, formatted air interface user and signalling data user between the BaseBand Block and the Remote RF Block.

Scope of OBSAI Tester

The scope of OBSAI protocol tester is to test and debug the RP3 and RP3-01 interfaces for HW and ASIC designs used in R&D. Presently, it only tests the functionality till the link layer. It is used to verify that the OBSAI interfaces of the products are working according to OBSAI standard specification. These designs requires the following:

- Transmitting RP3 and RP3-01 data to the Device Under Test (DUT). It includes, good data and error frames.
- Receiving and analyzing RP3 and RP3-01 data from the DUT. It includes frame structure checking, and uploading the data to a computer for post processing
- Sending and receiving of control messages

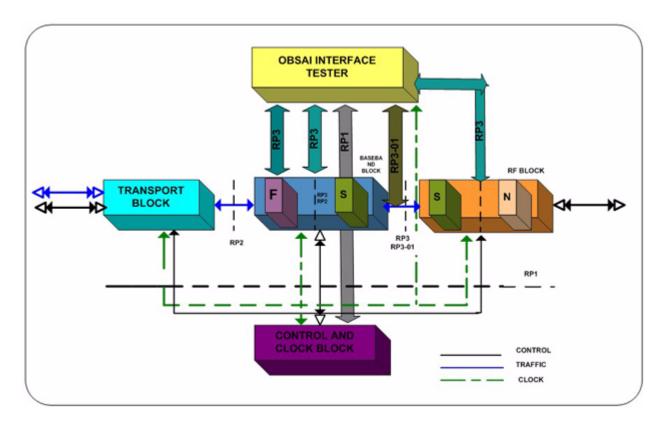
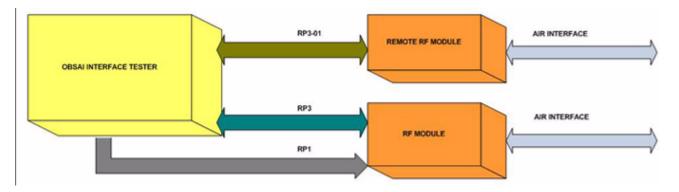


Figure 2 Scope of OBSAI Protocol Tester

Baseband Emulation to Validate RF Module

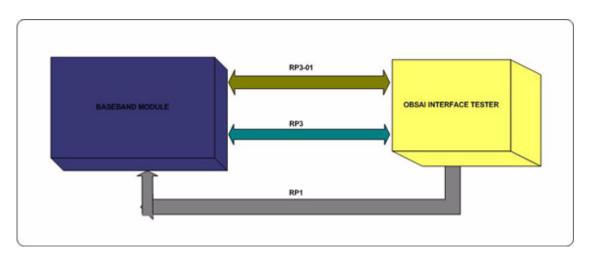
OBSAI protocol tester is emulating the RF module. In case of missing Clock and Control module, it provides the RP1 synchronization interface.

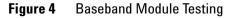




RF Emulation to Validate the Baseband Module

OBSAI protocol tester is emulating the Baseband module. In case of missing Clock and Control module, it provides the RP1 synchronization interface.



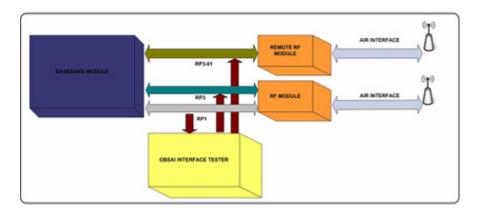


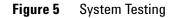
System Testing

OBSAI protocol tester provides traffic on RP3 and RP3-01 interface between RF module and Baseband module. As an interconnect:

- Dedicates connector board between edge connectors of modules
- Probe interface e.g. retainer

In case of missing Clock and Control module, it provides the RP1 synchronization interface.





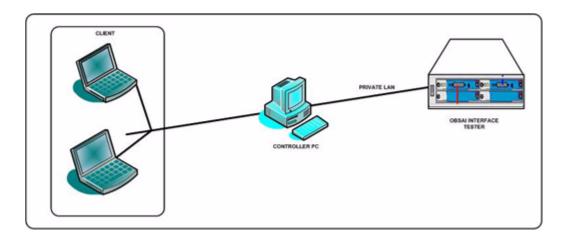
In conclusion, OBSAI protocol tester is data link tester for RP3, RP3-01, RP1, and eth interface. It can also emulate Baseband, RF module, Remote RF module, and/or Control and Clock module (CCM).

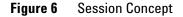
Session Concept

Communication between the controller PC and the serial I/O modules is based on the concepts of sessions. A session is a representation of the instrument components involved in a test:

- The control software running on the controller PC
- The serial I/O module involved in the test

The following figure indicates the components involved in a session. It also indicates how more than one client can log onto one session.





To use a session, it is necessary to:

- **Start and configure the session**: This is when you establishes communication between the client and the control PC.
- End the session: This is when you quit using a session and the last one using the session, you are prompted as to whether the session should be ended. Ending a session clears the Serial I/O Module, allowing it to be used for a new session.

All accesses to the test system must go over the session. The session is not locked, but concurrent access to one session is possible.

Using a Session at Several Computers

If a session is up and running, you can use it from multiple instances of the user interface (for example, from different clients) or from tcl scripts. This is helpful if you want to set up a test system directly at the controller PC and then run a series of tests from your PC.

The controller PC does not protect against meaningless or even conflicting requests. It is therefore, recommended that only one user should "own" a particular session at a time.

To connect to a current session in the user interface, you need to note the session number and then select this session when the software starts.

Accessing and Exiting Protocol Exerciser for OBSAI

This chapter introduces you the method of accessing the Protocol Exerciser for OBSAI protocol tester application. And the various GUI components of the Protocol Exerciser for OBSAI application.

Accessing Protocol Exerciser

Before you get started with Protocol Exerciser for OBSAI, you need to know how to access it. Accessing Protocol Exerciser for OBSAI requires you to specify whether you want to connect to a new or an existing session, and the name of the server where you want to start the session.

If a new session is requested, the following occurs:

- 1 You can add a serial I/O module and its port to the session.
- **2** The serial I/O module downloads the necessary FPGA and embedded software from the control PC.

To specify all required inputs, Protocol Exerciser provides two dialog boxes: Select type of session and Port Selection to use.

The Select type of session opens up as shown in Figure 7.

Select type of session	
ConnectionType	
C Connect to existing session	
Connect to new session	
C Connect Offline	
Session Settings	
Server: localhost	Get session list
Label: OBSAI	
Session list:	
Start Exit	Help

Figure 7 Select type of session screen

Table 1 briefly describes the components of the Select type of session dialog box.

Component	Description
Connect to existing session	Select Connect to existing session if you want to use an existing session of Protocol Exerciser for OBSAI on a known server.
Connect to new session	Select Connect to new session if you want to create a new Protocol Exerciser for OBSAI session on a known server.
Connect Offline	Select Connect Offline if you want to work in off-line mode. Working in off-line mode does not connect you to the hardware.
Server	Specifies the name or IP address of the server, where you want to start a new or join an existing Protocol Exerciser session. Its default value is localhost . Also, this text field is disabled if you have selected the Connect Offline option.
Label	Provide a label to the connecting session, if desired
Session list	Displays a list of sessions existing on the server you specified in the Server text field.
Start	Click Start to log on to the Protocol Exerciser for OBSAI application
Exit	Click Exit to close the dialog box without starting the Protocol Exerciser application.
Help	Click Help to display the online help

 Table 1
 Components of the Select type of session dialog box.

The Port Selection screen opens up as shown in Figure 8.

Port Selecti					Select Ports to use	_0
Module	Type	# Ports	License	Status	⊡ 🔽 101 :	
Chassie U 101		1	OE		L	
•				>	1	
				0K	Cancel	Help

Figure 8 Port Selection screen

Table 2 briefly describes the components of the Port Selection screen.

Component	Description
Module	Provides a list of attached modules.
Туре	Provides the type of port of each module.
# Ports	Displays the number of ports of each module.
Licence	Displays the licence details of each module.
Status	Displays the current state of the module, e.g., ready, rebooting, or in use by session.
Select Ports to use	Displays a check box list of ports of the modules. Here, select a port to start a new session.
ОК	Click OK to start an instance of Protocol Exerciser for OBSAI on the selected port.
Cancel	Click Cancel to close the Port Selection dialog box without selecting any port.
Help	Click Help to display the online help

Table 2 Components of the Port Selection screen

To start an session from a client:

1 On the Windows task bar, click **Start > Programs** >Agilent System Protocol Tester > Exerciser for OBSAI.

The Select type of session appears.

Select type of session	
ConnectionType	
C Connect to existing session	
 Connect to new session 	
Connect Offline	
Session Settings	
Server: localhost	Get session list
Label: OBSAI	
Session list:	
Start Exit	Help

Figure 9 Select type of session screen

- **2** Do one of the following:
 - **a** Click **Connect to existing session** to use an existing session.
 - **b** Click **Connect to new session** to start a new session.
 - **c** Click **Connect Offline** to access Protocol Exerciser without connecting to the hardware.
- **3** Type in the name or IP address of the server, where you want to start a new or join an existing session, in the **Server** text field.
- **4** If you are trying to use an existing Protocol Exerciser session, do the following:
 - **a** Click **session list**. A list of sessions currently running on the server specified in the Server text field is displayed in Session list.
 - **b** Select the required session from Session list.
 - **c** Click **Start**. The main Protocol Exerciser for OBSAI window appears.

		you are trying to create a new Protocol Exerciser for BSAI session, do the following:
	a	Enter the network name of the controller PC in the Server text field. So, that it can communicate with the controller PC.
	b	Provide a label to the connecting session, if desired.
	C	Click Start. The Port Selection dialog box appears.
	d	Select a module name from the Select Modules to use pane.
	e	Select a port check box of the module from the Select Ports to use pane.
	f	Click OK . The main Protocol Exerciser window appears.
NOTE		an also connect to the OBSAI session, on clicking 📷 from the

Exiting Protocol Exerciser for OBSAI

You can exit from the Protocol Exerciser application by closing the current sessions and the Protocol Exerciser for OBSAI window.

To exit Protocol Exerciser for OBSAI:

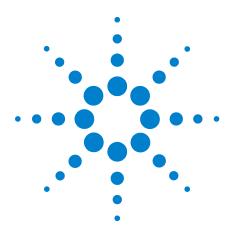
1 Click **File > Exit**.

The Closing Session dialog box appears. (Figure 10).

Closing Session	×
You have chosen to close the application or closed all a	active sessions. Do you want to remove the session also?
Yes	No

Figure 10 Closing Session dialog box

- **2** Do one of the following:
 - **a** Click **Yes**. This closes the Protocol Exerciser for OBSAI window and also removes the associated session.
 - **b** Click **No**. This closes the Protocol Exerciser window without removing its associated session.



Agilent OBSAI Protocol Tester User's Guide

Getting Started

2

About Protocol Exerciser Components 26 General Settings 31 RP1 Configuration 34 Frame Configuration 38 Compare Memory 44

The Protocol Exerciser for OBSAI allows you to generate and respond to all types of OBSAI transactions. In addition, it allows you to create various OBSAI protocol variations and violations.

Another key feature is the ability to insert errors and test the behavior of device in response to these errors. Errors can be generated and inserted on the physical and data link. It is used to debug a device.



About Protocol Exerciser Components

Protocol Exerciser provides various components, that can be accessed.

Figure 11 displays the Protocol Exerciser application screen with its main components.

Agilent Protocol Exerciser fo	or OBSAI - Untitled1 (Po	rt: 102/1)	_ D X
File Action Help			
1 🖸 🖬 📽 🕨 🔳 199 %	M H		
Exercisers Unitiled1 (Port 102/1) Unitiled1 (Port 102/1)	Overview Information Name: Path/Filename: Session Type: Description:	Unitied1 (online - (Port: 102/1)) Please enter a description for this setup.	
Uniiled1 (Port 102/1)	Setting: xSettings		
Unkiled1 (Poit: 102/1) RIP1 Frame Number 0 Tx Link State Link 1: 0 Of Link 2: 0 Of Link 3: 0 Of Link 4: 0 Of BER Status Link 1 Enor Bit Court: 0 Total Bit Court: 0 Total Bit Court: 0 Link3 Emor Bit Court: 0 Total Bit Court: 0 Total Bit Court: 0 Total Bit Court: 0 Total Bit Court: 0	Sciences Settings General Settings xRP1 Configure Configure RP1 proper Configure RP3 frame xCompare Memory Configure compare M	on data	

Figure 11 Protocol Exerciser Application screen

This section covers the following topics:

- Using the Menu Bar
- Using the Toolbar
- Using the Panes

Using the Menu Bar

The Menu Bar is one way to access the functionality of the application. In Protocol Exerciser, menu bar provides the following menus:

- File menu
- Edit menu
- View menu
- Action menu
- Help menu

File menu

Table 3 briefly describes the File menu commands.

Table 3	File Menu	Commands
---------	-----------	----------

Menu commands	Description
New	Displays the Port Selection screen to select a new port.
Open	Displays the Open dialog box, that enables you to open the saved configuration file.
Save	Displays the Save dialog box that enables you to save the configuration file. If you are saving it for the first time, then this menu command saves the information at the default location. Otherwise, this menu command saves it on the last saved location.
Save As	Displays the Save As dialog box that enables you to specify the desired location to save the file.
Close	Closes the selected session.
Exit	Closes the Protocol Exerciser application.

Action menu

Table 4 briefly describes the Action menu commands.

 Table 4
 Action Menu Commands

Menu commands	Descriptions
Run	Starts sending RP3/RP3-01 frames.
Stop	Stops sending frames.
Run RP1	Starts sending RP1 syncburst information.

Otana and in a DD1 and a broat infamo ation
Stops sending RP1 syncburst information.
Starts comparison of incoming RP3/RP3-01 frame with the configured compare memory frames.
Stops comparison of incoming RP3/RP3-01 frame.

Table 4Action Menu Commands

Help Menu

Table 5 briefly describes the Help menu commands.

 Table 5
 Help Menu Commands

Menu commands	Descriptions
Online Help	Displays the online help for Protocol Exerciser.
Version Information	Displays the version information of the Protocol Exerciser application.
About	Displays information about the OBSAI Link Interface Tester platform.

Using the Toolbar

Toolbar provides a quick access to the features of the Protocol Exerciser application.

Table 6 specifies the names of all toolbar icons.

Table 6Toolbar icons

lcon	Name	
	New	
	Save	
	Open	
2		

con	Name	
Þ	Start RP3/RP3-01 Transmission.	
100	Stop RP3/RP3-01 Transmission.	
REL	Run RP1 Transmission.	
PT-1	Stop RP1 Transmission.	
M	Start Memory Compare.	
ы	Stop Memory Compare.	

Table 6Toolbar icons

Using the Panes

Protocol Exerciser provides the following panes:

- Navigation
- Hardware Status

Navigation

The Navigation pane further provides the following panes:

- **Exerciser**: This pane enables you to navigate between multiple setup files.
- **<Setup_Filename>**: Setup_Filename refers to the name of the setup file. This Overview pane provides options to use Protocol Exerciser for your test application.

Click **<Setup_Filename>** under **Exerciser** to view the **Overview** screen on the right pane (Figure 11).

Table 7 briefly describes the Overview screen.

Component	Description		
Name	Provide the desired name of the setup.		
Pathname/Filename	Provides the pathname or filename of the setup where it is saved.		
Session Type	Informs the current type of session. For e.g.: Existing session, new session, or Offline.		
Description	Provide description of the setup, if desired.		
x Settings General Settings	Click to display the General Settings screen.		
x RP1 Configure Configure RP1 properties	Click to display the RP1 Configuration screen.		
x Frame Configuration Configure RP3 frame data	Click to display the RP3 Frame Setup screen.		
x Compare Memory Configure Compare Memory	Click to display the Compare Memory screen.		

Table 7Overview Screen

Hardware Status

The Hardware Status pane has the following tabs:

- RP1 Frame Number: This displays the RP1 frame number.
- TxLink Status: This tab provides the status information of the link width, link state.
- BER Status: This tab provides the status information of the bit error ratio for each link.

General Settings

Tx Settings

It defines the transmit side of the RP3 interface. For Base Station Extension Test module, there are four number of electrical links supported. And for Base Station Link Test Module, there is only one optical link and one electrical link.

To display the General Settings screen:

• Click **xSettings** General Settings tab provided in the **Settings** group.

The General Settings screen appears (Figure 12).

Agilent Protocol Exern	ciser for OBSAI - Untitled1	(Port: 102/1)				
File Action Help						
	1 N 11					
Exercisers	General Settings					
Untitled1 (Port: 102/1)	Tx Settings					
- N	Run Mode Normal Mode	O BER Mode				
General Settings	Available Links	Link 2	Link 3		Link 4	
and and a	Type: Electrical	Type: Electrical	Type: Elect		Type: Electric Enable	cal
RP1 Configuration	BER Setup					
No	Link 1 Type 7 N	Link 2	Time	Type 🛩	Link 4	Type 7 😼
Frame Configuration	Type: Type: V	Insert Exox	Type: Inser Ence	(Type: Insert Error	4
22		JL				
Compare Memory	Properties Speed					
RP1 Frame Number	Link Speed	3.0 Gbps [4-]				
Tx Link State	- Clock Source	Internal				
Link 1: Cf	RP1 In Source:					
Link 2: 📕 Off	RP1 Out Source:					
Link 3: df	Sys Clock:	External				
Link 4: C#	Line Code Violations (LCV)	1				
BER Status	Count					
Enor Bit Count: 0	Time:	3072000				
Total Bit Count: 0	Delta Master Frame Offset					
Link2	Link 1:	0	Link 2	0		0
Error Bit Count: 0 Total Bit Count: 0	Link 3:	0	Link 4:	0		0
LWk3	Tx Polarity					
Error Bit Count: 0 Total Bit Count: 0	Link 1: 💿 Negativ	e 🔿 Positive	Link 2:	Negative	Positive	
Link4	Link 3. (Negativ	e 🔿 Positive	Link 4:	Negative	Positive	
Emor Bit Count: 0 Total Bit Count: 0				H		Cancel Apply

Figure 12 General Settings screen

Table 8 briefly describes the General Settings screen.

Component	Description		
Run Mode	 The Run Mode section provides the following components: Normal Mode: The pattern of settings that runs by default. BER Mode: The pattern of settings that runs in Bit Error Ratio. 		
Available Links	 The following are the available links: Link 1 to Link 4: These links may be either electrical or optical. Base Station Link Test Module has two links, electrical and optical. Base Station Extension Test module has four electrical links. BER Setup: The transmitter operates with Bit error ratio of better than 1*10-15 in the presence of input signal.There are four links to enable more than one bit error. Select the desired Pseudo Random Binary Sequence (PRSBS) type to continue. The links gets enabled when the BER mode is selected. 		

Table 8General Settings screen

Component	Description		
Properties	 Speed: The speed of the link can be either 0.7 Gbps [1X], 1.5 Gbps [2X], 3.0 Gbps [4X]. Clock Source: RP1 Insource can be either External, Internal, or RP3-01. It can be either Generated,or RP3-01 for RP1 Outsource. And the Sys Clock can be External, Internal or RP3-01. Line Code Violations: Physical layer, the 8b10b decoder, detects invalid line codes from the incoming serial bit stream. Each Line Code Violation (LCV) erroneously received byte is indicated to data link layer. It also transmits K30.7 character to the link when data layer link indicates that the byte to be transmitted contains an error. Delta Master Frame Offset: Offset values of delta can be configured for each link before enabling the Tx. These values are specified in 4 byte clock ticks. Polarity: Select the Polarity of the links as positive or negative. 		

Table 8General Settings screen

RP1 Configuration

The Exerciser is capable of acting as a CCM which can transmit sync burst, and it can extract the RP1 information either from the RP3-01 interface or the RP1 interface. Sync burst is checked for correct CRC and expected frame type. Further, it extracts the frame number and compares it with the range of framenumber that can be stored in trigger storage. This RP1 configuration is not enabled in case of Base Station Extension Test Module.

An interleaved sequence of frame bursts can be defined of upto four different burst that transmits repetitively.

To configure RP1:

• Click **RP1 configuration** icon under **<Setup_Filename>**.

The **RP1 Configuration** screen opens up as shown in the Figure 13.

10'1 Control	unation			
1)	malates			
Type	Behaviour	Error Information		_
				Add
				Edt
-				Delete
Configured By Index 2 2 2 3 4	Type RP3 Bus FD0 F RP3 Bus FD0 F RP3 Bus FD0 F	Behaviour • Dat Frame # • 0 • Dat Frame # • 0 • Dat Frame # • 0 • Dat Frame # • 0	Cross Information (FRC = No), Frame Type = No), Frame Number = No) (FRC = No), Frame Type = No), Frame Number = No) (FRC = No), Frame Type = No), Frame Number = No) (FRC = No), Frame Type = No), Frame Number = No)	
Common Pan Sync Burst In	ameters Nerval (Kicku): [30,7200 📰			• <u>tæ</u>



Table 13 briefly describes the **RP1 Configuration** screen.

Component	Description		
Sync Burst Templates	 It includes: Type: The expected type of frame used in RP1. Behaviour: To specify the RP1 behaviour. For example: Startframenumber. Error Information: It consists of the incorrect Cyclic Redundancy Check (CRC), unexpected type of frame and incorrect frame number 		
Configured Sync Bursts	 It includes: Index: It determines the index number. Type: The expected type of frame used in RP1. Behavior: To specify the RP1 behaviour. For example: Startframenumber. Error Information: It consists of the incorrect Cyclic Redundancy Check (CRC), unexpected type of frame and incorrect frame number 		
Common parameters	It includes: • Sync Burst Interval : It transmits the RP1 frames. This property is common for all the frame type indexes. Time between the burst is in ticks		

Table 9RP1 Configuration screen

Sync Configuration Editor

The steps to edit a configured sync burst are as follows:

- 1 Select the **sync burst** that needs to be updated and click the check box to enable.
- 2 Click Edit.

The Sync Configuration Editor screen appears (Figure 14).

iync Configuration Editor	
RP1 Frame Type:	RP3 Bus FDD Frame Number
ror Insertion	
CRC error	
Enable	
Frame type error	
Enable	
Invalid Frame Type:	RP3 Bus FDD Frame Number 💌
Frame number error	
F Enable	
Frame Number Error Increment	0 -
Sync Burst Error Interval:	0
haviour	
tart Frame Number:	00000000000000000000000000000000000000
Help	Reset Cencel (

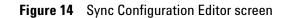


Table 10 briefly describes the Sync Configuration Editor screen

 Table 10
 Sync Configuration Editor Screen

Component	Description Types of RP1 frames.		
RP1 Frame Type			
CRC Error	Enable to insert an incorrect CRC. Sync burst checks for incorrect CRC in case no trigger occurs.		
Frame type error	Enable to set RP1 Frame type to be sent in case of error.		
Frame number error	Enable the value to be used to increment the RP1 frame number, in case of error. Frame number is an 64 bit unsigned integer value that is incremented automatically by 1 with every frame.		

Component	Description		
Sync Burst Error Interval	Count of sync burst after which errored RP1 is to be sent.		
Start Frame Number	Specify the start frame number for RP1. This number will be incremented by 1 on each sync burst, if no error.		

 Table 10
 Sync Configuration Editor Screen

3 Click OK.

The steps to add or delete a configured sync bursts are as follows:

1 Click Add.

The **Sync Configuration Editor** screen opens up. For details, refer Figure 14. The added sync burst appears under **Sync Burst Templates**.

2 Click **Delete** to remove a Configured Sync Burst from the screen.

Frame Configuration

Frame configuration is used to configure transmit side frames into the FGPA. The frames are encoded which is in the application format and program it into the FPGA buffers in the FPGA format.

It consists of two panes:

- RP3 Frame Setup
- Configuration

To configure frames:

1 Click Frame configuration icon under <Setup_Filename>.

The RP3 Frame Setup screen appears (Figure 15).

Agilent Protocol Exerciser for OBSAI - Untitled1 (Port: 102/1) le Action Help	
Exercises RP3 Frame Setup	Configuration
Unikled1 (Port 102/1) Link 1 Link 2 Link 3 Link 4	Frame Templates
General Settings	Default Empty Frame Potern Frame 4 Anternas
RP1 Configuration	User Configured
Frame Configuration	
Compare Memory	Error Templates
Compare Memory P1 Frame Number	(F)-Disparty
	(⊕-Symbol ⊕-Ides (0-6C)
Link State	St. Idea (DEC)
k 1: 📕 🛛	B-Control K-Character
k 2: 📕 Off	5
k 3: 📕 Off	
k.4: 📕 Off	
R Status	
k1 w Bit Count:	~~
N BR Courte 19	
k2	
r Bit Count: 0	
al Bit Count: 0	
A3	
w Bit Count: 0	
al Bit Count: 0	
k4	
al Bit Count: 0 Configure 1 + Frames Help	Cancel Acoby

Figure 15 RP3 Frame Setup screen

RP3 Frame Setup

It consists of four electrical links for Base Station Extension Test module and two links for Base Station Link Test module, one electrical and one optical. You can configure frames between 0 to 15, wherein 0 is by default. If there is no frames to be send, then transmit empty messages.

Configuration

The configuration pane consists of:

- Frame Templates
- Error Templates

Frame Templates

It includes **Default** like **Empty frames** and **Pattern frames 4** antennas.

User Configured

The steps to configure a frame are as follows:

- 1 Select User Configured.
- **2** Click **481**.

The Frame Configuration screen appears.(Figure 16).

Address 0000 Hex.v Add	Payload Address: 0000 Data Format
Edit	
Dele	File Path
	Offset 0000 Hex+ M
Type Configured Types	Available Types Add Control Data V
Start 0 Hex • 10	

Figure 16 Frame Configuration Data screen

3 Click Data.

This allows you to provide the Antenna Data.

a Address field: The **Address** controls the routing of each message. In downlink direction, from baseband to RF, all message transfers are point to point, and the address identifies the target node.

Address '00000000xxxxx', where 'x' stands for either '0' or '1' bit, is reserved for initial booting of the bus network. Thus, node address '00000000' is used only as default boot up address. It cannot be assigned permanently to any node.

Address 1FFFh is reserved for the empty message. Therefore, physical layer deletes all received messages with an all-ones address. However, addresses 1FE0h-1FFEh can be used, that is FFh node address is valid.

b Payload field: The **Payload** represents the content of the message with the type field. It defines the details of the selected address of the Antenna Data. The

payload size is fixed at 16 bytes. It is the responsibility of the application layer to map data to the payload.

- **c Types** field: Application layer is responsible for defining the type of the message. The **Type** field identifies the content of the payload data.
- **d Timestamp** field: The timestamp field relates the payload data to a specific time instant.
- 4 Click Control.

This allows you to provide the **Header Data** as shown in the Figure 17.

leader Address 0000 (Hex 🕶 🔛 Add	0	pe Control Message Emoty Message	
			Cubh warrada	
				• 3
Pattern 1:	aftern v 0000000 (Hex.*)			

Figure 17 Frame Configuration Control screen

- a Click Add to specify a address in the Address field.
- **b** Select **Type** as **Control Message** or **Empty Message**.
- **c** Specify a **Start** value and a **Increment** value, if desired in the **Timestamp** field.
- d Select the Data format as Pattern or Increment.
- e Click Ok.

Table 11 briefly describes the frame template icons.

cons Descriptions	
001	On clicking, the Frame Configuration screen pops up, wherein the frames needs to be configured by providing the Data and Control information.
01	On clicking, it edits or updates the configured frames.
\mathbf{X}	Deletes the selected configured frames.

Table 11Frame Template icons

Error Templates

An error can be generated by configuring the error bits in the user message structure. It consists of the following:

- **a Disparity Error**: For generating disparity error on nth byte of message.
- **b Symbol Error**: For generating symbol error on nth byte of message.
- c Idles BC: It represents the misplaced message delimiter
- d Idles FC: It represents the misplaced frame delimiter.
- e Control K-character: It represents the control symbol error.

Table 12 briefly describes the error template icons.

 Table 12
 Error Template icons

lcon	Description		
401	Changes the behaviour of a particular error by selecting an error template from the template tree.		
01	Edits the selected error from the error template.		
X	Deletes the selected error.		

Behaviour Template:

Select the desired error to change the behaviour such as message number and byte number. It consists of two panes that is **Location Parameters** and **Repeat Parameters**.

- 1 Select the check box to **Insert disparity error at delimiter.**
- 2 Select the desired **Message Group Number** under **Location Parameters.**
- 3 Select the Message Number at desired location.
- 4 Select the Byte Number at desired location.
- 5 Quick Select/Deselect the following:
 - Click **Header** to select or deselect the first 3 (for e.g.: 0,1,2) **Byte Number**.
 - Click **Payload** to select or deselect the remaining 16 bytes.
- **6** Specify **Repeat Interval** and the **Repeat Count** to repeat the error after the specified message group as shown in the Figure 18.

Behaviour Template	
Disparity	
Disparity Error(s) Configuration	n: 🔲 Insert disparity error at delimiter
- Location Parameters	
Message Group Number:	0 🗄
Location:	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Message Number:	
Byte Number:	
Quick Select/Deselect:	Header Payload
Repeat Parameters	
Repeat Interval:	0
Repeat Count:	0
	Help Cancel OK

Figure 18 Behaviour Template

Compare Memory

The start comparison is determined by a defined frame number derived from RP1 sync interface. It can be initiated in two ways:

- Frame numbers through RP1: When the frame number is detected, comparison starts and compares first incoming frame with the first reference frame, second incoming frame with the second reference frame and so on. After the last reference frame used, it automatically continuous with the first reference frame. The incoming frames are compared to the reference frames saved in memory check on several kinds of error conditions.
- Manually: The comparison can be started manually through the toolbar.

To start Compare Memory:

• Click Compare Memory icon under <Setup_Filename>.

The Compare Memory screen opens up as shown in the Figure 19.

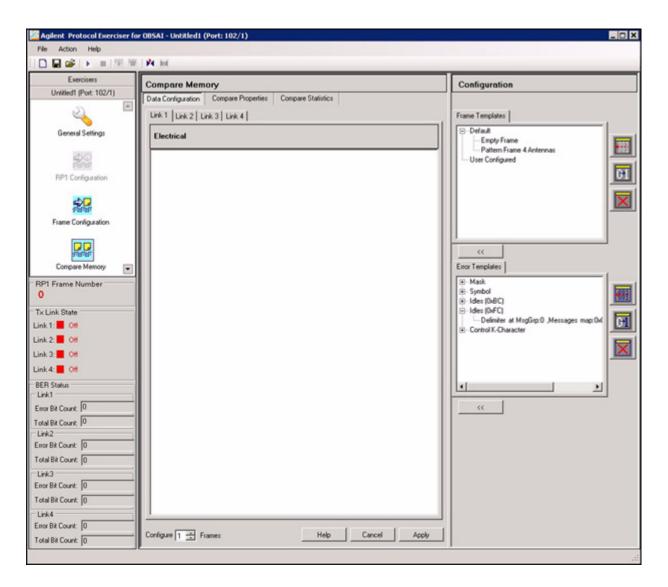


Figure 19 Compare Memory screen

Data Configuration

You can configure the frames to be compared on the links as desired. You can also insert errors or mask certain bytes from comparison as desired.

To configure data:

• Click Data Configuration.

The **Data Configuration** screen opens up. Refer Figure 19.

For details, refer Configuration 39.

Compare Properties

It includes the start and stop compare parameters on RP1 frame type and frame number.

The **Compare Properties** screen opens up as shown in the Figure 20.

Agilent Protocol Exerciser for 0	BSAI - allows (Port: 101/1)	
File Action Help	A H	
Exercisers	Compare Memory	
el on Port 101/1) General Settings RP1 Configuation	Data Configuration Compare Statistics Stat parameters Compare on hane number Compare on hane number Fiscan compare on hane number Fister Number 20000000000000 Compare on RPI hane type RPI Fister type: RPI Fister Type: RPI hane type	
Franc Configuration Compare Memory 3P3 France Number 0 1x Link State risk 1: 00 risk 2: 00	Stop parameters Stop compare on hane number Stop compare on hane number Frame Number Frame Number	
ICR Statue Crist no Bit Court, 10 crist Bit Court, 10 crist Bit Court, 10 and Bit Court, 10 all Bit Court, 10		
¥ 1		Melp Cancel Acco

Figure 20 Compare Properties screen

Compare Statistics

It details the mismatch of the Byte Error Count and Bit Error Count of a particular RP1 frame number for each link. This occurs due to the change in the data or frames received with respect to the data or frames configured.

The Compare Statistics screen opens up as shown in the Figure 13.

Compare Memory		
et 101/1) Data Configuration Company	Properties Compare Statistics	
	Frame Type Byte Error Count Bit Error Count	
•		

Figure 21 Compare Statistics screen

Table 13 briefly describes the Compare Statistics screen.

Table 13 Compare Statistics screen

Component	Descriptions	
Frame Number	Displays the frame number of RP1.	
Frame Type	Displays the type of frame	
Byte Error Count	Displays the mismatched byte for a particular frame.	
Bit Error Count	Displays the mismatched bit for a particular frame.	

2 Getting Started



Agilent OBSAI Protocol Tester User's Guide

3

Emulating as Baseband Module

Base Station Link Test module is an extension of the Base Station Extension Test module protocol specifically designed for data transfer between a BTS and one or more Remote RF units (RRU). Base Station Link Test module is equivalent to the Base Station Extension Test module protocol except for the fact that different physical layer technologies, suitable for supporting data transmission over long distances, are applied. In order to minimize the number of connections to RRUs, RP1 data is mapped into RP3 messages. RP1 data includes ethernet and frame clock bursts.

Basically, Base Station Link Test module stands for an Base Station Extension Test module protocol where RP1 data is transferred in RP3 messages, between LCs and RRUs.



General Settings

The steps to set the general settings are as follows:

- 1 Select the Normal Mode as Run Mode.
- 2 Select **Optical** link as **Enable** under **Available Link**.
- 3 Select the Link speed as 3.0 Gbps [4x] under Properties.
- 4 Select RP1 In Source as Internal.
- 5 Select RP1 Out Source as Generated.
- 6 Select Sys Clock as Internal.
- 7 Click Apply.

This applies the changes you made to set the general settings as shown in the Figure 22.

NOTE

The Count and Time of Line Code Violations and the Delta Master Frame Offset remains as default.

Exercisers	General Settings	
Lows (Port 101/1)	Tx Settings	
	Run Mode	
S	Nomal Mode O BER Mode	
General Settings	Available Links	
	Link 1 Link 2 Type: Optical Type: Electrical	
1900 1919	I Enable I Enable	
P1 Configuration		
-	BER Setup	
Ser.	Link 1 Type 7 ¥ Type 7 ¥	
ame Configuration		
	Insert Error:	
100		
Compare Memory	Properties Speed	
me Number	Link Speed 1.5 Gbps [2:]	
	Clock Source	
Nate	BP1 In Source Internal	
Off	RP1 Out Source: Generated	
Off	Sys Clock: Internal	
	Count 1	
и		
ount 0	Time: 3072000	
ount: 0	Delta Master Frame Offset	
	Link 1: 0 🚔 Link 2 0 🚔	
ount 0		
ount 0		
1	T x Polarity	
89 B	Link 1: @ Negative C Positive Link 2: @ Negative C Positive	

Figure 22 General Settings screen

RP1 Configuration

The Control and Clock Module (CCM) provides frametiming information for each air interface standard, independently, via periodic synchronization bursts.

The steps to configure RP1 are as follows:

1 Click **RP1 Configuration** icon.

The RP1 configuration screen appears (Figure 23).

United (Post 101/1)	RP1 Config	RPI Configuration				
Country in the second	· Sync Buryt Ter	mplates			_	
General Settings	Type	Dehaviour	Error Information			
\$ \$						
RP1 Configuration						
-						
28						
Frame Configuration						
22						
Compare Memory	The shore set	ected some template as configured a		- Erel annual		
anie Number			one burst at tollowing index	e ju j universit		
572	Configured By		Behaviour	Error Information	_	
State	81	RP3 But FDD Fr	Start Frame # = 0	(CRC = No), Frame Type = No), Frame Number = No)		
Byrnc CH	81	RP3 But FDD Fr RP3 But FDD Fr		(CRC = No), Frame Type = No), Frame Number = No) (CRC = No), Frame Type = No), Frame Number = No)		
0	Ø.	RP3 But FDD Fr.		(CRC = No), (Frame Type = No), (Frame Number = No)		
A.4	-				2	
	Common Pari					
Court 0	- Sync Buryt In	terval (ticks): [307200 🛣				
LOUPE P	-					
Count 0	_					
	_					
Coure 0						



2 Click Add under Sync Burst Templates to configure a RP1 data sync burst.

The **Sync Configuration Editor** dialog box appears (Figure 24).

Sync Configuration Editor		- 0
RP1 Frame Type:	RP3 Bus FDD Frame Number	
rror Insertion		
CRC error		
Enable		
Frame type error		
Enable		
Invalid Frame Type:	RP3 Bus FDD Frame Number	
Frame number error		
Enable		
Frame Number Error Increment	0 7	
Sync Burst Error Interval:	0 3	
lehaviour		
Start Frame Number:	0000000000000000 Hex -	
Help	Reset Cancel OK	

Figure 24 Sync Configuration Editor screen

- 3 Select the **RP1 frame type** as **RP3 Bus FDD Frame** Number.
- 4 Enable the errors, if desired to insert an error.

For Example: Enable the Frame type error and select **RP3 Bus FDD Frame Number** as an **Invalid Frame type**.

5 Select a specific sync burst to send errored RP1 frame repeatedly after every specified sync burst.

For Example: Specify the Sync Burst Error Interval as 1.

- 6 Insert Start Frame Number under Behaviour.
- 7 Click OK.

The configured Sync Bursts appears.

Type	nt Templates Behaviou FCO Fre. Start Free					
Type	Behaviou					
General Settings			Error Information 1990 - Yest, Example To	rpe = No), Frame Number = No)		-
**						-
RP1 Configuration						
\$2						
ame Configuration						_
22						
Company Manager				Laurence I		
arne Number		We as configured sync	burst at following index: 1	· Add to List		
872 Configu	ed Sync Bursts	ype De	haviour	Error Information		_
State 2	R	P3 Bus FDD Fr. St	art Frame # = 0	(CRC = No), (Frame Type = No)		
or 2		P3 Bus FDO Fr., Sto P3 Bus FDO Fr., Sto		(CRC + No), (Frame Type + No) (CRC + No), (Frame Type + No)		
2 4	R	P3 But FDD Fr. St	et Frame # = 0	(CRC = No), (Frame Type = No)	(, Frame Number = No)	
PM 1	Parameters					1_
	unst Interval (licks) 303	7200 🖆				
Court 0						
Count 0						
Count 0						

Figure 25 Configured Sync Burst

You can also replace the above sync template as configured sync burst

- 8 Select the Sync Burst template.
- **9** Select a specific index of Configured Sync Bursts to use as above selected sync burst template.

For Example: Use above selected synctemplate as configured sync burst at following index as 1.

This overwrites the above selected sync burst template with the selected index of configured sync burst, if desired.

- **10** Specify the Sync Burst Interval (ticks) as 327200 by default.
- 11 Click Apply.

This applies the changes you made to set the RP1 configuration.

Frame Configuration

The Steps to configure the frame are as follows:

- **1** Select the required link on which the frames needs to be configured.
- 2 Drag and drop a **Frame Template** from the frame template on the desired link.

For Example Link 1.

- **3** Select the **Empty Frame** under Configured Frame 0 Errors.
- 4 Right click the **Empty Frame** as shown in the Figure 26.

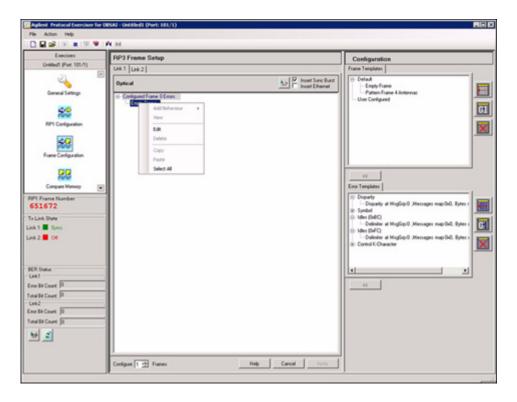


Figure 26 RP3 Frame Setup

5 Select Edit.

The Frame Configuration screen appears (Figure 27).

Address	Address: 1FFF
1FFF Hex - Add	Data Format Pattern
M 1FFF	
	Edit>> Pattern 1: FFFFFFFF Hex + 1
	Delete Pattern 2: FFFFFFFF Hex -
	Leiele
	File Path Browse
	Offset 0000 Hex -
	Save
CDMA2000	Add Centrol Data
Timestamp	Delete
Timestamp Start 3F Hex - 10	Delete
Timestamp	Delete
Timestamp Start 3 Hex • 1	Delete

Figure 27 Frame Configuration Data screen

- 6 Click Data.
 - a Click Add to specify an Address in the Address field
 - **b** Select and click the check box of added **Address** to enable.
 - **c** Insert the required information in the **Payload** field as desired.
 - d Click **Save** to save the changes to be applied in the **Payload** field.
 - e Click Add to configure type in the Type field.
 - f Select and click the check box of added **Type** to enable.
 - g Click OK.
- 7 Click Control.

The Control screen of Frame Configuration appears (Figure 28).

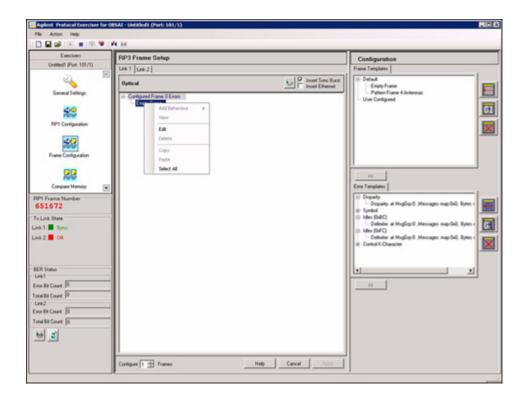
		Туре
0000	Hex 🕶 🔟 Add	C Control Message
IFFF		Empty Message
	Dele	Timestamp Start 63 Dec - 55 Increment 0 Dec - 55
Data Format: Pattern 1:	Pattern	
Pattern 2:	FFFFFFFF Hex -	

Figure 28 Frame Configuration Control screen

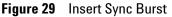
- 8 Click Add to specify a address in the Address field.
- **9** Select and click the check box of added **Address** to enable.
- 10 Select Type as Control Message or Empty Message.
- 11 Specify a **Start** value and a **Increment** value, if desired in the **Timestamp** field.
- 12 Select Format of Data as Pattern or Increment.
- 13 Click **Ok**.

Ethernet/Syncburst Configuration

The Ethernet/Sync burst Configuration is enabled only for Base Station Link Test module. It is used to send both the ethernet and sync burst simultaneously through this module. The steps to insert a sync burst in the RP3 Frame setup link are as follows:



1 Select the check box of **Insert Sync Burst** as shown in the Figure 29.



2 Click **Ethernet/Syncburst Configuration** icon to insert a sync burst.

The **Ethernet/Syncburst Configuration screen** opens up as shown in the Figure 30.

Ethernet/Syncburst Configuration	
Sync Burst	
Configuration	
Insert at message number:	b 🗄
Repeat after every following messages:	0
Ethernet	
Configuration	
Insert at message number:	0
Repeat after every following messages:	0
Data Source	
Internal	
C User Configured	
Dword 0 00000000	Hex -
Dword 1 00000000	Hex -
Dword 2 00000000	Hex - 🔤
Dword 3 00000000	Hex -
]
F	leset Cancel OK

Figure 30 Ethernet/Syncburst Configuration

3 Insert the message number to configure the Sync Burst.

For Example: Insert at message number as 2.

4 Select a count to repeat the Sync Burst after the specified message number.

For Example: Repeat after every following message as 1.

- **5** Select **Data Source** as **Internal** or **User Configured**, if an Ethernet configuration needs to be insert.
- 6 Click Ok.

Error Insertion

The steps to insert an error in the configured frames are as follows:

1 Select the desired error under the Error Template.

For Example: Disparity Error.

2 Click **Behavior Template** icon to insert the error in the location and repeat parameters.

The	Behaviour	Template	screen	appears	(Figure	31).
-----	-----------	----------	--------	---------	---------	------

🚟 Behaviour Template										- 🗆 ×
Disparity										
Disparity Error(s) Configurati	on: Г	Insert d	isparity e	stror at	delimiter					
Location Parameters										
Message Group Number:	0	-								
Location:	0 1 2								17 18	
Message Number:	ГГГ						ГГ	ГГ	ГГ	
Byte Number:	য য য						ΠГ	ΓГ	ГГ	
Quick Select/Deselect:	Header				Payk	bad				
Repeat Parameters										
Repeat Interval:	3	-								
Repeat Count	4	-								
							6			
					Help		Car	ncel		ОК

Figure 31 Behaviour Template screen

- 3 Select the check box to **Insert disparity error at delimiter** for message group or frames.
- 4 Select a desired Message Group Number.
- 5 Select the required check box for Message Number and Byte Number.
- 6 Click Header of Quick Select/Deselect to select or clear all the header bytes number.
- 7 Click **Payload** of **Quick Select/Deselect** to select or clear all the payload bytes number.
- 8 Select a count to repeat the error after every specified message group.

For Example: Repeat Interval as 3.

9 Select the number of times to repeat the error.

For Example: Repeat Count as 4.

- 10 Click **Ok**.
- **11** You can also select a specific count of number frames to be configured.

For Example: **Configure frames** from as **1**. Where 0 is considered as the first frame number.

12 Click Apply on the RP3 Frame Setup pane.

Compare Memory

Data Configuration

The steps to Data Configuration on the compare memory are as follows:

1 Click Data Configuration tab as shown in the Figure 32.

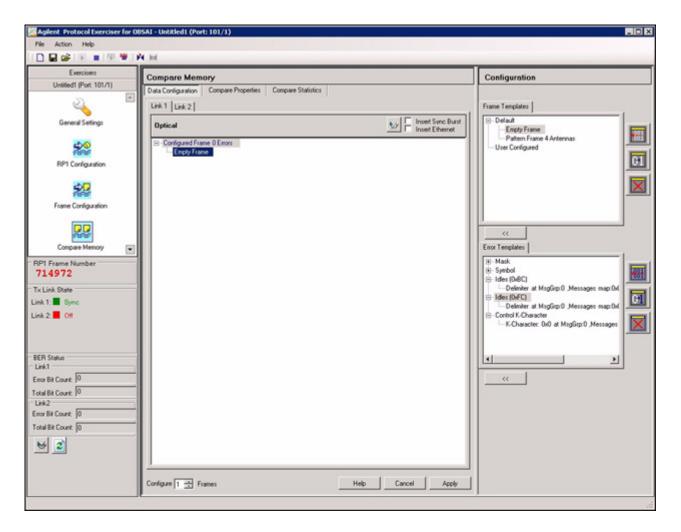


Figure 32 Data Configuration screen

- 2 Click the desired link to configure the data on the frames.For Example: Link 1.
- **3** Drag and drop an frame template.
- 4 Edit the address of the frame as required.

For Example: Select **1FFF** and edit the address by changing a bit in the pattern 2 from **FFFFFFFF** H to **FFFFFFFE** H. This changes the pattern of the frame as shown in the Figure 33.

Frame Configuration:	
Data Control	
Antenna Data Address	Payload
	Address: 1FFF
1FFF Hex - Add	
IFFF 1	Data Format Pattern
Edit>>	Pattern 1: FFFFFFFF Hex -
Delete	Pattern 2: FFFFFFE Hex -
	File Path Browse
	Officet 0000 Hex -
	Save
Configured Types CDMA2000 Ad Dele	
Timestamp Start 3F Hex - 11 Increment 0 Hex - 11	
	Help Cancel OK

Figure 33 Frame Configuration Data screen

- 5 Click Save.
- 6 Click OK.
- 7 Insert the error in the frames as desired from the error templates.
- 8 You can also select a specific count of number frames to be configured.

For Example: **Configure frames** from as **1**. Where 0 is considered as the first frame number.

9 Click Apply.

This applies the changes you made to set the Data configuration of compare memory.

Compare Properties

It includes the start and stop compare parameters on RP1 frame.

1 Click **Compare on RP1 frame type** checkbox under **Start parameters** and select the required frame type as **RP1FrameType** as shown in the Figure 34.

al.oss (Port: 101/1)	Compare Memory	
General Settings RP1 Configuration Frame Configuration Compare Memory attraction Compare Memory Court Court Court Court Court Court Court Court Court Court Court Court Court C	Data Configuration Compare Properties Compare Statistics Stat parameters Compare on hame number Fisher Number: 0000000000000 Compare on RPI frame type Image: RPI Frame Type: PI Compare on RPI frame type Image: RPI Frame Type: Stop parameters Stop compare on frame number Stop compare on Interne number Image: RPI Frame Type: Stop compare on Interne number Image: RPI Frame Type: Stop compare on Interne number Image: RPI Frame Type: Stop compare on Interne number Image: RPI Frame Type: Stop compare on Interne number Image: RPI Frame Type: Frame Number: Image: RPI Frame Type: RPI	

Figure 34 Compare Properties screen

- 2 Click Start compare on RP1 Frame Number checkbox.
- **3** Insert a specific frame number in the **RP1FrameNumber** field, to start the compare on the RP1 frame.

For Example: 0.

4 Click Stop compare on RP1 Frame Number checkbox under Stop Parameters.

5 Insert a specific frame number in the **RP1FrameNumber** field, to stop the compare on the RP1 frame.

For Example: 100.

6 Click Start Compare Memory icon from the toolbar.

You can view the compare statistics, once the compare memory automatically stops.

NOTE

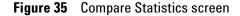
You need to click **Stop Compare Memory** icon from the tool bar, if no specific frame type or frame number is selected.

Compare Statistics

It details the mismatch of the Byte Error Count and Bit Error Count of RP1 frame number for a particular RP1 frame number in each link.

1 Click **Compare Statistics** to view the mismatch details as shown in the Figure 35.

Exercisers	Compare Memory				
Untitled1 (Port: 101/1)	Data Configuration Com	pare Properties	Compare Statistics		
2	RP1 Frame Number	FrameType	Byte Error Count	Bit Error Count	
~	0-0000000000000000000000000000000000000	0+0000	0=48000	0+48000	
General Settings	0-0000000000000000000000000000000000000	0-0000	0+48000	0+48000	
	0-0000000000000000000000000000000000000	0+0000	0=48000	0-48000	
_	0-0000000000000000000000000000000000000	0+0000	0+48000	0=48000	
<u>\$0</u>	0-0000000000000000000000000000000000000	0-0000	0+48000	0+48000	
16161	0-0000000000000000000000000000000000000	0+0000	0+48000	0+48000	
RP1 Configuration	0-0000000000000000000000000000000000000	0-0000	0+48000	0=48000	
	0-0000000000000000000000000000000000000	0+0000	0+48000	OrdE000	
	0-0000000000000000000000000000000000000	0-0000	0+48000	0+48000	
22	0-0000000000000000000000000000000000000	0-0000	0+48000	0+48000	
Ferer	0-0000000000000000000000000000000000000	0-0000	0+48000	0+48000	
Frame Configuration	0-0000000000000000000000000000000000000	0-0000	0+48000	0+48000	
	0-0000000000000000000000000000000000000	0+0000	0+48000	0=48000	
(mm)	0-0000000000000000000000000000000000000	0-0000	0=48000	0+48000	
22	0-0000000000000000000000000000000000000	0-0000	0+48000	0+48000	
1000	0-0000000000000000000	0.0000	0+48000	0=48000	
Compare Memory 5	• 0-00000000000000000	0-0000	0+48000	0+48000	
	0.0000000000000000000000000000000000000	0-0000	0x0000	0+0000	
1 Frame Number	0-0000000000000000000000000000000000000	0-0000	0x0000	0-0000	
	0-0000000000000000000000000000000000000	0-0000	0-0000	0-0000	
	0-0000000000000000000000000000000000000	0-0000	0-0000	0-0000	
LinkState	0.0000000000000000000000000000000000000	0-0000	0-0000	0-0000	
k1: Sinc	0-0000000000000000000000000000000000000	0-0000	0-0000	0-0000	
	0-0000000000000000000000000000000000000	0-0000	0x0000	0-0000	
2. 01	0-0000000000000000000000000000000000000	0+0000	0x0000	0x0000	
	0-0000000000000000000000000000000000000	0+0000	0+0000	0-0000	
	0-0000000000000000000000000000000000000	0-0000	0-0000	0-0000	
	0-0000000000000000000000000000000000000	0+0000	0x0000	0-0000	
	0-0000000000000000000000000000000000000	0-0000	0+0000	0-0000	
R Status	0-0000000000000000000000000000000000000	0+0000	0x0000	0-0000	
k1	0-0000000000000000000000000000000000000	0-0000	0+0000	0-0000	
Bit Count	0.0000000000000000000000000000000000000	0+0000	0+0000	0-0000	
	0-0000000000000000000000000000000000000	0-0000	0+0000	0-0000	
Bit Court 0	0-0000000000000000000000000000000000000	0+0000	0x0000	0-0000	
42	0-0000000000000000000000000000000000000	0-0000	0x0000	0+0000	
	0-0000000000000000000000000000000000000	0-0000	0x0000	0-0000	
r Bit Count: 0	0-0000000000000000000000000000000000000	0.0000	0+0000	0-0000	
al Bit Count 0	0.0000000000000000000000000000000000000	0+0000	0x0000	0-0000	
a constant la	0-0000000000000000000000000000000000000	0+0000	0-0000	0-0000	
* 2					



Rx Side

Rx side defines the receive side of RP3/RP3-01 interface to receive the incoming frames. Each link is synchronized individually before the transfer of data. The state Frame_Sync is the normal operational mode with frame structure detected and messages received.

- 1 Enable the Optical Link.
- 2 Select **RP1 In Source** as **External/RP3-01** as shown in the Figure 36
- 3 Select Sys Clock Source as desired.

For Example: Generated.

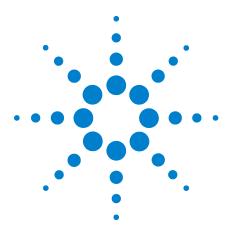
Link Active Link:	1	Link Status	Link Polarity (Rx)	
Link Speed:	1.5Gbps [2x]	C Disabled	Negative	
State Machine				
Block size of valid	bytes:		400	
Enter in Sync T sta	te after following number of valid bytes:		255	
Enter in UnSync T	state after following number of invalid byte	15.	255	
Enter in Frame Syr	ic state after following number of valid mes	sage groups:	3840	
Enter in Frame Un	Sync state after following number of invalid	messages groups:	128	
Capture Settings				
Maximum number (of frames to capture:		11 🗦	
Maximum number o	of frames to Pre-Capture:		7 🔹	
Clock Source				
RP1 IN Source:			External 💌	
Sys Clock Source:			Internal 💌	

Figure 36 General Settings of Rx

4 Click Apply.

This applies the changes made to set the general settings for Rx.

Emulating as Baseband Module



Agilent OBSAI Protocol Tester User's Guide

4

Logic Analyzer for OBSAI

Accessing Logic Analyzer for OBSAI 68 Adding OBSAI Protocol Analyzer Module 70 Packet Decoder 81 Packet Viewer 83

This chapter provides information regarding the Rx side of OBSAI protocol tester through the Logic Analyzer GUI. The logic analyzer captures and set triggers on the incoming frames, decodes the OBSAI frames and displays the captured frames.



Accessing Logic Analyzer for OBSAI

To start a session from the logic analyzer:

1 On the Windows task bar, click **Start > Programs** >Agilent Logic Analyzer> Agilent Logic Analyzer.

The **Offline Startup Options** screen opens up as shown in Figure 37.

Offline Startup Options					
"Help" for some troub	bleshoo	ation in offline mode. If this is not what you expected, select ting ideas. vailable in offline mode. Select one from the list below.			
Go Online	>	Connect to local or remote hardware to work online.			
Open File	>	Open a configuration file to analyze previously acquired data.			
Import	>	Import data acquired from an external source for analysis.			
OBSAI	>	Connect to OBSAI Session			

Figure 37 Offline Startup Options screen

2 Click **OBSAI** to connect to OBSAI session.

The **Agilent Logic Analyzer Overview** screen opens up as shown in the Figure 38.

[Offline] Agilent Logic Analyzer - Unnamed Cent		1010
De Dit yes but los Sales Dallas Con	one Rape Dib	- 0
SSHTH SSHTH SS	12 12 22 12 12 12 12 14 12 12 12 14 12 12 12 14 12 12 12 14 12 12 12 14 12 12 12 14 12 12 12 14 12 12 12 14 12 12 12 14 12 12 12 14 12 12 12 14 12 12 12 14 12 12 12 14 12 12 12 14 12 12 12 14 12 12 12 14 12 12 12 12 14 12 12 12 12 14 12 12 12 12 14 12 12 12 12 14 12 12 12 12 12 12 14 12 12 12 12 12 12 12 12 12 12 12 12 12	
N 10 M +		
	Na modules found	
<		
M Durnier		
Help, press Fi	(364-)	_

Figure 38Agilent Logic Analyzer Overview screen

Adding OBSAI Protocol Analyzer Module

Connection

The OBSAI session can be in two ways:

- Creating a new session and attaching to it.
- Attaching to a pre-existing session.

Create New Session

The steps to create a new session are as follows:

1 Click Add External Protocol Exerciser from Setup menu command.

The External Protocol Analyzer Setup for My Protocol Analyzer-1 screen opens up as shown in the Figure 39.

nal Protocol	Analyzer S	Setup for My P	Protocol Analyzer-1		
Server 🚾	sting Protoco alhost	ol Analyzer sessio		Session List	
Connected	Session	Туре	Label	Name(s)	
Nisconne	ct Session	1 Create N	lew Session Conne	et to a Session	
Disconne	ot Session	Create N	Lew SessionConne	ct to a Session	

Figure 39 External Protocol Analyzer Setup screen

2 Click Create New Session.

Module Number	Port Number	Status
101	1	Module Ready
:		>

The **Create New Session** dialog box opens up and the session appears as shown in the Figure 40.

Figure 40 Create New Session dialog box

- **3** Select a module from the list of modules attached.
- 4 Click OK.

The selected module appears on the Connection screen.

- 5 Click **Refresh** to revive the module number, port number and the status of the modules.
- **6** Select a module from the list of modules attached from the **Connection** screen as shown in the Figure 41.

4 Logic Analyzer for OBSAI

ernal Protocol Ai	nalyzer Setu	up for My Protoco	l Analyzer-2			_ D ×
onnection Buses/	/Signals					
Connect to existin	ng Protocol An	alyzer session				
Server local	host		Get Ses	ssion List		
	e	and a set of				
			Connect to a Session't			
	Session T 2 0	ype bsaïExerciser	Label ObsaïExerciser GUI	Name(s) 102/1		
•				▶		
Disconnect	Session	Create New Ses	sion Connect to	a Session		

Figure 41 Connection screen

7 Click Connect to a Session.

The module gets connected as shown in the Figure 42.

nal Protocol	Analyzer 9	Setup for My Proto	ocol Analyzer-1				_ [
nection Buse	es/Signals	TriggerConfiguration	Properties Status				
Connect to evis	ting Protoco	ol Analyzer session —					
_		arrangest socialit					
Server loc	alhost		Get Se	ssion List			
Select a sessio	on from this l	ist and then select th	e 'Connect to a Session'	button			
Connected Connected	Session 2	Type ObsaiExerciser	Label ObsaiExerciser GUI	Name(s) 102/1			
0011100100		C D D D D D D D D D D D D D D D D D D D		TOEPT			
•	1			•			
Disconne	ct Session	Create New 9	Session Connect to	o a Session			
					OK	Cancel	Help

Figure 42 Session Connected screen

Attaching to Pre-existing Session

The steps to get a session list are as follows:

- 1 Click Get Session List to get the ObsaiExerciser session.
- 2 Select a module from the list of modules attached.
- 3 Click Connect to a Session.

The module gets connected as shown in the Figure 42.

4 Click OK.

NOTE

Click **Disconnect Session** to detach from the existing connected session.

External Protocol Analyzer

The **My Protocol Analyzer** panel under modules column appears by default. You may change the name as desired. it consists of the following icons as shown in the Figure 43.



Figure 43My Protocol Analyzer panel

Table 14 represents the icons of My Protocol Analyzer panel.

lcon	Description
×	Add tool/windows to add windows (For e.g. Packet Viewer to display captured OBSAI frames) and use the tools (For e.g. Packet Decoder to decode OBSAI frame).
2.	Connection Setup to connect to a session.
Trig	Trigger Configuration to configure triggers on frames.
	Launch OBSAI Exerciser to connect the OBSAI exerciser to the session.

Trigger Configuration

A trigger is a combined set of conditions and their associated actions.

The steps to configure a trigger in the frames are as follows:

1 Click **Tr** in the **My Protocol Analyzer** panel.

The External Protocol Analyzer Setup for My Protocol Analyzer screen opens up with the selected Trigger Configuration tab as shown in the Figure 44.

ernal Protocol		Setup for ggerConfigu	the second second	Charles and Constant				E
RP1 Trigger Prop	rame Numbe Range Setti		Maximum Ra	nge		gger on RP1 Frame 1 Frame Types RP3 Bus FDD WCDMA/FDD GSM/Edge1 CCM/Foles2	Types	
Trigger Message Pattern Index	Patterns K-Bits		Address	Туре	Type Ma	isk Time	Pa	
1 2 3 4	000000	00000000	0000 0000 0000 0000	Control Control Control	00000 00000 00000	00 00 00 00		Edit
RP3 Trigger Prop Link 1 Trigger op Disparity		Misplace	ed Misplac		Pattern	Pattern	Pattern	Pattern
		Idle (0xF	C) Idle (Oxi	BC) Compare	Matcher 1	Matcher 2	Matcher 3	Matcher 4
						ОК	Cancel	Apply Help



Table 15 briefly describes the Trigger Configuration screen.

 Table 15
 Trigger Configuration

Component	Description		
RP1 Trigger Properties	 Enable the Trigger on RP1 Frame Number Range. The RP1 Frame Number Range settings consists of: Minimum Range: It's a 64 bits value. Maximum Range: It's a 64 bits value. Enable the Trigger on RP1 Frame Types. Select a frame type of RP1 from RP1 Frame Types. One or more frame type can be selected. 		

Component	Description It consists of four message patterns. You can select multiple message pattern. Click Edit , to update the parameters accordingly. Select the desired parameter and update the remaining as DON'T CARE. For eg: Kbits, Address, Payload, etc. These can be used for more than one link.		
Trigger Message Patterns			
RP3 Trigger Properties	Select trigger options to be used for the link. For eg: Disparity, Symbol, Memory compare, etc. If more than one option is selected. The trigger occurs at any of the selected options It is a link based property.		
Арріу	Click Apply to apply the changes you made to set the trigger configurations		

 Table 15
 Trigger Configuration

Properties

The steps to set the properties of Rx link are as follows:

1 Click **Properties**.

The **Properties** screen opens up as shown in the Figure 45.

rnal Protocol Analyzer Setup for My Protocol Analyzer-1	_ 0
nnection Buses/Signals TriggerConfiguration Properties Status	
Link Active Link: 1 Ink Status Link Speed: 1.5Gbps [2x]	C Positve
State Machine	
Block size of valid bytes:	400
Enter in Sync T state after following number of valid bytes:	255
Enter in UnSync T state after following number of invalid bytes:	255
Enter in Frame Sync state after following number of valid message groups:	3840
Enter in Frame UnSync state after following number of invalid messages groups:	128
Capture Settings	
Maximum number of frames to capture:	11 -
Maximum number of frames to Pre-Capture:	7
Clock Source	
RP1 IN Source:	External 💌
Sys Clock Source:	Internal Apply
	OK Cancel Help

Figure 45 Properties screen

Table 16 briefly describes the **Properties** screen.

Table 16 Pr	operties
-------------	----------

Component	Description	
Link	 It includes four properties: Active Link: The number of links available to enable. This is a link based property Link Speed: The speed of the enabled link. This property is independent of the link, it applied for all links. This is applicable to more than one link Link Status: It can be enabled or disabled. This is a link based property Link Polarity: It can be positive or negative. This is a link based property 	

Component	Description The parameters of state machine appears has the default values as shown in the Figure 45.This is a link based property		
State Machine			
Capture Settings	 It includes: Maximum number of frames to capture: The number of frames captured after the trigger point is known as capture. Maximum number of frames to Pre-capture: The number of frames captured before the trigger point is known as pre-capture. The maximum number of frames to pre-capture should be equal or less than the maximum number of frames to capture. The maximum number of frames to capture. The maximum number of frames to capture should be equal or less than the maximum number of frames to capture. The maximum number of frames to capture and precapture is 16. This is applicable to more than one link 		
RP1	The RP1 Clock is selected as External . It is enabled only for RP3-01 module for Rx side.This is applicable to more than one link.		
Арріу	Click Apply to apply the changes you made to set the properties.This is applicable to more than one link		

Table 16Properties

Status

The steps to view the status of Rx link are as follows:

1 Click Status.

The Status screen appears as shown in the Figure 46.

3087
5087
087
3087
pped
Start
me Synchronized

Figure 46 Status screen

Table 17 briefly describes the Status screen.

Table 17 Status

Component	Description		
Status	It includes:		
	 Symbol error count: Displays the count of symbol error. This is link based 		
	 Disparity Error count: Displays the count of disparity error. This is link based 		
	 RP1 frame Number: Displays the RP1 frame number. This is applicable to more than one link. 		

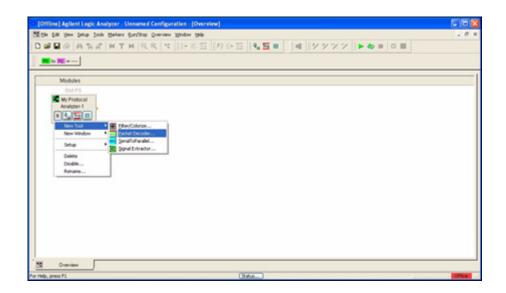
Component	Description
Capture Setup	 It includes: Capture State: The capture state can be running or stopped. This is applicable to more than one link Frames Captured: The number of captured frames. This is applicable to more than one link Rx Link State: The status of Rx link. This is link based
Start/Stop	Click Start to start capturing the frames. And the capturing of frames is automatically stopped in case of trigger. It can also be stopped manually.
ОК	Click OK to the applied changes.
Cancel	Click Cancel to close the existing screen.
Help	Click Help to display the online help.

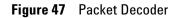
Table 17Status

Packet Decoder

The steps to configure a packet decoder properties are as follows:

- 1 Click in the **My Protocol Analyzer** panel under modules column.
- 2 Select New Tool > Packet Decoder as shown in the Figure 47. The Packet Decoder panel appears under Tools column.





3 Click Properties.

The **Packet Decoder Properties** dialog box opens up as shown in the Figure 48.

otocol Select ASCI	I Decode Options
Protocol Selection	
Protocol Family:	Obsai 💌
Decode Bus:	ObsaiFrameDownlink
Use tool name f	cket Decoder-1

Figure 48 Packet Decode Properties dialog box

- 4 Select **OBSAI** as **Protocol family** under **Protocol Selection**.
- 5 Select ObsaiFrameDownlink/Uplink as Decode Bus.
- 6 Click Apply.
- 7 Click OK.

Packet Viewer

The steps to configure a packet viewer are as follows:

- 1 Click in the **Packet Decoder** panel under Tools column.
- 2 Select New Window > Packet Viewer as shown in the Figure 49.

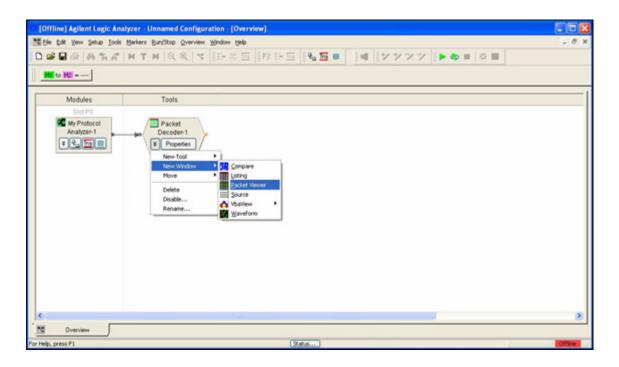


Figure 49 Packet Viewer

The **Packet Viewer** panel appears under **Windows** column as shown in the Figure 50.

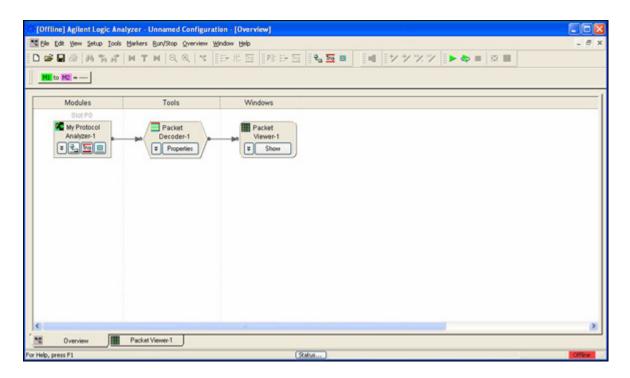


Figure 50 Packet Viewer Panel

3 Click Show.

The **Packet Viewer** screen opens up as shown in the Figure 51.

	and a strange and the strange of the strange of the	Viewer-1]	
the Edit Yew Setup Icols Markers Buryls	top Eachet Viewer Window Help		-
		N > 2 9 2 0 4 9 7 7 8 8	0
Packets			•
Obsai Packet	Address	Payload Time	
GSR/EDGE	0001	0000 0000 0000 0000 0000 0000 0000 -	372 8.0
CDMA2000	0000	a491 0100 a591 0100 a691 0100 a791 0100 -	310 ns
OBR/EDGE	0001	0000 0000 0000 0000 0000 0000 0000 -	240 no
CD#A2000			106 ms
GSR/EDGE			124 ns
CDMA2000	0000	ac91 0100 ad91 0100 ae91 0100 af91 0100	-62 8.8
			-
8			2
			,
Cetals etals Header Payload Lanes lefected Packet: CDMA2000	Capy	Cour 🛔 My Reference Padet 1 🔋 🔽 Copy Cour 👲	
tals Header Payload Lanes	Corv (Cear & My Reference Packet 1 8	My Reference Packet 2
tals Header Payload Lanes elected Packet: CDMA2000 S Generated Fields Destion = Packet Decoder-1 Packet Length = 1152 Decimal		Char & My Reference Rachet 1 8 Copy Char &	

Figure 51 Packet Viewer screen

4 Click **b** to upload data to viewer.

The OBSAI packets with the details like its Address, payload information, time etc.

Adding a Column

The steps to add a column to view the desired information about OBSAI packets.

1 Right click the column heading. Select the desired option to insert a column before or after the selected column as shown in the Figure 52.

	ilent Logic Analy			-								
	ew Setup Icols &											
0 🖼 🖬 🖷	P PA HA	THQ	Q, * 1E	4倍 1	1 P2 (> 15 % 16 0	- YYX		a				
MI to M2	19.578 ns											
Packets				1.2								۹×
System	Frame Number	Packet Type	TimeStamp	-	Ohsai Parket	Address				Payload		
		GSR/EDGE	10	GSM/	Undo	00	01 000	0 0000	0000	0000 0000	0000	A
		CDMA2000	11	CDMA	Insert Column Before	00	00 a45	1 0100	a591	0100 a691	0100	
		GSM/EDGE		GSM/	Insert Column After					0000 0000		5
		CDMA2000		CDMA	Delete Column					0100 aa91		4
		GSM/EDGE		GSM/						0000 0000		4
		CDMA2000	15	CDMA	Assign Channels	00	00 acs	1 0100	ad91	0100 ae91	0100	
				1.100	Rename							F
					Base +							٦
					Symbols							1
												~ -
<					Find						5	-
					Find Bus/Signal							-
Details				_	Display +		_		_			å ×
Details Head	fer Payload Lanes				Properties							
Selected Pac	et: CDMA2000			Сору	Gear 🛓 My Reference Pad	et 1 🔳 🖸	a de	e 🛓	My Re	ference Packet	2	
Dire	Red Fields ction = Packet Decod et Length = 152 Dec		× ×		-							
1 Ove	niew 📕	Packet Viewer-1	<u></u>									
Help, press F1				_	Salus		_	_	-			fine

Figure 52 Insert Column screen

2 The list of column details that can be viewed opens up as shown in the Figure 53.

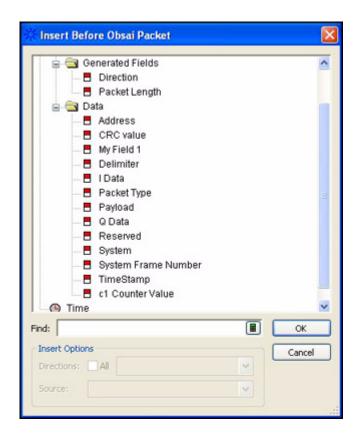


Figure 53 Insert Before dialog box

3 Click the desired information that needs to be viewed. This information appears as the column heading.

Setting a Marker

The steps to set a marker to the OBSAI packets are as follows:

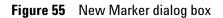
- 1 Select the desired **OBSAI packet**.
- 2 Right click and goto **Place Marker** > **New Marker** as shown in the Figure 54.

rac	kets												\$ ×
			Addres	55	-		Pay	load			Time		
10	DMA2000			0000	0000 0	000 000	0000	0000	0000 00	00 0000	-11.720820	mø	
0	DMA2000	2000		0000	0000 0	000 000	0000	0000	0000 00	00 0000	-11.720758	108	- 6
	Impty Mes					fff fff:					-11.720696		4
	Impty Mes					ter rer					-11.720634		-
	impty Nes:					ter rer					-11.720572		L
	impty Res			1555	TITE E	fff fff:	1111	IIII	TILL LI	II 6602	-11.720510		
	DMA2000	101605		0000	0000 0	000 000	0000	0000	0000 0/	00.0000	-11.720448		
	DHA2000	Undo				000 0000			2000 30		-11.720383		
	DMA2000					000 000					-11.720321		-
	DMA2000	Go To +				000 000					-11.720259		
. 0	DMA2000	Go To Beginning Of Data		0000	0000 0	000 000	0000	0000	0000 00	00 0000	-11.720197	mø	-
	DMA2000	Go To End Of Data		0000	0000 0	000 000	0000	0000	0000 00	00 0000	-11.720135	mo	× •
3		Place Marker +	M2										>
Det	ails	Find	ML										0 ×
		Find Next	M3					_					
Deta	is Header	Find Previous	M4										
Sel-	cted Packet:	THU FIENDAS	New Marker	6 mm		Ny Refer	an on Br. 1			Copy	Clear & My R	factors find at a	-
2446		Properties	CONTRACTOR OF THE CONTRACTOR O										

Figure 54 Place Marker

The New Marker dialog box opens up as shown in the Figure 55.

New Marker	X
Name M5 III Background Color III Foreground Color IIII	OK Cancel
Position Time -11.72044475 m	m Trigger



- **3** Specify the required details in the **New Marker** dialog box.
- 4 Click OK.

The Marker is set to the OBSAI packet.

Time Interval Measurement

The steps to measure the time interval between two markers are as follows:

1 Right click on the measurement bar and select **New Time Interval Measurement** as shown in the Figure 56.

Offline] Agilent Logic Analyzer - Unnan						
Sie Edt New Setup Iools Markers Burl'S						- 0
WTH NAM BE	Q. Q. 1 15 H.		· · · · · · · · ·			
HI to HE = 19.570 rs H3 to H4 = -10.02	2826 ms I					
	2220.00	New Time Interval Heasurement				
		New Sample Diterval Measurement. New Value At Measurement.				
Packets						*>
	Address	Delete	the second se	Time		
CD#A2000		Delete Al	0000 0000 0000	-11.721006 mm		A .
CDEA2000		Properties	0000 0000 0000	-11,720944 mg		
CD#A2000		0000 0000 0000 0000 0000 00		-11.720682 md		
CD#A2000		0000 0000 0000 0000 0000 000		-11.720820 mm		
CD#A2000		0000 0000 0000 0000 0000		-11.720758 mm		
Empty Ressage		tere rece cree cree rece re		-11.720696 88		
Empty Reprope		tert erer rete tett tett te		-11.720634 mm		
Empty Nepsope		tere tree tere tere tere te		-11.720572 mm		
Empty Renzoge				-11.720510 mm		
Trame Delimiter				-11.720448 mg	******	
CD#A2000		000 0000 0000 0000 0000 000		-11.720445 mg		
CDRA2000		0000 0000 0000 0000 0000 00		-11.720383 ms		
CDEA2000		0000 0000 0000 0000 0000 00		-11.720321 88		
CDEA2000		0000 0000 0000 0000 0000 00		-11.720259 mm		
CDEA2000		0000 0000 0000 0000 0000 000		-11.720197 nd		
CD #A2000				-11.720135 mm		
CDMA2000		0000 0000 0000 0000 0000 000		-11.720073 mg		
CD#A2000				-11.720011 88		
CDEA2000		0000 0000 0000 0000 0000 00		-11.719949 mm		
CERKLOOD		0000 0000 0000 0000 0000	~ ~~~ ~~~~	-11.719949 88		v .
£						>
Details						
Details Header Payload Lanes						
Selected Packet: CDMA2000		Capy On +	Ny Reference Facial 1	1	Copy Clear & Hy Reference Packet 2	
S Generated Fields						
Direction = Packet Decoder-1						
Packet Length = 152 Decimal						
🗟 Obsai						
S Data						
Address = 0000 Hex						
Packet Type = CDMA2000						
 TimeStamp = 3f Hex 						
I Data = 0000 0000 0000 Hex						
Q-Duta = 0000 0000 0000 0000 Hex						
Payload = 0000 0000 0000 0000 000	00 0000 0000 0000 Hex					
Overview Packet Viewer-	1					
telp, press F1				(Relation)		

Figure 56 New Time Interval

The Time Interval dialog box opens up as shown in the Figure 57.

Tin	ne Interv	al	
From	M4	to M5	~
		Properties OK	Cancel

Figure 57 Time Interval dialog box

- 2 Specify the **From** and **to** markers to measure the time interval.
- 3 Click OK.

The time interval measurement appears on the measurement bar.

Table 18 briefly describes the icons available:

Table 18Icons Descriptions

Description
Displays the New Marker dialog box.
Displays the Marker dialog box.
Displays the Time Interval dialog box.
Displays the value to screen.
Displays the Start point of the captured frames.
Displays the triggered frame.
Displays the End point of the captured frames.

Searching OBSAI Data

- Click to find Obsai Packets like Frame Delimiter, Tetra or Error Messages.
- Click **h** to find the previous Obsai data.
- Click 🙀 to find the next Obsai data.

The Find dialog box opens up as shown in the Figure 58.

🔆 Find	
Find 1 II-+ occurrence searching Forward V from Display Center	~
Bus/Signal ObsaiDataMsg All bits = Image: Comparison of the second	3
Store Favorite ¥ Recall Favorite ¥ Clear Options Find Clos	se Help



To search a Frame Delimiter

- 1 Specify the number of frame delimiter to search in the **Find** field.
- 2 Select the occurrence searching as Forward or Backward and select the desired From location to search.
- 3 Select the **Bus/Signal** from the dropdown menu in the dialog box.
- 4 Select All bits as ObsaiDataMsg.
- 5 Select the obsai packet as FC with And option.
- 6 To search a frame delimiter in the payload, select alyzer-3 Delimiter.
- 7 Select **Rising Edge** as **alyzer-3 Delimiter** from the dropdown menu.
- 8 Click Find.

The following Figure 59 appears.

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			_					_		_	_	_	_	
Pa	ckets												_	
	Obsai Packet	Address									Time		-	
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	TETRA				00 0000						30.0			
	TETRA				00 0000						30.0			
	TETRA				00 0000						30.0			
	TETRA				00 0000						30.0			
	TETRA				00 0000						30.0			
	TETRA				00 0000						30.0			
	TETRA				00 0000						30.0			
	TETRA				00 0000						30.0			
					00000 00						30.0			
	Empty Ressage				11 1111						30.0			
	Empty Message Frame Delimiter	1111	LIL .			1111	1111	1111	euus		30.0			
-7	CDMA2000	0000 0	0000	0000 00	00 0000	0000	0000	0000	0000	-	30.0		_	
	CD#A2000				00 0000						30.0			
	CDRA2000				00 0000						30.0			
	CDHA2000				00 0000						30.0			
	CDRA2000				00 0000						30.0			
	CDHA2000	1000010			00 0000				00004		30.0			
	CDMA2000				00 0000						30.0			
	CDMA2000	000010			00 0000				00000		30.0			
	CDMA2000				00 0000						30.0			
	CDMA2000				00 0000						30.0			
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	•				1000 C		-					100		
De	tails													
Det	als Header Payload Lanes					_	_	_		_	_		_	
Sel	lected Packet: Fname Delimiter		Conv	Chur I	and Inve	Inference	A Parket	1				1 6	opy	Clear 👲 My Reference Packet 2
-	E Fit	M										×	_	
1	Generated Fields Direction = Packet Decoder-3					_				_				
	Packet Length = 8 Decinal Find	1 = + occum	ence se	arching	Forward .	from	Display	Center			-	*		
Ι.	- Obsai									_	_	_		
1.	B Data	Bus/Signal ObseDetaMe	5 01	Al bits		2	 FC 	He He	x 8 A	nd •				
		Dus/Signal · alyzer-3:Delim					-		_	_				
		the second se		- poind t	- N									
	W	en Present												
1		re Favorite ¥ Recal Favorite ¥		Clear	Options.	10	Find	-		1		1		
									Close		Help			

Figure 59 To search a Frame Delimiter

To Search a Tetra

- 1 Specify the number of tetra to search in the **Find** field.
- 1 Select the occurrence searching as Forward or Backward and select the desired From location to search.
- 2 Select the **Packet** from the dropdown menu in the dialog box.
- 3 Select the Obsai Packet as Tetra.
- 4 Click Find.

The following Figure 60 appears.

	Q . B . E . E	P8 5	100	2 - 1	no •		-	17	17.7	-	4	12 🔳	
to M2 = 123.994 ns													
iets													
Obsai Packet	Address										ime	and a	
D#42000				0000 0							.02120		
0842000				0000 0							.02145		
2842000				0000 0							.02157		
0842000													
				0000 0							.02169		
D#A2000				0000 0							.02182		
D#A2000 D#A2000				0000 0							.02194		
D#A2000				0000 0							.02207		
				0000 0							.02219		
ngty Kessage				tttt t							.02231		
apty Nessage	1111		THE	ffff f				TITLE	6002				
rane Delimiter	0000										.02256		
ETPA				0000 0									
ETPA				0000 0							.02269		
ETPA				0000 0							.02282		
ETPA				0000 0							.02294		
ETPA				0000 0							.02306		
ETPA				0000 0							.02319		
ETPA				0000 0							.02331		
ETPA				0000 0							.02344		
ETPA				0000 0							.02356		
ETRA				0000 0							.02368		
ETRA				0000 0							.02381		
ETRA				0000 0							.02393		
1784	nnnn	nnnn	nnnn	0000 0	nnn	0000	nnnn	nnnn	nnnn	10	.02404	1 80.6	
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Generated Fields		-									×		
				-	_		-						
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				-	_		-	_			_		
Obsai	Packet * Obsai Pa	det 1	8 30	TRA.									
C trata	and a second sec												
	n Present 💌												
Packet Type = TETRA													
-TimeStamp = 3f Hex Payload = 0000 0000 0000 000													

Figure 60 To search a Tetra

4 Logic Analyzer for OBSAI

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