MX370112A/MX269912A
TD-SCDMA IQproducer™
Operation Manual

Seventh Edition

- **For safety and warning information, please read this manual before attempting to use the equipment.**
- **Additional safety and warning information is provided within the MG3700A Vector Signal Generator Operation Manual (Mainframe), MG3710A/MG3710E Vector Signal Generator MG3740A Analog Signal Generator Operation Manual (Mainframe), MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Mainframe Operation), or MS2830A Signal Analyzer Operation Manual (Mainframe Operation). Please also refer to them before using the equipment.**
- **Keep this manual with the equipment.**

ANRITSU CORPORATION

Document No.: M-W3582AE-7.0

Safety Symbols

To prevent the risk of personal injury or loss related to equipment malfunction, ANRITSU CORPORATION uses the following safety symbols to indicate safety-related information. Ensure that you clearly understand the meanings of the symbols BEFORE using the equipment. Some or all of the following symbols may be used on all Anritsu equipment. In addition, there may be other labels attached to products that are not shown in the diagrams in this manual.

Symbols used in manual

⚠ DANGER This indicates a very dangerous procedure that could result in serious injury or death if not performed properly.

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Safety Symbols Used on Equipment and in Manual

The following safety symbols are used inside or on the equipment near operation locations to provide information about safety items and operation precautions. Ensure that you clearly understand the meanings of the symbols and take the necessary precautions BEFORE using the equipment.

This indicates a prohibited operation. The prohibited operation is indicated symbolically in or near the barred circle.

This indicates an obligatory safety precaution. The obligatory operation is indicated symbolically in or near the circle.

This indicates a warning or caution. The contents are indicated symbolically in or near the triangle.

This indicates a note. The contents are described in the box.

These indicate that the marked part should be recycled.

MX370112A/MX269912A
TD-SCDMA IQproducer™
Operation Manual

20 March 2012 (First Edition)
12 June 2026 (Seventh Edition)

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If Anritsu suffers any damages or loss, financial or otherwise, due to your violation of the terms of this EULA, Anritsu shall have the right to seek proportional damages from you.

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If matters of interpretational dispute or items not covered under this EULA arise, they shall be resolved by negotiations in good faith between you and Anritsu.

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This EULA shall be governed by and interpreted in accordance with the laws of Japan without regard to the principles of the conflict of laws thereof, and any disputes arising from or in relation to this EULA that cannot be resolved by negotiation described in Article 9 shall be subject to and be settled by the exclusive agreed jurisdiction of the Tokyo District Court of Japan.

Revision History:

February 29th, 2020
December 17th, 2021
March 11th, 2024

Cautions Against Computer Virus Infection

- Copying files and data
  Only files that have been provided directly from Anritsu or generated using Anritsu equipment should be copied to the instrument.
  All other required files should be transferred by means of USB flash drive or CompactFlash media after undergoing a thorough virus check.
- Adding software
  Do not download or install software that has not been specifically recommended or licensed by Anritsu.
- Network connections
  Ensure that the network has sufficient anti-virus security protection in place.
- Protection against malware (malicious software such as viruses).
  This equipment runs on Windows Operating System.
  To connect this equipment to network, the following is advised.
  - Activate Firewall.
  - Install important updates of Windows.
  - Use antivirus software.

Protection Against Computer Virus Infections

Prior to the software installation

Before installing this software or any other software recommended or approved by Anritsu, run a virus scan on your computer, including removable media (e.g. USB flash drive and CF memory card) you want to connect to your computer.

When using this software and connecting with the measuring instrument

- Copying files and data
  On your computer, do not save any copies other than the following:
  - Files and data provided by Anritsu
  - Files created by this software
  - Files specified in this document

  Before copying these files and/or data, run a virus scan, including removable media (e.g. USB flash drive and CF memory card).
- Connecting to network
  Connect your computer to the network that provides adequate protection against computer viruses.
- Protection against malware (malicious software such as viruses).
  To connect your computer to network, the following is advised.
  - Activate Firewall.
  - Install important updates of Windows.
  - Use antivirus software.

Cautions on Proper Operation of Software

This software may not operate normally if any of the following operations are performed on your computer:

- Simultaneously running any software other than that recommended or approved by Anritsu
- Closing the lid (Laptop computer)
- Turning on the screen saver function
- Turning on the battery-power saving function (Laptop computer)

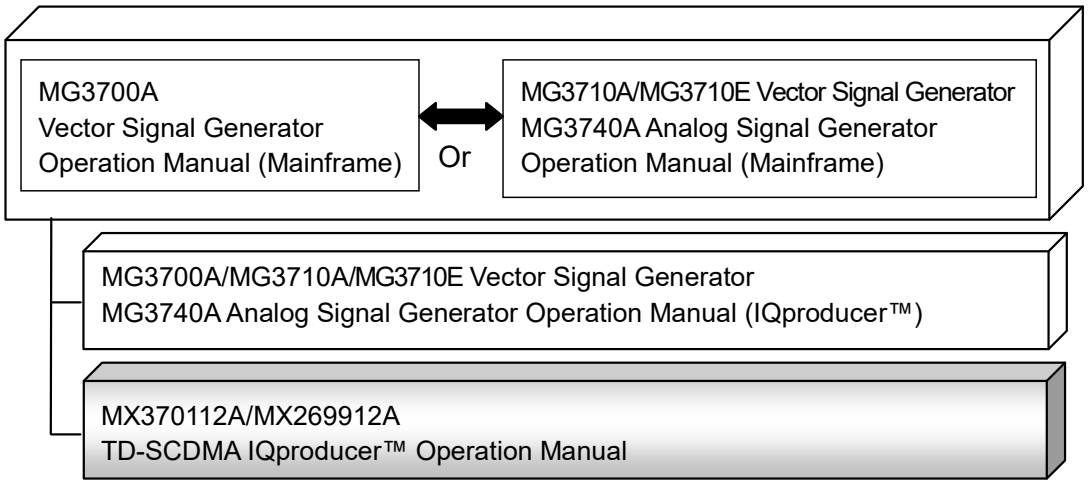
For how to turn off the functions, refer to the operation manual that came with your computer.

About This Manual

■Associated Documents

The operation manual configuration of the MX370112A/MX269912A TD-SCDMA IQproducer™ is shown below.

■If using MG3700A, MG3710A, or MG3710E:



- MG3700A Vector Signal Generator Operation Manual (Mainframe)

This describes basic operations, maintenance procedure, and remote functions of the MG3700A Vector Signal Generator.

Or

- MG3710A/MG3710E Vector Signal Generator MG3740A Analog Signal Generator Operation Manual (Mainframe)

This describes basic operations, maintenance procedure, and remote functions of the MG3710A, MG3710E Vector Signal Generator and the MG3740A Analog Signal Generator .

- MG3700A/MG3710A/MG3710E Vector Signal Generator MG3740A Analog Signal Generator Operation Manual (IQproducer™)

This describes the functions and how to use the IQproducer, which is Windows software for the Vector Signal Generator and the Analog Signal Generator .

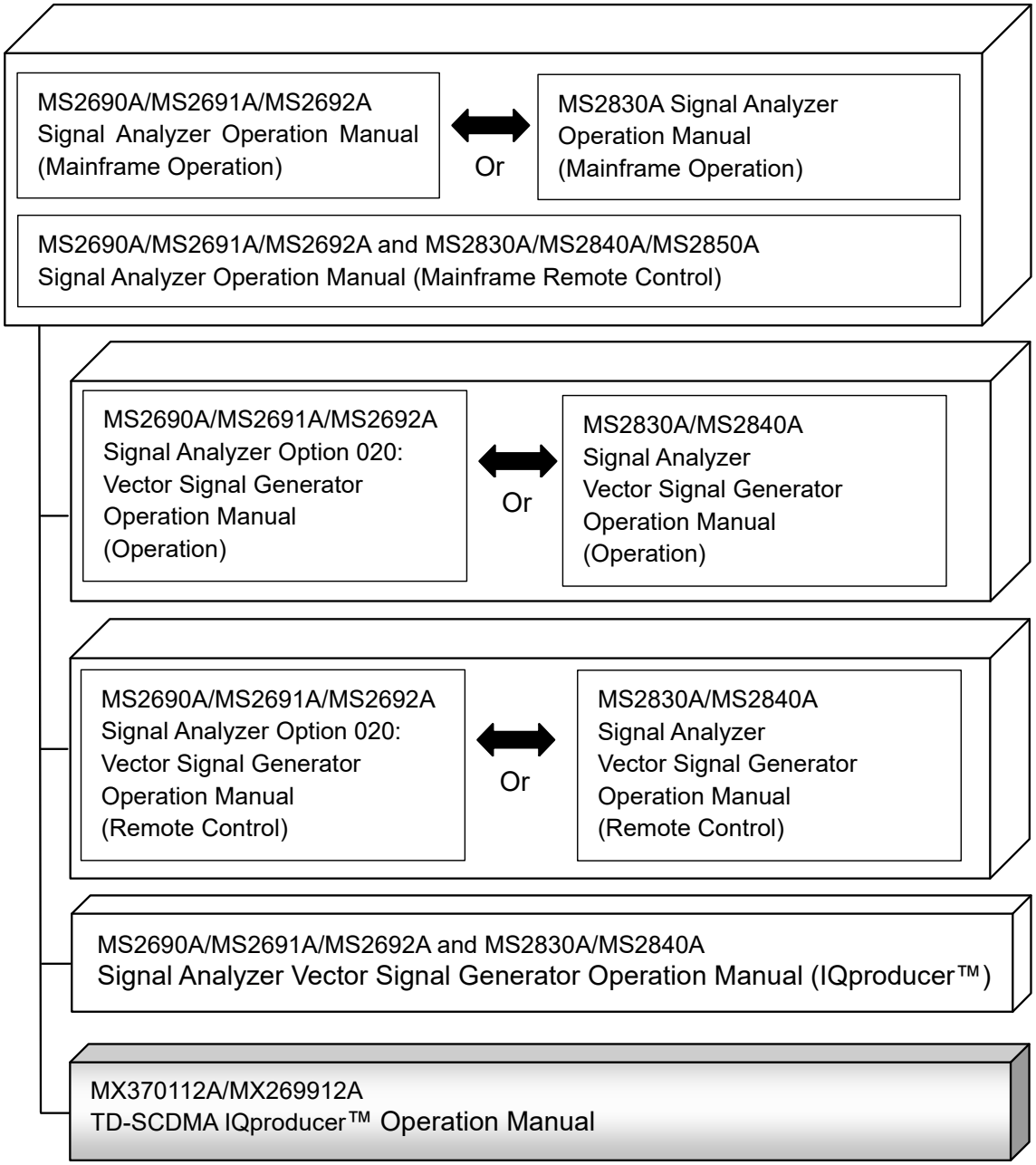
- TD-SCDMA IQproducer™ Operation Manual (This document)

This describes basic operations and functions of the TD-SCDMA IQproducer™.

Name Used in This Manual

In this manual, it is assumed that you use MG3710A unless otherwise noted. If you use MG3710E, read MG3710A as MG3710E.

■**If using MS2690A/MS2691A/MS2692A or MS2830A:**



- MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Mainframe, Operation)

This describes basic operations, maintenance procedure, common functions and common remote functions of the MS2690A/MS2691A/MS2692A.

Or

- MS2830A Signal Analyzer Operation Manual (Mainframe, Operation)

This describes basic operations, maintenance procedure, common functions and common remote functions of the MS2830A.

- MS2690A/MS2691A/MS2692A and MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Mainframe, Remote Control)

These describe basic operations, maintenance procedure, common functions and common remote functions of the MS2690A/MS2691A/MS2692A or MS2830A/MS2840A/MS2850A.

- MS2690A/MS2691A/MS2692A Signal Analyzer Option 020: Vector Signal Generator Operation Manual, Operation

This describes the functions and how to use the Vector Signal Generator option.

Or

- MS2830A/MS2840A Signal Analyzer Vector Signal Generator Operation Manual, Operation

This describes the functions and how to use the Vector Signal Generator option.

- MS2690A/MS2691A/MS2692A Signal Analyzer Option 020: Vector Signal Generator Operation Manual, Remote Control

This describes how to remotely control the Vector Signal Generator option.

Or

- MS2830A/MS2840A Signal Analyzer Vector Signal Generator Operation Manual, Remote Control

This describes how to remotely control the Vector Signal Generator option.

- MS2690A/MS2691A/MS2692A and MS2830A/MS2840A Signal Analyzer Vector Signal Generator Operation Manual (IQproducer™)

This describes the functions and how to use the IQproducer, which is Windows software for the Vector Signal Generator option.

- TD-SCDMA IQproducer™ Operation Manual (This document)

This describes basic operations and functions of the TD-SCDMA IQproducer™.

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VI.

Chapter 1 Overview

This chapter provides an overview of the MX370112A/MX269912A TD-SCDMA IQproducer™.

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1.2 Product Composition 1-3

1.1 Product overview

The MX370112A/MX269912A TD-SCDMA IQproducer™ software (hereafter this software) is software used to generate waveform patterns conforming to the 3GPP TD-SCDMA specifications. This software refers to the following 3GPP specifications.

- TS 25.221 V10.0.0 (2010-12)
- TS 25.222 V10.1.0 (2011-03)
- TS 25.223 V10.0.0 (2010-12)
- TS 25.105 V7.9.0 (2008-05)
- TS 25.142 V8.0.0 (2008-05)

This software requires either of the following environment:

- MG3710A Vector Signal Generator
- MS2690A/MS2691A/MS2692A or MS2830A Signal Analyzer with Vector Signal Generator option mounted
- Personal computer (hereinafter, “PC”)

This software generates waveform patterns that support the specifications of 3GPP TD-SCDMA with various characteristics. This is made possible by the editing/customizing of parameters according to its use.

A waveform pattern created by this software can be output using an RF signal after being downloaded into the MG3700A Vector Signal Generator, MG3710A Vector Signal Generator, or an MS2690A/MS2691A/MS2692A or MS2830A Signal Analyzer with Vector Signal Generator option installed (collectively referred to as “mainframe”, or “this equipment”).

1.2 Product Composition

The following table lists the model name and specifications of this software according to the equipment.

Table 1.2-1 Restrictions

Mainframe / Restrictions	MG3700A	MG3710A	MS2690A MS2691A MS2692A	MS2830A
Software name	MX370112A		MX269912A	
Maximum Size of Waveform Patterns	256 M sample 512 M sample*1	64 M sample 128 M sample*5 256 M sample*6 512 M sample*7	256 M sample	64 M sample 256 M sample*4
Transmission method of Waveform Patterns	LAN, CompactFlash Card	LAN, USB Memory and other external device *2	USB Memory and other external device *2	USB Memory and other external device *2
Installation of this software to this equipment	N/A	Possible	Possible *3	Possible *3

*1: The ARB memory expansion 512M sample (optional) must be installed into the MG3700A to use waveform patterns that exceed 256M samples.

*2: Transferring waveform patterns is not required if the waveform patterns are created on the equipment using this software.

*3: Although this software can be installed and run in the MS2690A/MS2691A/MS2692A or MS2830A, the measurement functions of the MS2690A/MS2691A/MS2692A or MS2830A are not guaranteed while this software runs.

*4: The ARB memory expansion 256M sample (optional) must be installed into the Vector Signal Generator option to use waveform patterns that exceed 64 M samples.

*5: The Combination of Baseband Signal (optional) must be installed into the MG3710A to use waveform patterns of maximum 128 M samples.

*6: The ARB memory expansion 256M sample (optional) must be installed into the MG3710A to use waveform patterns of maximum 256 M samples.

*7: To use waveform patterns of maximum 512 M samples, either of the following must be installed into MG3710A:

- ARB memory expansion 1024 M sample (optional)
- ARB memory expansion 256 M (optional) and Combination of Baseband Signal (optional)

■Notes on waveform pattern conversion

The waveform patterns generated with this software varies according to the main unit type. If using the waveform pattern to the different main unit, you need to convert the waveform pattern.

For details about how to convert a waveform pattern, refer to each one of the following manuals.

- *MG3700A/MG3710A/MG3710E Vector Signal Generator MG3740A Analog Signal Generator Operation Manual (IQproducer™)*
  4.5 “File Conversion on Convert Screen”
- *MS2690A/MS2691A/MS2692A and MS2830A/MS2840A Signal Analyzer Vector Signal Generator Operation Manual (IQproducer™)*
  4.5 “File Conversion on Convert Screen”

Chapter 2 Preparation

This chapter describes the operating environment for the MX370112A/MX269912A.

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2.1 Operating Environment

The following environment is required for operating the MX370112A/MX269912A.

(1) PC that meets the following conditions

OS	Windows XP/Windows Vista/ Windows 7/Windows 10/Windows 11
CPU	Pentium III 1 GHz equivalent or faster
Memory	512 MB or more
Hard disk space	5 GB or more free space in the drive where this software is to be installed. The free hard disk space necessary to create waveform pattern varies depending on the waveform pattern size. The free disk space of 27 GB or greater is required to create four maximum (512 Msample) waveform patterns.

(2) If viewing on PC, displays with a resolution of 1024 × 768 pixels are best viewed using a small font setting.

2.2 Installation/Uninstallation

This software is included in the IQproducer™ installer. It is automatically installed by installing the IQproducer™ that is supplied with this equipment or this software. When using a waveform pattern created using this software in the equipment, the license file must be installed in advance.

■Installing/Uninstalling IQproducer™

For how to install and uninstall IQproducer™, refer to each of the following manuals:

- *MG3700A/MG3710A/MG3710E Vector Signal Generator MG3740A Analog Signal Generator Operation Manual (IQproducer™)*
  Chapter 2 "Installation"
- *MS2690A/MS2691A/MS2692A and MS2830A/MS2840A Signal Analyzer Vector Signal Generator Operation Manual (IQproducer™)*
  Chapter 2 "Installation"

■Installing/Uninstalling IQproducer™ license file

For how to install license file to MG3700A/MG3710A, refer to the following manual:

- *MG3700A/MG3710A/MG3710E Vector Signal Generator MG3740A Analog Signal Generator Operation Manual (IQproducer™)*
  5.1 "Installing License File"

For how to uninstall license file from MG3700A/MG3710A, refer to each one of the following manuals:

- *MG3700A Vector Signal Generator Operation Manual (Mainframe)*
  3.10.10 "Install"
- *MG3710A/MG3710E Vector Signal Generator MG3740A Analog Signal Generator Operation Manual (Mainframe)*
  9.4.4 "Install"

Refer to the following manual for details of how to install/uninstall license file to MS2690A/MS2691A/MS2692A or MS2830A with Vector Signal Generator option.

- *MS2690A/MS2691A/MS2692A and MS2830A/MS2840A Signal Analyzer Vector Signal Generator Operation Manual (IQproducer™)*
  2.2 "Installation/Uninstallation"

2.3 Starting up and exiting the software

This section explains how to start and stop this software.

Note:

The following explanation assumes the use of Windows XP. The screen image may differ slightly if not using Windows XP.

2.3.1 Starting Software: When installed on other than MG3710A

Start this software using the following procedure.
The example assumes that it is a PC operation.

<Procedure>

1. Click **Start** on the task bar, and point to **All Programs**. Next, point to **Anritsu Corporation**, point to **IQproducer**, and then click **IQproducer**.
2. When IQproducer™ starts, the **Select instrument** screen is displayed.

   On the **Select instrument** screen, select the model of the main unit that uses the waveform patterns created by IQproducer™.

Notes:

- This software does not support MG3740A.
- To hide this screen and to start with the selected mainframe's screen from the next time, select the **Don't show this window next time** check box.

3. The common platform screen is displayed when **OK** is clicked in the **Select instrument** screen.

   The common platform screen is a screen used to select each function of the IQproducer™.

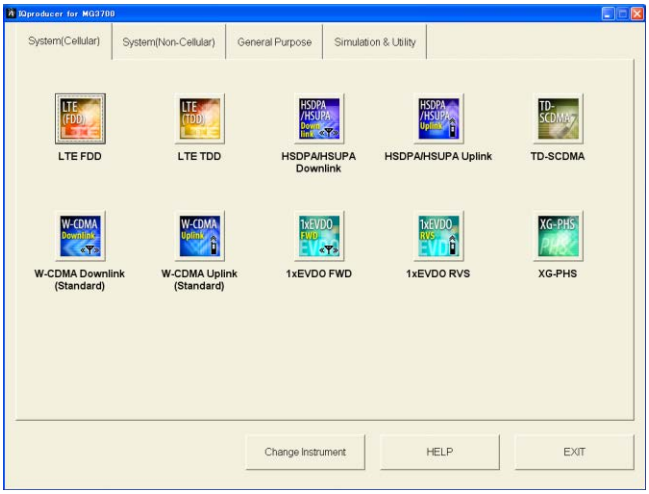

Figure 2.3.1-1 Common Platform Screen

4. Click the **System (Cellular)** tab on the common platform screen, to show the **System (Cellular)** selection screen that supports each telecommunication system.

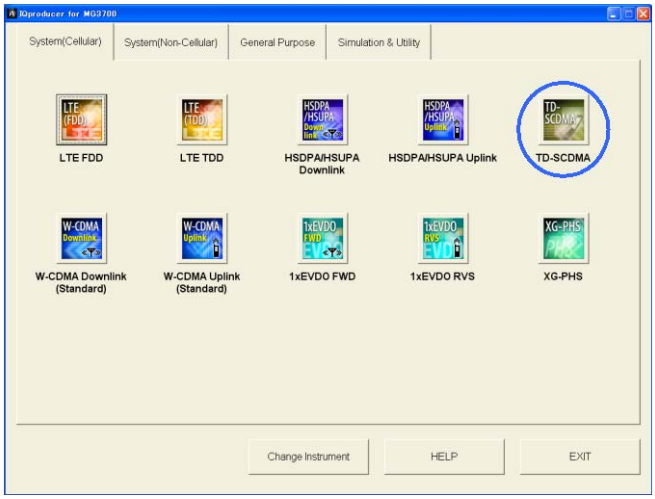

Figure 2.3.1-2 System (Cellular) Selection Screen

5. Click **TD-SCDMA** to display the main screen. For details of the main screen, refer to Chapter 3 “Detailed Description of Functions”.

Note:

If **Change Instrument** is clicked, the **Select instrument** screen will appear each time the software is loaded.

2.3.2 Starting Software: When installed on MG3710A

Start this software using the following procedure.

<Procedure>

1. Press IQpro on the MG3710A front panel to display the common platform screen.

   The common platform screen is a screen used to select each function of the IQproducer™.

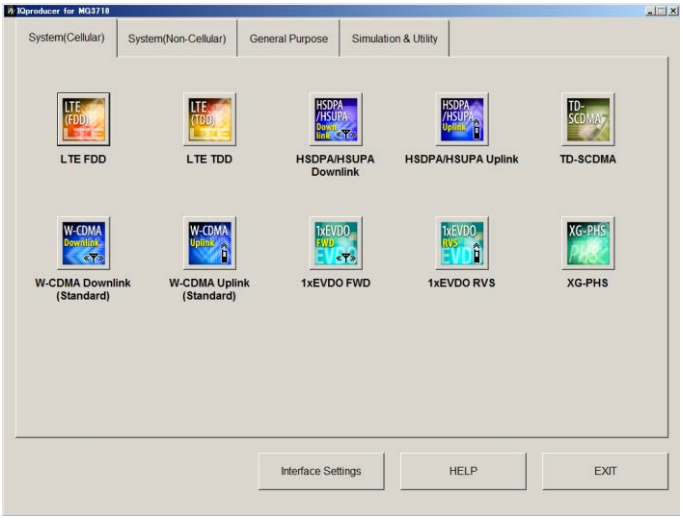

Figure 2.3.2-1 Common Platform Screen

2. Click the **System (Cellular)** tab on the common platform screen, to show the **System (Cellular)** selection screen that supports each telecommunication system.

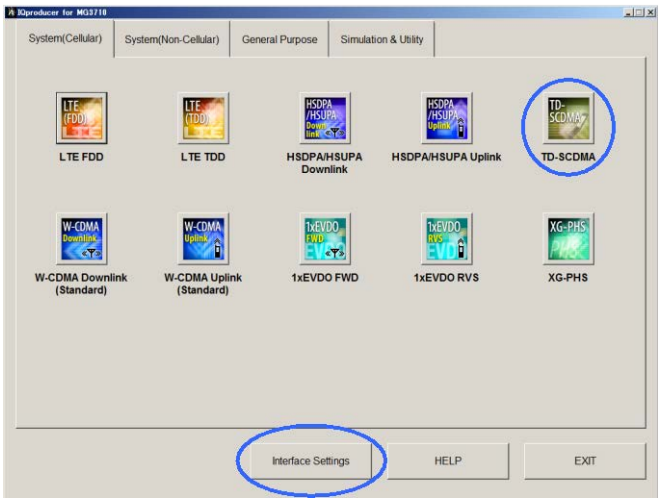

Figure 2.3.2-2 System (Cellular) Selection Screen

3. Click **TD-SCDMA** to display the main screen. For details of the main screen, refer to Chapter 3 "Detailed Description of Functions".

Note:

Clicking **Interface Settings** displays the Interface Setting dialog box.

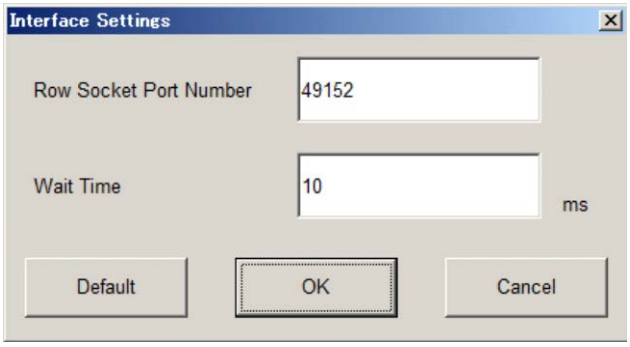

Figure 2.3.2-3 Interface Settings Dialog Box

Here, you can configure interface-related settings of IQproducer and MG3710A. To return to factory defaults, click **Default**.

- Row Socket Port Number

  Sets Row Socket port number. Set the same value as that for MG3710A.

- Wait Time

  Sets the wait time between commands.

2.3.3 Exiting Software

Stop this software using the following procedure.

■When exiting only this software

To exit only this software without closing the Common Platform screen, or other IQproducer™ tools, do one of these below:

- Click the Exit button ( ) on the tool bar.
- Select Exit from the File menu.
- Click the ☒ button on the upper right screen.

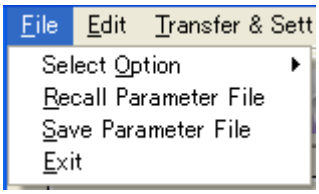

Figure 2.3.3-1 Exiting Software

The operation of the three screen buttons is explained below.

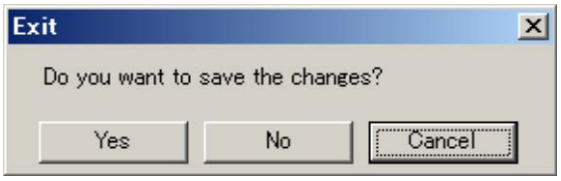

Figure 2.3.3-2 Exit Confirmation Window

- **Yes** Saves current parameters to file and stops this software.
- **No** Stops this software without saving current parameters to file.
- **Cancel** or ☒ Cancels the process and returns to the main screen.

When stopping this software using the **Yes** button, the saved parameters are read at the next start and reset for each parameter.

■When exiting entire IQproducer™ application

To exit all tools of IQproducer™ that are running, select **Exit** on the Common Platform Screen. In this case, a dialog is displayed to confirm stopping of each running tool.

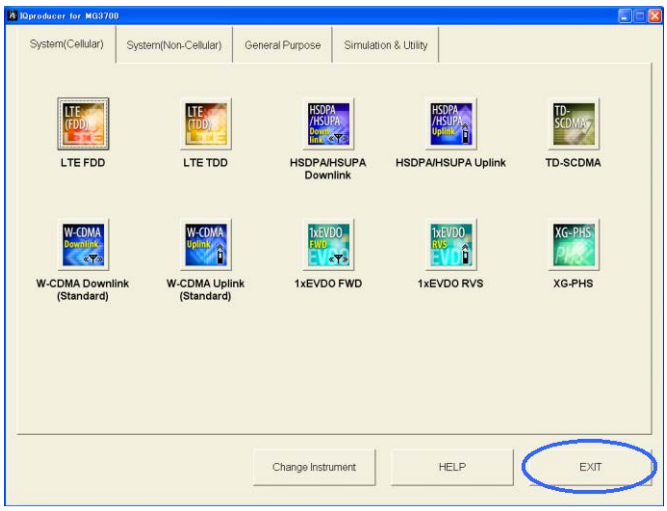

Figure 2.3.3-3 Exiting IQproducer™

Chapter 3 Detailed Description of Functions

This chapter provides detailed descriptions of this software.

Notes:

- The examples and screens used throughout this chapter are based on the assumption that the IQproducer™ is activated with the MG3700A.
- The MG3710A, MS2690A/MS2691A/MS2692A, and MS2830A functions are described as notes in each item.

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3.1 Screen Details

3.1.1 Menu and tool buttons

On common platform screen, click the **System (Cellular)** tab, and then select **TD-SCDMA** to display the main screen.

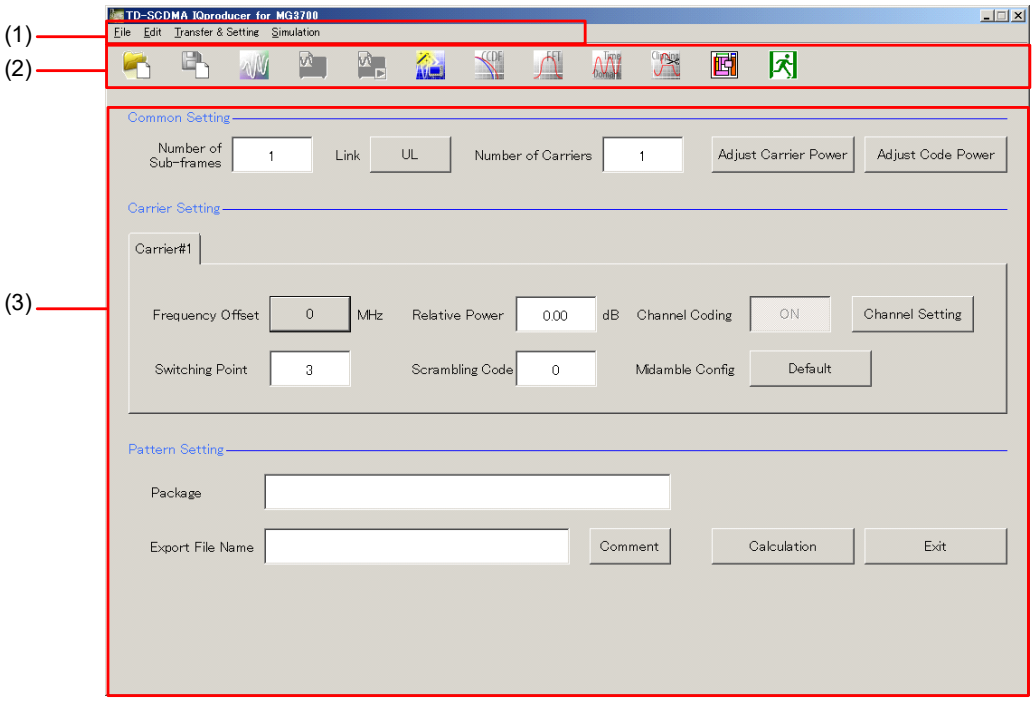

Figure 3.1.1-1 TD-SCDMA Main Screen

(1) Menu bar — Opens **File**, **Edit**, **Transfer & Setting**, **Simulation** menus.

(2) Tool Bar — Displays the icons corresponding to the same functions as the menu items.

(3) Parameter setting

Common Setting, **Carrier Setting**, and **Pattern Setting** parameters can be set here.

Note:

When this software is running on MG3710A, the **Calculation** button in the **Pattern Setting** field changes to **Calculation**, and the **Exit** button changes to **Calculation & Play**, respectively.

■ Basic operation of the main screen

The main screen operates as described below when this software is running on equipment other than MG3710A.

- The window size can be minimized or maximized.
- If the tool bar is omitted due to the reduced window, the omitted toolbar is indicated as a symbol.
- The items in italic cannot be changed. These items are automatically set. The state of an item can be changed depending on the setting of other items.
- The items indicated in gray characters are parameters independent of waveform patterns generated at that time, and therefore cannot be changed. However, their states can be changed depending on the setting of other items.

■ Screen transition

Figure 3.1.1-2 shows transition from the main screen that is displayed when the TD-SCDMA IQproducer™ is started up to other screens (Export File, Calculation, and Sub-frame Structure screens). For the details of each screen, refer to the description under the relevant screen.

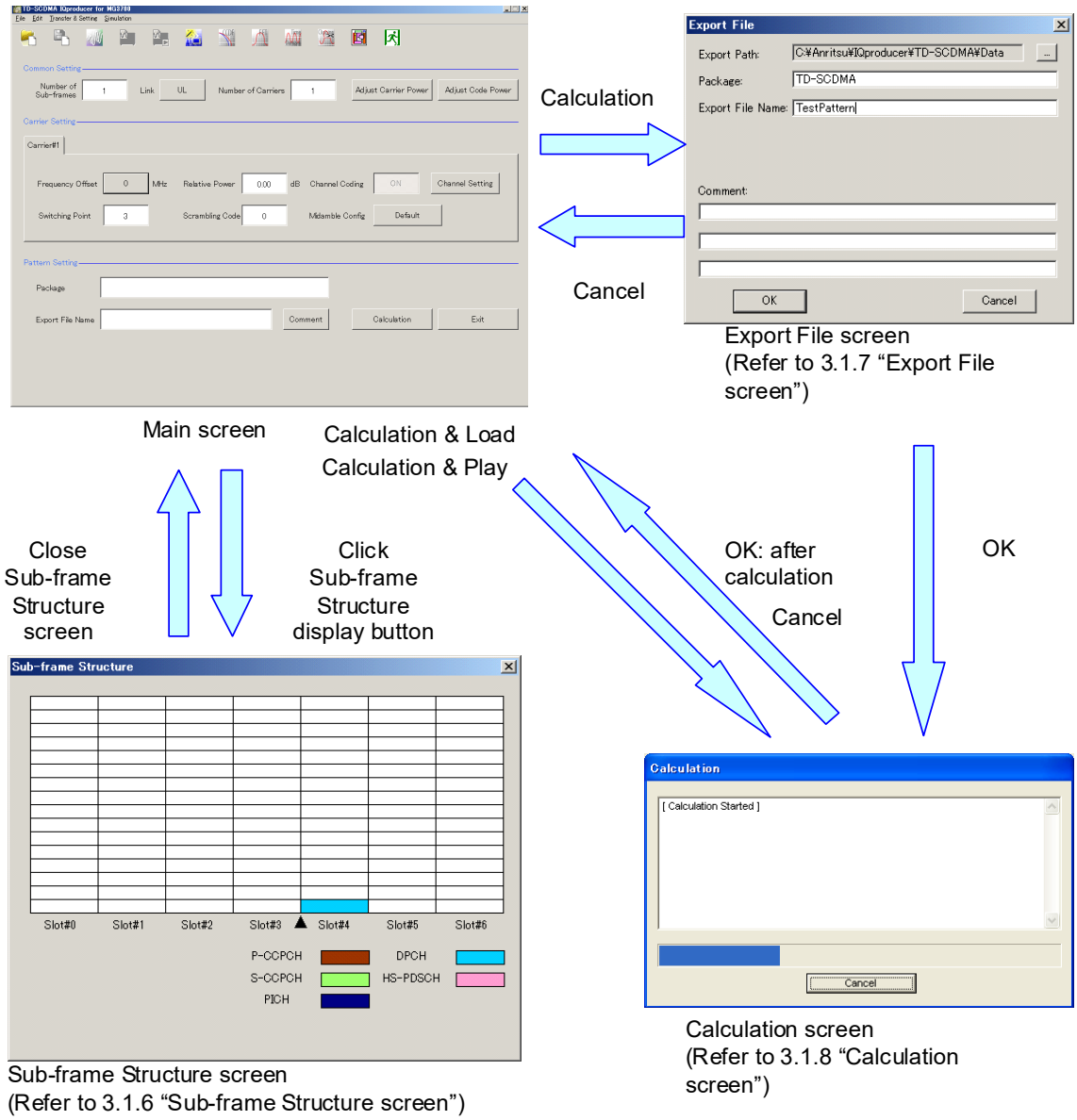

Figure 3.1.1-2 Screen Transition

Note:

When this software is running on MG3710A, the **Calculation** button in the **Pattern Setting** field changes to **Calculation & Load**, and the **Exit** button changes to **Calculation & Play**, respectively.

■**File** menu

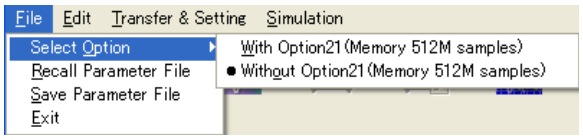

Figure 3.1.1-3 File menu

- Select Option

Notes:

- This function is available only when **MG3700**, **MG3710** or **MS2830** is selected in the **Select instrument** screen.
- ARB Memory Expansion (option) is not available for MS269xA. Only Memory 256M samples, 1 GB is available.

■ When using MG3700A or MS2830A

Select whether the ARB memory expansion option 256Msamples is installed. Selecting **With Option21 (Memory 512M samples)/With Option27 (Memory 256M samples)** supports creation of larger waveform patterns. If the ARB memory expansion option is not installed, the generated waveform pattern may not be able to be used. Waveform patterns cannot be created with a size greater than 256Msamples or 64M samples when **Without Option21 (Memory 512M samples)/Without Option27 (Memory 256M samples)** is selected. Select either according to the presence of ARB memory expansion option.

Table 3.1.1-1 Available Options for MG3700A or MS2830A

Model	Items	ARB Memory Expansion
MG3700A	With Option21 (Memory 512M samples)	1 GB × 2 Memories
	Without Option21 (Memory 512M samples):	512 MB × 2 Memories
MS2830A	With Option27 (Memory 256M samples)	1 GB
	Without Option27 (Memory 256M samples)	256 MB

■ When using MG3710A

The presence/absence of the ARB Memory Expansion (option) and Baseband Signal Combination Function (option) is selected. Selecting the ARB Memory Expansion (option) and the Baseband Signal Combination Function (option) generates a bigger waveform pattern, while selecting the Baseband Signal Combination Function (option) generates a waveform pattern. If an uninstalled option is selected, sometimes the created waveform pattern may not be usable.

Set the combination of installed options based on the following setting items.

Table 3.1.1-2 Available Options for MG3710A

Items	Combinations of Options
Memory 64M samples	None
Memory 64M samples × 2	Option48 and Option 78
Memory 256M samples	Option45 or Option 75
Memory 256M samples × 2	Option 45 and Option 48 or Option 75 and Option 78
Memory 1024M samples	Option46 or Option 76
Memory 1024M samples × 2	Option 46 and Option 48 or Option 76 and Option 78

The maximum size of the generated waveform pattern for each of the setting items is shown below.

Table 3.1.1-3 Waveform Pattern Maximum Size

Items	Maximum Size
Memory 64M samples	64M samples
Memory 64M samples × 2 (With Option48, 78)	128M samples
Memory 256M samples	256M samples
Memory 256M samples × 2 (With Option48, 78)	512M samples
Memory 1024M samples	512M samples
Memory 1024M samples × 2 (With Option48, 78)	512M samples

- Recall Parameter File
  Recalls the parameter file that has been saved with **Save Parameter File**. Once the parameter files is recalled, the settings that were valid when the parameter file was saved are restored.
  Refer to 3.3 "Saving/reading parameters" for details.
- Save Parameter File
  Saves the current settings in the parameter file.
  Refer to 3.3 "Saving/reading parameters" for details.
- Exit
  Exits the IQproducer™.

■**Edit** menu

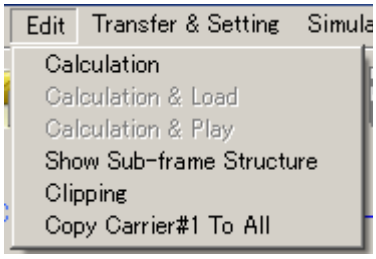

Figure 3.1.1-4 Edit menu

- Calculation
  Performs waveform pattern generation.
  Refer to 3.1.7 "Export File screen" for details.
- Calculation & Load
  Note:

  This function is available only when this software is used on MG3710A.

  After waveform generation is finished, the created waveform pattern is loaded into the MG3710A waveform memory.

- Calculation & Play
  Note:

  This function is available only when this software is used on MG3710A.

  After waveform generation is finished, the created waveform pattern is loaded and selected at the MG3710A waveform memory.

- Show Sub frame Structure
  Starts Sub-frame Structure screen.
  Refer to 3.1.6 “Sub-frame Structure screen” for details.
- Clipping
  Displays the Clipping screen. In this screen, clipping and filtering processing can be performed for a generated waveform pattern.
- Copy Carrier#1 To All
  Copies the settings of Carrier#1 to all other carriers.

■Transfer & Setting menu

Figure 3.1.1-5 Transfer & Setting Menu

- Transfer & Setting Wizard
  Note:
  This function is available only when **MG3700** or **MG3710** is selected in the Select instrument screen.

  The Transfer & Setting Wizard screen is displayed. This screen is used to connect a PC to MG3700A/MG3710A, transfer waveform patterns to MG3700A/MG3710A, and generate waveform patterns in a desired waveform memory of MG3700A/MG3710A.

■Simulation menu

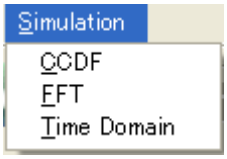

Figure 3.1.1-6 Simulation Menu

- CCDF
  Displays the CCDF Graph Monitor screen. The CCDF of a generated waveform pattern is displayed in a graph.
- FFT
  Displays the FFT Graph Monitor screen. The spectrum where FFT processing is performed for a generated waveform pattern is displayed in a graph.

- Time Domain
  Displays the Time Domain screen. In this screen, the time domain waveform of a generated waveform pattern is displayed in a graph.

■Tool Bar

Notes:

- Transfer&Setting Wizard is available only when **MG3700** or **MG3710** is selected in the **Select instrument** screen.
- Calculation & Load and Calculation & Play are available only when this software is used on MG3710A.

Recall Parameter File

Save Parameter File

Calculation

Calculation & Load

Calculation & Play

Transfer & Setting Wizard

CCDF

FFT

Time Domain

Clipping

Sub-frame Structure

Exit

Clicking a tool button operates the same as the corresponding commands in the menu.

3.1.2 Common Setting

The parameters of this software are divided into three: Common Setting, Carrier Setting, and Pattern Setting.
The Carrier Setting tabs are displayed correspond to the value set by Number of Carriers in Common Setting.

Number of sub-frames

[Overview] Sets the number of sub-frames.

[Default] 1

[Setting range] See the table below

Table 3.1.2-1 Number Of Sub-Frames (Upper Limit)

<table>
<tr><th>Instru-ment</th><th>Number of Carriers</th><th colspan="6">Select Option</th></tr>
<tr><td rowspan="4">MG3700</td><td>Memory Option</td><td colspan="3">Without
Option 21(Memory 512Msamples)</td><td colspan="3">With
Option 21(Memory 512Msamples)</td></tr>
<tr><td>1</td><td colspan="3">10485</td><td colspan="3">20971</td></tr>
<tr><td>2</td><td colspan="3">5242</td><td colspan="3">10485</td></tr>
<tr><td>3 to 6</td><td colspan="3">2621</td><td colspan="3">5242</td></tr>
<tr><td rowspan="4">MS269x</td><td>Memory</td><td colspan="3">256 Msamples</td><td colspan="3">---</td></tr>
<tr><td>1</td><td colspan="3">10485</td><td colspan="3">---</td></tr>
<tr><td>2</td><td colspan="3">5242</td><td colspan="3">---</td></tr>
<tr><td>3 to 6</td><td colspan="3">2621</td><td colspan="3">---</td></tr>
<tr><td rowspan="4">MS2830</td><td>Memory Option</td><td colspan="3">Without
Option 27 (Memory 256Msamples)</td><td colspan="3">With
Option 27 (Memory 256Msamples)</td></tr>
<tr><td>1</td><td colspan="3">2621</td><td colspan="3">10485</td></tr>
<tr><td>2</td><td colspan="3">1310</td><td colspan="3">5242</td></tr>
<tr><td>3 to 6</td><td colspan="3">655</td><td colspan="3">2621</td></tr>
<tr><td rowspan="6">MG3710</td><td>Memory Option</td><td colspan="2">Without
Memory Option</td><td colspan="2">With
Option 45, 75</td><td colspan="2">With
Option 46, 76</td></tr>
<tr><td>Combination of Baseband Signal Option</td><td>Without Option 48, 78</td><td>With Option 48, 78</td><td>Without Option 48, 78</td><td>With Option 48, 78</td><td>Without Option 48, 78</td><td>With Option 48, 78</td></tr>
<tr><td>Memory</td><td>64 M samples</td><td>64 M samples × 2</td><td>256 M samples</td><td>256 M samples × 2</td><td>1024 M samples</td><td>1024 M samples × 2</td></tr>
<tr><td>1</td><td>2621</td><td>5242</td><td>10485</td><td>20971</td><td>20971</td><td>20971</td></tr>
<tr><td>2</td><td>1310</td><td>2621</td><td>5242</td><td>10485</td><td>10485</td><td>10485</td></tr>
<tr><td>3 to 6</td><td>655</td><td>1310</td><td>2621</td><td>5242</td><td>5242</td><td>5242</td></tr>
</table>

Link

[Overview] Sets DL or UL.

[Default] UL

[Options] UL, DL

[Remarks] When the setting is changed, all the parameters associated with Channel Setting are initialized.

Number of Carriers

[Overview] Sets number of carriers.

[Default] 1

[Setting range] 1 to 6

[Remarks] The upper limits of Number of sub-frames are different between when the number of carriers is less than four and when it is four or more.

Adjust Carrier Power

[Overview] Adjusts Relative Power of each Carrier so that the maximum value of Relative Power is 0.00 dB.

Adjust Code Power

[Overview] Adjusts each Carrier so that the maximum value of the channel Power is 0.00 dB.

3.1.3 Carrier Setting

The Carrier Setting tabs are displayed correspond to the value set by Number of Carriers in Common Setting. The same parameters are displayed regardless of selected Carrier tab.

Frequency Offset

[Overview] Sets carrier frequency offset.
[Default] 0
[Options] –4.0, –3.2, –2.4, –1.6, –0.8, 0, +0.8, +1.6, +2.4, +3.2, +4.0
[Unit] MHz
[Remarks] The frequency offset range of selectable carrier varies according to the setting of Number of Carriers.

Relative Power

[Overview] Sets the level ratio of selected carrier.
[Default] 0.00 dB
[Setting range] –40.00 to 0.00 dB, setting resolution: 0.01 dB

Channel Coding

[Overview] Enables/disables channel coding.
[Default] Link = DL: OFF
Link = UL: ON
[Setting range] This parameter is fixed and cannot be altered.

Switching Point

[Overview] Sets a Switching Point position (switching timing between DL and UL).
[Default] 3
[Setting range] 1 to 6 (This is set after Time Slot with the same value.)
[Remarks] When Link is DL, a value beyond Time Slot (later in time) where Channel is already allocated cannot be set to Switching Point.
When Link is UL, a value smaller than Time Slot (earlier in time) where Chanel is already allocated cannot be set to Switching Point.

Scrambling Code

[Overview] Sets the scrambling code.
[Default] 0
[Setting range] 0 to 127

Midamble Config

[Overview]	Displays the Midamble Config.
[Default]	Default
[Options]	Default, Common, UE Specification
[Remarks]	You cannot select Common when Link is UL.

3.1.4 Channel Setting

Click **Channel Setting** to edit downlink channel (when **DL** is set for **Link** under Common Setting) or uplink channel (when **UL** is set for **Link** under Common Setting), respectively. Both downlink/uplink channel can be configured for each carrier. In Channel Setting tab, click **OK** to apply the edited parameter. Click **Cancel** to discard the change and close the screen.

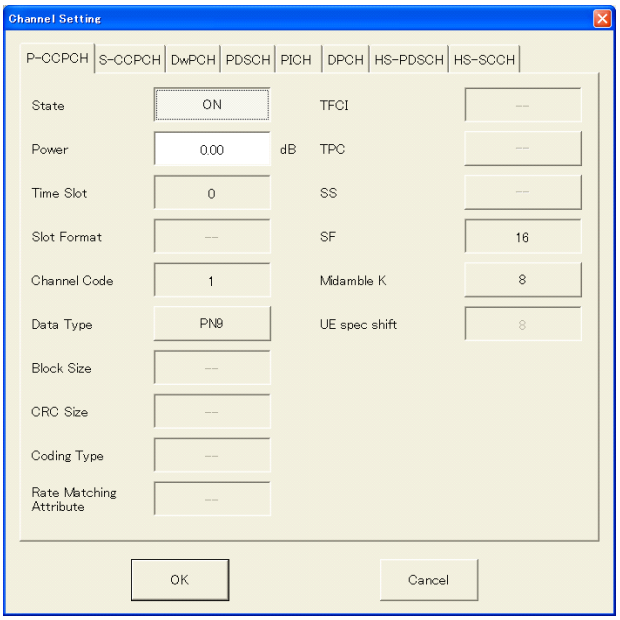

Figure 3.1.4-1 Channel Setting (Link = DL)

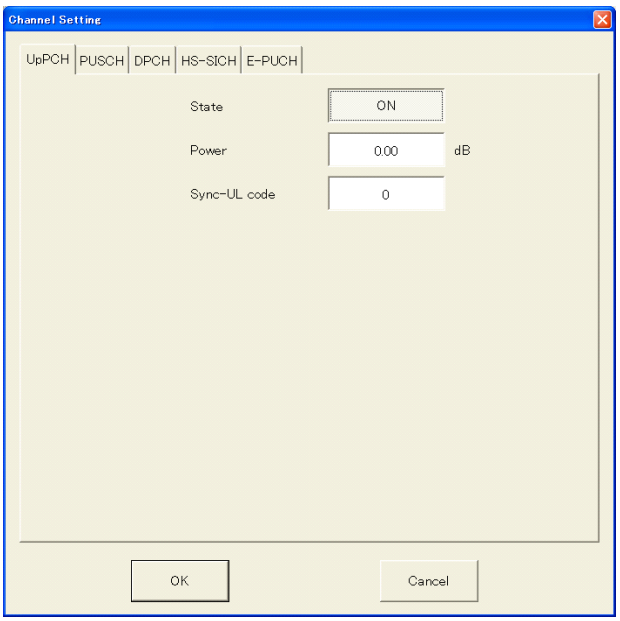

Figure 3.1.4-2 Channel Setting (Link = UL)

3.1.4.1 When Link is DL

In the Common Setting dialog box, the following tabs are displayed when **DL** is set for **Link**.

- P-CCPCH
- S-CCPCH
- DwPCH
- PDSCH
- PICH
- DPCH
- HS-PDSCH
- HS-SCCH

What follows below is the breakdown of each setting item.

Note:

Note that some setting items cannot be configured in relation to other channels' settings.

P-CCPCH

When P-CCPCH tab is selected, the following items will be displayed.

State

[Overview] Turns On/Off the channel.
[Default] ON
[Options] ON, OFF
[Remarks] Parameter other than State cannot be set when State is OFF.

Power

[Overview] Sets channel power.
[Default] 0.00 dB
[Setting range] –40.00 to 0.00 dB, Resolution 0.01 dB

Time Slot

[Overview] Displays the position of Time Slot to be allocated.
[Default] 0

Slot Format

[Overview] Displays the slot format.
[Default] 16

Channel Code

[Overview] Displays the Channelization Code.

[Default] 1

Data Type

[Overview] Sets the data type to be mapped to channel.

[Default] PN9

[Options] PN9, PN15, All0, All1, User File

[Remarks] The default pattern values of PN9 and PN15 are same in a given channel, but they are different channel by channel.

Block Size

[Overview] Displays the block size of information data.

[Default] 246

CRC Size

[Overview] Displays the CRC size (bit count) to add to Information Data.

[Default] 16 bits

Coding Type

[Overview] Displays the channel coding type.

[Default] Convolution-1/3

Rate Matching Attribute

[Overview] Displays the Rate Matching attribute.

[Default] 256

TFCI

[Overview] Displays the TFCI (Transport Format Combination Indicator).

[Remarks] There is no TFCI value of P-CCPCH.

TPC

[Overview] Displays the TPC (Transmitter Power Control).

[Remarks] There is no TPC value of P-CCPCH.

SS

[Overview] Displays the synchronization shift parameter.

[Remarks] There is no SS value of P-CCPCH.

Midamble K

[Overview] Sets the Midamble K value.

[Default] 8

[Options] 2, 4, 6, 8, 10, 12, 14, 16

UE spec shift

[Overview] Sets the UE spec shift value.

[Default] 8

[Setting range] 1 to Midamble K

[Remarks] Available only when UE specification is selected for Midamble Config of Carrier Setting.

SF

[Overview] Displays the spreading factor.

[Default] 16

S-CCPCH

When S-CCPCH tab is selected, the following items will be displayed.

State

[Overview] Turns On/Off the channel.

[Default] OFF

[Options] ON, OFF

[Remarks] Parameter other than State cannot be set when State is OFF.

Power

[Overview] Sets channel power.

[Default] 0.00 dB

[Setting range] –40.00 to 0.00 dB, Resolution 0.01 dB

Time Slot

[Overview] Sets the position of Time Slot to be allocated.

[Default] 0

[Setting range] 0, 2 to 6

[Remarks] The location of placeable Time Slot changes according to Switching Point setting.

Data Type

[Overview] Sets the data type to be mapped to channel.

[Default] PN9

[Options] PN9, PN15, All0, All1, User File

[Remarks] The default pattern values of PN9 and PN15 are same in a given channel, but they are different channel by channel.

Channel Code

[Overview] Sets the Channelization Code.

[Default] 3

[Setting range] 1 to 15

Slot Format

[Overview] Sets the slot format.

[Default] 0

[Setting range] 0 to 9

TFCI

[Overview] Sets the TFCI (Transport Format Combination Indicator).

[Default] 0

[Setting range] 0 to 1023

[Remarks] The setting range changes according to the Slot Format.

TPC

[Overview] Sets the TPC (Transmitter Power Control).

[Default] All 0

[Options] Repeat 101010, Repeat 010101, All 0, All 1, User File

[Remarks] Available when the Slot Format is 5 to 9.

SS

[Overview] Sets the synchronization shift parameter.

[Default] All 0

[Options] Repeat 101010, Repeat 010101, All 0, All 1, User File

[Remarks] Available when the Slot Format is 5 to 9.

SF

[Overview] Displays the spreading factor.

[Default] 16

Block Size

[Overview] Sets the block size of information data.

[Default] 246

[Setting range] 1 to 5000

CRC Size

[Overview] Sets the CRC size (bit count) to add to Information Data.

[Default] 16 bits

[Options] 8bits, 12bits, 16bits, 24bits

Coding Type

[Overview] Sets the channel coding type.

[Default] Convolution-1/3

[Options] Convolution-1/2, Convolution-1/3, Turbo-1/3

Rate Matching Attribute

[Overview] Displays the Rate Matching attribute.

[Default] 256

Midamble K

[Overview] Sets the Midamble K value.

[Default] 8

[Options] 2, 4, 6, 8, 10, 12, 14, 16

UE spec shift

[Overview] Sets the UE spec shift value.

[Default] 8

[Setting range] 1 to Midamble K

[Remarks] Available only when UE specification is selected for Midamble Config of Carrier Setting.

DwPCH

When DwPCH tab is selected, the following items will be displayed.

State

[Overview] Turns On/Off the channel.

[Default] ON

[Options] ON, OFF

[Remarks] Parameter other than State cannot be set when State is OFF.

Power

[Overview] Sets channel power.

[Default] 0.00 dB

[Setting range] –40.00 to 0.00 dB, Resolution 0.01 dB

Sync-DL code

[Overview] Displays the SYNC code at Downlink .

[Remarks] It is auto-calculated from the Scrambling Code of Carrier Setting.

PDSCH

When PDSCH tab is selected, the following items will be displayed.

State

[Overview] Turns On/Off the channel.

[Default] OFF

[Options] ON, OFF

[Remarks] Parameter other than State cannot be set when State is OFF.

Power

[Overview] Sets channel power.

[Default] 0.00 dB

[Setting range] –40.00 to 0.00 dB, Resolution 0.01 dB

Time Slot

[Overview] Sets the position of Time Slot to be allocated.

[Default] 0

[Setting range] 0, 2 to 6

[Remarks] The location of placeable Time Slot changes according to Switching Point setting.

Data Type

[Overview] Sets the data type to be mapped to channel.

[Default] PN9

[Options] PN9, PN15, All0, All1, User File

[Remarks] The default pattern values of PN9 and PN15 are same in a given channel, but they are different channel by channel.

Channel Code

[Overview] Sets the Channelization Code.

[Default] 1

[Setting range] 1 to SF

Slot Format

[Overview] Sets the slot format.

[Default] 0

[Setting range] 0 to 24

TFCI

[Overview] Sets the TFCI (Transport Format Combination Indicator).

[Default] 0

[Setting range] 0 to 1023

[Remarks] The setting range changes according to the Slot Format.

TPC

[Overview] Sets the TPC (Transmitter Power Control).

[Default] All 0

[Options] Repeat 101010, Repeat 010101, All 0, All 1, User File

[Remarks] Available when the Slot Format is 5 to 9 or 15 to 24.

SS

[Overview] Sets the synchronization shift parameter.

[Default] All 0

[Options] Repeat 101010, Repeat 010101, All 0, All 1, User File

[Remarks] Available when the Slot Format is 5 to 9 or 15 to 24.

SF

[Overview] Displays the spreading factor.

[Default] 1, 16

[Remarks] SF is automatically set according to the Slot Format when the Channel Coding is ON.

Block Size

[Overview] Sets the block size of information data.

[Default] 246

[Setting range] 1 to 5000

CRC Size

[Overview] Sets the CRC size (bit count) to add to Information Data.

[Default] 16bits

[Options] 8bits, 12bits, 16bits, 24bits

Coding Type

[Overview] Sets the channel coding type.

[Default] Convolution-1/3

[Options] Convolution-1/2, Convolution-1/3, Turbo-1/3

Rate Matching Attribute

[Overview] Displays the Rate Matching attribute.

[Default] 256

Midamble K

[Overview] Sets the Midamble K value.

[Default] 16

[Options] 2, 4, 6, 8, 10, 12, 14, 16

UE spec shift

[Overview] Sets the UE spec shift value.

[Default] 16

[Setting range] 1 to Midamble K

[Remarks] Available only when UE specification is selected for Midamble Config of Carrier Setting.

PICH

When PICH tab is selected, the following items will be displayed.

State

[Overview] Turns On/Off the channel.

[Default] OFF

[Options] ON, OFF

[Remarks] Parameter other than State cannot be set when State is OFF.

Power

[Overview] Sets channel power.

[Default] 0.00 dB

[Setting range] –40.00 to 0.00 dB, Resolution 0.01 dB

Time Slot

[Overview] Sets the position of Time Slot to be allocated.

[Default] 6

[Setting range] 0, 2 to 6

[Remarks] The location of placeable Time Slot changes according to Switching Point setting.

Channel Code

[Overview] Sets the Channelization Code.

[Default] 1

[Setting range] 1 to 15

Data Type

[Overview] Sets the data type to be mapped to channel.

[Default] PN9

[Options] PN9, PN15, All0, All1, User File

[Remarks] The default pattern values of PN9 and PN15 are same in a given channel, but they are different channel by channel.

Slot Format

[Overview] Displays the slot format.

[Default] 0

Midamble K

[Overview] Sets the Midamble K value.

[Default] 16

[Options] 2, 4, 6, 8, 10, 12, 14, 16

UE spec shift

[Overview] Sets the UE spec shift value.

[Default] 16

[Setting range] 1 to Midamble K

[Remarks] Available only when UE specification is selected for Midamble Config of Carrier Setting.

SF

[Overview] Displays the spreading factor.

[Default] 16

DPCH

When DPCH tab is selected, the following items will be displayed.

Number of RMC

[Overview] Sets the number of RMC.

[Default] 1

[Setting range] 1 to 8

RMC

[Overview] Sets the RMC number, which edits detailed parameter.
[Default] 1
[Setting range] 1 to Number of RMC

The following items are displayed for each RMC, and can be configured for each RMC.

State

[Overview] Turns On/Off the channel.
[Default] ON
[Options] ON, OFF
[Remarks] Parameter other than State of each RMC cannot be set when State is OFF.

Power

[Overview] Sets channel power.
[Default] 0.00 dB
[Setting range] –40.00 to 0.00 dB, Resolution 0.01 dB

RMC Type

[Overview] Displays the RMC type.
[Default] 12.2 kbps

Time Slot

[Overview] Sets the position of Time Slot to be allocated.
[Default] Switching Point + 1
However, 0 when Switching Point = 6.
[Setting range] 0, 2 to 6
[Remarks] The location of placeable Time Slot changes according to Switching Point setting.

Channel Code

[Overview] Sets the Channelization Code.
[Default] 1
[Setting range] 1 to SF

DTCH Data Type

[Overview] Sets the data type to be mapped to channel.

[Default] PN9

[Options] PN9, PN15, All0, All1, User File

[Remarks] The default pattern values of PN9 and PN15 are same in a given channel, but they are different channel by channel.

DTCH Rate Matching Attribute

[Overview] Sets the Rate Matching attribute of DTCH.

[Default] 256

[Setting range] 0 to 256

DCCH Data Type

[Overview] Sets the data type to be mapped to DCCH.

[Default] PN9

[Options] PN9, PN15, All0, All1, User File

[Remarks] The default pattern values of PN9 and PN15 are same in a given channel, but they are different channel by channel.

DCCH Rate Matching Attribute

[Overview] Sets the Rate Matching attribute of DCCH.

[Default] 256

[Setting range] 0 to 256

SF

[Overview] Sets the spreading factor.

[Default] 16

[Options] 1, 16

TFCI

[Overview] Sets the TFCI (Transport Format Combination Indicator).

[Default] 0

[Setting range] 0 to 31

TPC

[Overview] Sets the TPC (Transmitter Power Control).

[Default] All 0

[Options] Repeat 101010, Repeat 010101, All 0, All 1, User File

[Remarks] Available when the Slot Format is 5 to 9.

SS

[Overview] Sets the synchronization shift parameter.
[Default] All 0
[Options] Repeat 101010, Repeat 010101, All 0, All 1, User File
[Remarks] Available when the Slot Format is 5 to 9.

Midamble Config

[Overview] Displays the Midamble Config.
[Remarks] The Midamble Config value set in Carrier Setting will be displayed.

Midamble K

[Overview] Sets the Midamble K value.
[Default] 16
[Options] 2, 4, 6, 8, 10, 12, 14, 16

UE spec shift

[Overview] Sets the UE spec shift value.
[Default] 16
[Setting range] 1 to Midamble K
[Remarks] Available only when UE specification is selected for Midamble Config of Carrier Setting.

Number of DPCH per TS

[Overview] Sets the number of DPCH per each time slot.
[Default] 1
[Setting range] 1 to (SF – Channel Code + 1)

Block Size

[Overview] Displays the block size of information data.
[Default] 244

HS-PDSCH

When HS-PDSCH tab is selected, the following items will be displayed.

HSPA RMC Type

[Overview] Sets the RMC type.
[Default] RMC 0.5 Mbps
[Options] RMC 0.5 Mbps, RMC 1.1 Mbps, RMC 1.6 Mbps, RMC 2.2 Mbps, RMC 2.8 Mbps, RMC 48kbps
[Remarks] RMC 48 kbps is available only when the Number of Carriers is 2 or more.

State

[Overview] Turns On/Off the channel.

[Default] ON

[Options] ON, OFF

[Remarks] Parameter other than State cannot be set when State is OFF.

Power

[Overview] Sets channel power.

[Default] 0.00 dB

[Setting range] –40.00 to 0.00 dB, Resolution 0.01 dB

Time Slot

[Overview] Sets the position of Time Slot to be allocated.

[Default] Time Slot with the smallest number that can be allocated.

[Setting range] 0, 2 to 6

[Remarks] The location of placeable Time Slot changes according to Switching Point setting.

Channel Code

[Overview] Sets the Channelization Code.

[Default] 1

[Setting range] 1 to SF

Slot Format

[Function] Sets the slot format.

[Default] 0

[Setting range] 0 to 1

[Remarks] The Slot Format is 0 (Fixed) when the HSPA RMC Type is RMC 0.5 Mbps.

Data Type

[Overview] Sets the data type to be mapped to channel.

[Default] PN9

[Options] PN9, PN15, All0, All1, User File

[Remarks] The default pattern values of PN9 and PN15 are same in a given channel, but they are different channel by channel.

Redundancy Version Parameter

[Overview] Sets the Redundancy Version.

[Default] 0

[Setting range] 0 to 7

Midamble K

[Overview] Sets the Midamble K value.

[Default] 16

[Options] 2, 4, 6, 8, 10, 12, 14, 16

UE spec shift

[Overview] Sets the UE spec shift value.

[Default] 16

[Setting range] 1 to Midamble K

[Remarks] Available only when UE specification is selected for Midamble Config of Carrier Setting.

N_IR

[Overview] Sets the IR Buffer size.

[Default] 7060

[Setting range] 2788 to 84480

UE ID

[Overview] Sets the number of UE ID.

[Default] 0

[Setting range] 0 to 65535

Number of HS-PDSCH per TS

[Overview] Sets the number of HS-PDSCH per each time slot.

[Default] 1

[Setting range] 1 to SF

Number of TS

[Overview] Sets the number of time slots that HS-PDSCH uses.

[Default] 3

[Setting range] 1 to (6 – Switching Point)

SF

[Overview] Sets the spreading factor.

[Default] 16

[Options] 1, 16

Modulation

[Overview] This sets the modulation method of HS-DPCH.

[Default] QPSK

[Options] QPSK, 16QAM, 64QAM

Block Size

[Overview] Displays the block size of information data.

[Default] The following values will be automatically set according to the HSPA RMC Type.
HSPA RMC Type = RMC 48 kbps: 240
HSPA RMC Type = RMC 0.5 Mbps: 996
HSPA RMC Type = RMC 1.1 Mbps: 2893
HSPA RMC Type = RMC 1.6 Mbps: 1787
HSPA RMC Type = RMC 2.2 Mbps: 2695
HSPA RMC Type = RMC 2.8 Mbps: 3105

HS-SCCH

When HS-SCCH tab is selected, the following items will be displayed.

State

[Overview] Turns On/Off the channel.

[Default] OFF

[Options] ON, OFF

[Remarks] Parameter other than State cannot be set when State is OFF.

Power

[Overview] Sets channel power.

[Default] 0.00 dB

[Setting range] –40.00 to 0.00 dB, Resolution 0.01 dB

Time Slot

[Overview] Sets the position of Time Slot to be allocated.

[Default] 0

[Setting range] 0, 2 to 6

[Remarks] The location of placeable Time Slot changes according to Switching Point setting.

Data Type

[Overview] Sets the data type to be mapped to channel.

[Default] PN9

[Options] PN9, PN15, All0, All1, User File

[Remarks] The default pattern values of PN9 and PN15 are same in a given channel, but they are different channel by channel.

Channel Code

[Overview] Sets the Channelization Code.

[Default] 3

[Setting range] 1 to 15

Slot Format

[Overview] Displays the slot format.

[Default] 0, 5

SF

[Overview] Displays the spreading factor.

[Default] 16

TPC

[Overview] Sets the TPC (Transmitter Power Control).

[Default] All 0

[Options] Repeat 101010, Repeat 010101, All 0, All 1, User File

[Remarks] Available when the Slot Format is 5 to 9 or 15 to 24.

SS

[Overview] Sets the synchronization shift parameter.

[Default] All 0

[Options] Repeat 101010, Repeat 010101, All 0, All 1, User File

[Remarks] Available when the Slot Format is 5 to 9 or 15 to 24.

Midamble K

[Overview] Sets the Midamble K value.

[Default] 16

[Options] 2, 4, 6, 8, 10, 12, 14, 16

UE spec shift

[Overview] Sets the UE spec shift value.

[Default] 16

[Setting range] 1 to Midamble K

[Remarks] Available only when UE specification is selected for Midamble Config of Carrier Setting.

3.1.4.2 When Link is UL

In the Common Setting dialog box, the following tabs are displayed when **UL** is set for **Link**.

- UpPCH
- PUSCH
- DPCH
- HS-SICH
- E-PUCH

What follows below is the breakdown of each setting item.

Note:

Note that some setting items cannot be configured in relation to other channels' settings.

UpPCH

When UpPCH tab is selected, the following items will be displayed.

State

[Overview] Turns On/Off the channel.
[Default] ON
[Options] ON, OFF
[Remarks] Parameter other than State cannot be set when State is OFF.

Power

[Overview] Sets channel power.
[Default] 0.00 dB
[Setting range] –40.00 to 0.00 dB, Resolution 0.01 dB

Sync-UL code

[Overview] Displays the SYNC code at Uplink.
[Default] 0
[Setting range] floor (Scrambling Code / 4) × 8
to floor (Scrambling Code / 4) × 8 + 7
Where floor(x) is the function for finding the largest integer that does not exceed x.

PUSCH

When PUSCH tab is selected, the following items will be displayed.

State

[Overview] Turns On/Off the channel.
[Default] OFF
[Options] ON, OFF
[Remarks] Parameter other than State cannot be set when State is OFF.

Power

[Overview] Sets channel power.
[Default] 0.00 dB
[Setting range] –40.00 to 0.00 dB, Resolution 0.01 dB

Time Slot

[Overview] Sets the position of Time Slot to be allocated.
[Default] 2
[Setting range] 1 to 6
[Remarks] The location of placeable Time Slot changes according to Switching Point setting.

Data Type

[Overview] Sets the data type to be mapped to channel.
[Default] PN9
[Options] PN9, PN15, All0, All1, User File
[Remarks] The default pattern values of PN9 and PN15 are same in a given channel, but they are different channel by channel.

Channel Code

[Overview] Sets the Channelization Code.
[Default] 1
[Setting range] 1 to SF

Slot Format

[Overview] Sets the slot format.
[Default] 0
[Setting range] 0 to 69

TFCI

[Overview] Sets the TFCI (Transport Format Combination Indicator).
[Default] 0
[Setting range] 0 to 1023
[Remarks] The setting range changes according to the Slot Format.

TPC

[Overview] Sets the TPC (Transmitter Power Control).
[Default] All 0
[Options] Repeat 101010, Repeat 010101, All 0, All 1, User File
[Remarks] Available when the Slot Format is 5 to 9.

SS

[Overview] Sets the synchronization shift parameter.
[Default] All 0
[Options] Repeat 101010, Repeat 010101, All 0, All 1, User File
[Remarks] Available when the Slot Format is 5 to 9.

SF

[Overview] Displays the spreading factor.
[Default] 16

Block Size

[Overview] Sets the block size of information data.
[Default] 246
[Setting range] 1 to 5000

CRC Size

[Overview] Sets the CRC size (bit count) to add to Information Data.
[Default] 16bits
[Options] 8bits, 12bits, 16bits, 24bits

Coding Type

[Overview] Sets the channel coding type.
[Default] Convolution-1/3
[Options] Convolution-1/2, Convolution-1/3, Turbo-1/3

Rate Matching Attribute

[Overview] Displays the Rate Matching attribute.
[Default] 246

Midamble K

[Overview] Sets the Midamble K value.

[Default] 16

[Options] 2, 4, 6, 8, 10, 12, 14, 16

UE spec shift

[Overview] Sets the UE spec shift value.

[Default] 16

[Setting range] 1 to Midamble K

[Remarks] Available only when UE specification is selected for Midamble Config of Carrier Setting.

DPCH

When DPCH tab is selected, the following items will be displayed.

Number of RMC

[Overview] Sets the number of RMC.

[Default] 1

[Setting range] 1 to 8

RMC

[Overview] Sets the RMC number, which edits detailed parameter.

[Default] 1

[Setting range] 1 to Number of RMC

The following items are displayed for each RMC, and can be configured for each RMC.

State

[Overview] Turns On/Off the channel.

[Default] ON

[Options] ON, OFF

[Remarks] Parameter other than State of each RMC cannot be set when State is OFF.

Power

[Overview] Sets channel power.

[Default] 0.00 dB

[Setting range] –40.00 to 0.00 dB, Resolution 0.01 dB

RMC Type

[Overview] Sets the RMC type.

[Default] 12.2 kbps

[Options] 12.2 kbps, 64 kbps, 144kbps, 384 kbps

[Remarks] 144kps is available when the difference of Switching Point – (Time Slot –1) is 2 or more.
384kps is available when the difference of Switching Point – (Time Slot –1) is 4 or more.

Time Slot

[Overview] Sets the position of Time Slot to be allocated.

[Default] 1

[Setting range] 1 to 6

[Remarks] The location of placeable Time Slot changes according to Switching Point setting.

Channel Code

[Overview] Sets the Channelization Code.

[Default] 1

[Setting range] 1 to SF

[Remarks] The value becomes 1 when RMC Type is 384 kbps.

DTCH Data Type

[Overview] Sets the data type to be mapped to DTCH.

[Default] PN9

[Options] PN9, PN15, All0, All1, User File

[Remarks] The default pattern values of PN9 and PN15 are same in a given channel, but they are different channel by channel.

DTCH Rate Matching Attribute

[Overview] Sets the Rate Matching attribute of DTCH.

[Default] The following values will be automatically set according to the RMC type.
RMC Type = 12.2 kbps: 256
RMC Type = 64 kbps: 175
RMC Type = 144 kbps: 173
RMC Type = 384 kbps: 173

[Setting range] 0 to 256

DCCH Data Type

[Overview] Sets the data type to be mapped to DCCH.

[Default] PN9

[Options] PN9, PN15, All0, All1, User File

[Remarks] The default pattern values of PN9 and PN15 are same in a given channel, but they are different channel by channel.

DCCH Rate Matching Attribute

[Overview] Displays the Rate Matching attribute of DCCH.

[Default] 256

[Setting range] 0 to 256

SF

[Overview] Displays the spreading factor.

[Default] The following values will be automatically set according to the RMC type.
RMC Type = 12.2 kbps: 8
RMC Type = 64 kbps: 2
RMC Type = 144 kbps: 2
RMC Type = 12.2 kbps: 2, 8

TFCI

[Overview] Sets the TFCI (Transport Format Combination Indicator).

[Default] 0

[Setting range] 0 to 31

TPC

[Overview] Sets the TPC (Transmitter Power Control).

[Default] All 0

[Options] Repeat 1010, Repeat 0101, All 0, All 1, User File

[Remarks] A file name is displayed on-screen when User File is selected.

SS

[Overview] Sets the synchronization shift parameter.

[Default] All 0

[Options] Repeat 1010, Repeat 0101, All 0, All 1, User File

[Remarks] A file name is displayed on-screen when User File is selected.

Midamble K

[Overview] Sets the Midamble K value.

[Default] 16

[Options] 2, 4, 6, 8, 10, 12, 14, 16

UE spec shift

[Overview] Sets the UE spec shift value.

[Default] 16

[Setting range] 1 to Midamble K

[Remarks] Available only when UE specification is selected for Midamble Config of Carrier Setting.

Block Size

[Overview] Displays the block size of information data.

[Default] The following values will be automatically set according to the RMC type.
RMC Type = 12.2 kbps: 244
RMC Type = 64 kbps: 1280
RMC Type = 144 kbps: 2880
RMC Type = 384 kbps: 3840

Number of DPCH per TS

[Overview] Sets the number of DPCH per each time slot.

[Default] 1

[Setting range] 1 to (SF – Channel Code + 1)

HS-SICH

When HS-SICH tab is selected, the following items will be displayed.

State

[Overview] Turns On/Off the channel.

[Default] OFF

[Options] ON, OFF

[Remarks] Parameter other than State cannot be set when State is OFF.

Power

[Overview] Sets channel power.

[Default] 0.00 dB

[Setting range] –40.00 to 0.00 dB, Resolution 0.01 dB

Time Slot

[Overview] Sets the position of Time Slot to be allocated.

[Default] 1

[Setting range] 1 to 6

[Remarks] The location of placeable Time Slot changes according to Switching Point setting.

Data Type

[Overview] Sets the data type to be mapped to channel.

[Default] PN9

[Options] PN9, PN15, All0, All1, User File

[Remarks] The default pattern values of PN9 and PN15 are same in a given channel, but they are different channel by channel.

Channel Code

[Overview] Sets the Channelization Code.

[Default] 1

[Setting range] 1 to 16

Slot Format

[Overview] Displays the slot format.

[Default] 5

TPC

[Overview] Sets the TPC (Transmitter Power Control).

[Default] All 0

[Options] Repeat 101010, Repeat 010101, All 0, All 1, User File

[Remarks] Available when the Slot Format is 5 to 9.

SS

[Overview] Sets the synchronization shift parameter.

[Default] All 0

[Options] Repeat 101010, Repeat 010101, All 0, All 1, User File

[Remarks] Available when the Slot Format is 5 to 9.

SF

[Overview] Displays the spreading factor.

[Default] 16

RTBS

[Overview] Sets the recommended transport block size.

[Default] 63

[Setting range] 0 to 63

RMF

[Overview] Sets the recommended modulation format.

[Default] QPSK

[Options] QPSK, 16QAM, 64QAM

ACK/NACK

[Overview] Sets ACK/NACK.

[Default] ACK

[Options] ACK, NACK

Midamble K

[Overview] Sets the Midamble K value.

[Default] 16

[Options] 2, 4, 6, 8, 10, 12, 14, 16

UE spec shift

[Overview] Sets the UE spec shift value.

[Default] 16

[Setting range] 1 to Midamble K

[Remarks] Available only when UE specification is selected for Midamble Config of Carrier Setting.

E-PUCH

When E-PUCH tab is selected, the following items will be displayed.

HSPA RMC Type

[Overview] Sets the RMC type.

[Default] FRC1

[Options] FRC1, FRC2, FRC3, FRC4

State

[Overview] Turns On/Off the channel.

[Default] OFF

[Options] ON, OFF

[Remarks] Parameter other than State cannot be set when State is OFF.

Power

[Overview] Sets channel power.

[Default] 0.00 dB

[Setting range] –40.00 to 0.00 dB, Resolution 0.01 dB

Time Slot

[Overview] Sets the position of Time Slot to be allocated.

[Default] 1

[Setting range] 1 to 6

[Remarks] The location of placeable Time Slot changes according to Switching Point setting.

Data Type

[Overview] Sets the data type to be mapped to channel.

[Default] PN9

[Options] PN9, PN15, All0, All1, User File

[Remarks] The default pattern values of PN9 and PN15 are same in a given channel, but they are different channel by channel.

Channel Code

[Overview] Sets the Channelization Code.

[Default] 1

[Setting range] 1 to SF

SF

[Overview] Displays the spreading factor.

[Default] The following values will be automatically set according to the HSPA RMC Type.
HSPA RMC Type = FRC1: 4
HSPA RMC Type = FRC2: 2
HSPA RMC Type = FRC3: 2
HSPA RMC Type = FRC4: 1

Modulation

[Overview] Sets the Modulation.

[Default] QPSK
The following values will be automatically set according to the HSPA RMC Type when the Channel Coding is On.
HSPA RMC Type = FRC1: QPSK
HSPA RMC Type = FRC2: QPSK
HSPA RMC Type = FRC3: 16QAM
HSPA RMC Type = FRC4: 16QAM

[Setting range] QPSK, 16QAM

[Remarks] Display only when Channel Coding is On.

Block Size

[Overview] Displays the block size of information data.

[Default] The following values will be automatically set according to the HSPA RMC Type.
HSPA RMC Type = FRC1: 282
HSPA RMC Type = FRC2: 1139
HSPA RMC Type = FRC3: 2445
HSPA RMC Type = FRC4: 6406

Number of E-DCH codes per TS

[Overview] Displays the number of E-DCH codes per Time Slot.

[Default] 1

Number of TS

[Overview] Displays the number of E-DCH Time Slot.

[Default] The following values will be automatically set according to the HSPA RMC Type.
HSPA RMC Type = FRC1: 1
HSPA RMC Type = FRC2: 2
HSPA RMC Type = FRC3: 3
HSPA RMC Type = FRC4: 4

Midamble K

[Overview] Sets the Midamble K value.

[Default] 16

[Options] 2, 4, 6, 8, 10, 12, 14, 16

UE spec shift

[Overview] Sets the UE spec shift value.

[Default] 16

[Setting range] 1 to Midamble K

[Remarks] Available only when UE specification is selected for Midamble Config of Carrier Setting.

3.1.5 Pattern Setting

Pattern Setting is used to make settings regarding waveform files.

Package

[Overview] Sets the package.

[Default] TD-SCDMA (when running on MG3710A)

Export File Name

[Overview] Sets the pattern name.

[Default] TestPattern (when running on MG3710A)

Comment

[Overview] Displays the Comment setting screen to make settings.

Calculation & Load button

[Overview] Displays **Calculation & Load** when running on MG3710A. Generates waveform and loads the waveform patterns to memory.
When not running on MG3710A, **Calculation** will display and only the generation of waveform pattern is performed.

Calculation & Play button

[Overview] Displays **Calculation & Play** when running on MG3710A. Generates waveform and loads the waveform patterns to memory. You can then select the waveform pattern to output (playback).
When not running on MG3710A, **Exit** will display and exits this application.

3.1.6 Sub-frame Structure screen

The Sub-frame Structure screen opens when **Show Sub-frame Structure** is selected at the **Edit** menu of the Main screen or when on the Tool bar is clicked.

The Sub-frame Structure screen provides mapping indication of each channel in which RUs (Resource Units) allocated in each channel are color-coded. The screen shows mapping for 7 Slots (1 Sub-frame).

Note that this screen is only for display, and thus cannot be edited.

Each channel is allocated in a cell comprising RUs (Resource Units). The horizontal axis consists of 7 RUs in the Time Slot direction, while the vertical axis consists of 16 RUs in the Channel Code direction.
The allocatable Time Slots are:
Time Slot#1 to Time Slot#SP (SP: Switching Point) when Link is UL, and
Time Slot#0 and Time Slot#SP+1 to Time Slot#6 when Link is DL.
When Channel State is On,
the initial value is the RU with the smallest number Time Slot and the smallest number Channel Code among allocatable RUs. Move to the RU which has been already occupied by another channel is not available.

For the details about how many RUs, Time Slots, and Chanel Codes a single channel occupies, refer to Table 3.1.6-1.

Switching Point=n (n=1, 2, 3, 4, 5, 6) means an interval between Time Slot#n and Time Slot#(n+1). The position of Switching Point is indicated as ▲.

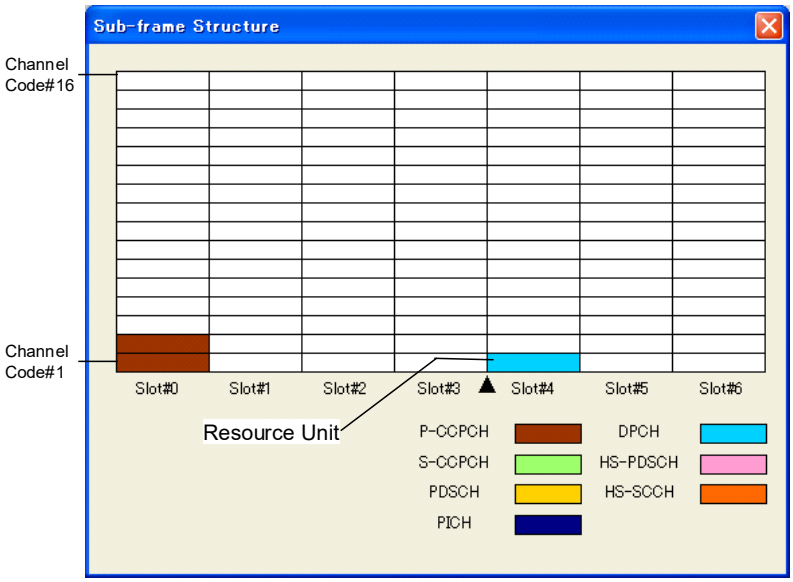

Figure 3.1.6-1 Sub-frame Structure Screen (Link=DL)

Downlink

The RU (Resource Unit) of each channel to be displayed when Link is DL: P-CCPCH, S-CCPCH, PICH, DPCH, HS-PDSCH. DwPCH is not displayed.

Uplink

The RU (Resource Unit) of each channel to be displayed when Link is UL: DPCH. UpPCH is not displayed.

Table 3.1.6-1 The numbers of RUs, Time Slots, and Channel Codes occupied by a single channel

Channel or RMC Type	No. of Time Slot	No. of Channel Code	No. of RU
C-CCPCH	1	2	2
S-CCPCH	1	2	2
PICH	1	2	2
DPCH (Link = DL)	1	Number of DPCH per TS	Number of DPCH per TS
HS-PDSCH	Number of TS	Number of HS-PDSCH per TS	(Number of TS) × (Number of HS-PDSCH per TS)
RMC UL 12.2 kbps	1	2	2
RMC UL 64 kbps	1	8	8
RMC UL 144 kbps	2	8	16
RMC UL 384 kbps	4	10	40

3.1.7 Export File screen

When **Calculation** is selected from the **Edit** menu or the tool button is clicked on the main screen, the Export File screen is displayed. The Export File screen is displayed when generating a waveform pattern. In this screen, the output destination folder, package name, file name, and comment for the waveform pattern to be generated can be specified.

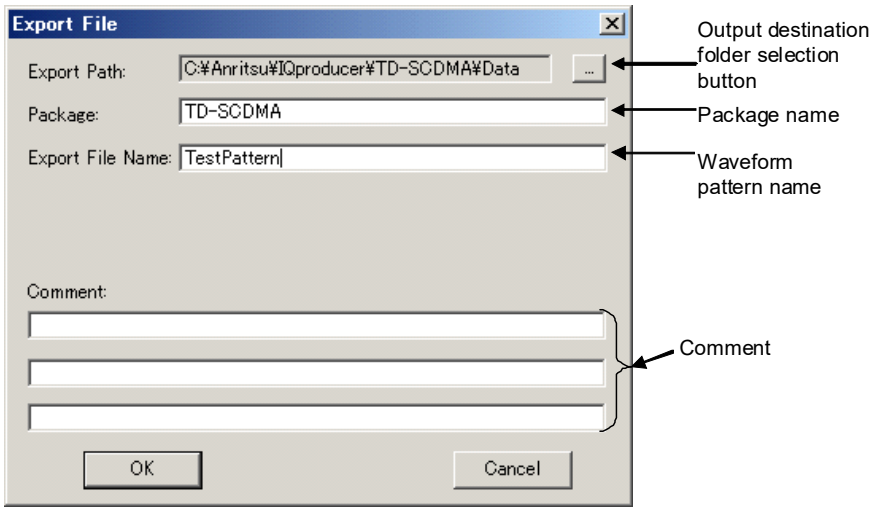

Figure 3.1.7-1 Export File Screen

- Export destination folder

  Click the output destination folder selection button to select an export destination folder.

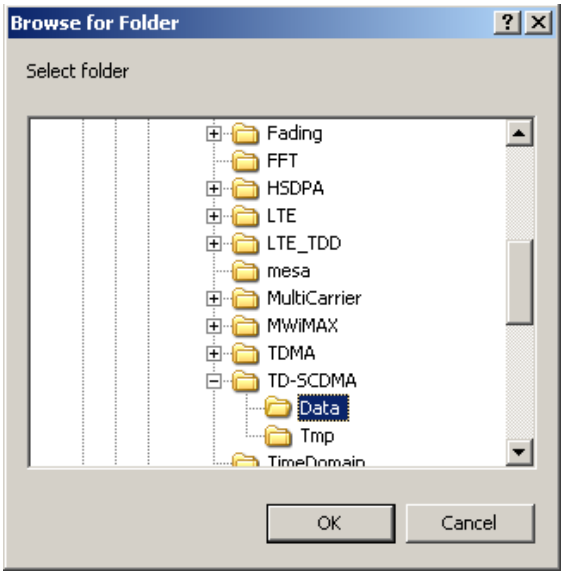

Figure 3.1.7-2 Browse for Folder Screen

The default destination folder for waveform patterns in each instrument is shown in the table below.

Table 3.1.7-1 Default export destination folder

Instrument	Operating Environment	Export destination folder
MG3700A	--	X:\IQproducer\TD-SCDMA\Data (X:\IQproducer is a folder where IQproducer is installed) This can be changed.
MG3710A	**MG3710**	C:\Anritsu\MG3710A\User Data \Waveform\"Package name" This cannot be changed.
	PC	Same as MG3700A.
MS269xA, MS2830A	**MS269x, MS2830, PC**	When installed OS is Windows Embedded Standard 7, Windows 10, or Windows 11. C:\Anritsu\Signal Analyzer\System\Waveform Other than above C:\Program Files\Anritsu Corporation \Signal Analyzer\System\Waveform\" Package name" This cannot be changed.

- Package name

  Following characters can be input for Package.

  No. of characters: Up to 31 characters

  Available characters: English alphanumeric characters and the following symbols
  ! % & ( ) + = ‘ { } _ - ^ @ [ ]

  Default: TD-SCDMA (when running on MG3710A)

- Waveform pattern name (Export File Name)

  Following characters can be input for Export File Name.

  No. of characters: Up to 20 characters

  Available characters: English alphanumeric characters and the following symbols
  ! % & ( ) + = ‘ { } _ - ^ @ [ ]

  Default: TestPattern (when running on MG3710A)

- Comment

Following characters can be input for Comment.

No. of characters: Up to 38 characters × 3 lines

Available characters: English alphanumeric characters

When the waveform pattern package name, file name, and comment are set, click **OK** on the Export File screen. The Calculation screen shown in Figure 3.1.8-1 is displayed and waveform pattern generation starts (package name, file name must be set to start waveform pattern generation).

3.1.8 Calculation screen

Clicking **Calculation & Load**, **Calculation & Play**, or the **OK** button on the Export File screen will start the waveform generation.

The Calculation screen is displayed while a waveform pattern is being generated. On this screen, the progress bar is displayed indicating the generation process of the waveform pattern and the progress of the waveform pattern generation. The generation of the waveform pattern can be stopped by clicking Cancel. When cancelled, it returns to the main screen.

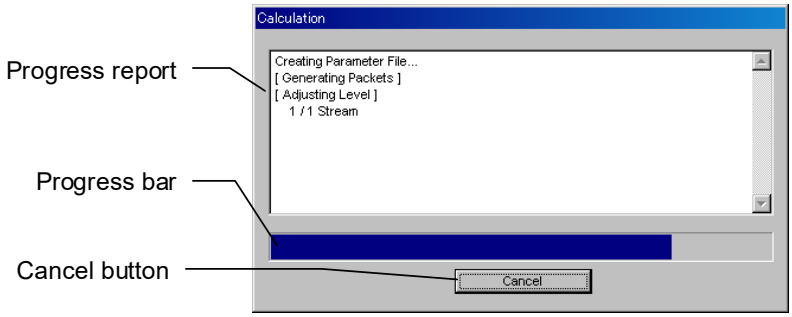

Figure 3.1.8-1 Calculation Screen (In Progress)

After waveform pattern generation is finished, the message "Calculation Completed." is displayed in the progress window and the **Cancel** button changes to the **OK** button.

When the generation is complete, you can return to the setting screen by clicking the **OK** button. After waveform generation, two files with .wvi and .wvd extension are output.

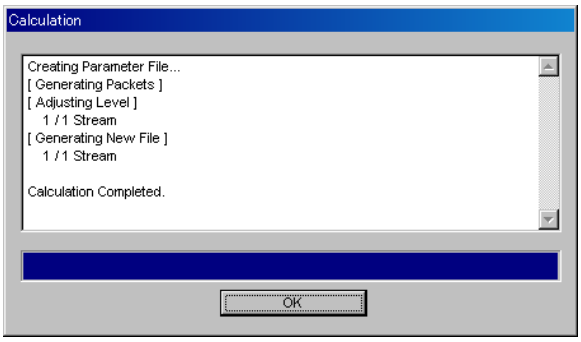

Figure 3.1.8-2 Calculation Screen (Completed)

Note:

When using this software on MG3710A, and selecting **Calculation & Load** or **Calculation & Play**, the waveform generation ends without displaying the above screen.

3.1.9 Calculation & Load

Note:

This function is available only when this software is used on MG3710A.

When **Calculation & Load** is selected, the Load Setting screen will display after waveform generation.

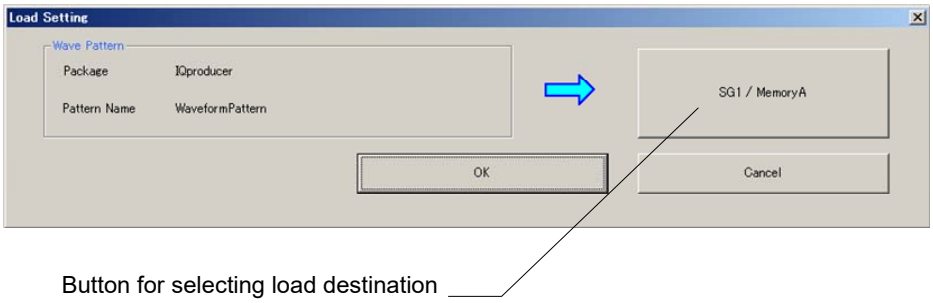

Figure 3.1.9-1 Load Setting Screen

The Select Memory screen will display after clicking the load destination in the Load Setting screen.

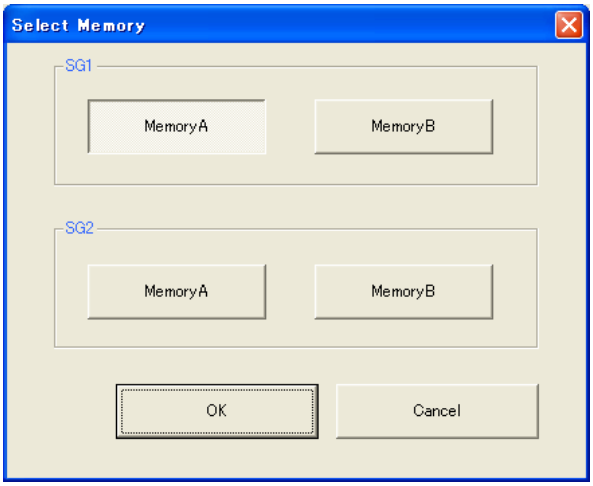

Figure 3.1.9-2 Select Memory Screen

After selecting the load destination of generated waveform in the Select Memory screen and clicking the **OK** button, the Load Setting screen will be shown again. Click the **OK** button in the Load Setting screen, and then the loading of waveform starts.

Note:

To exit this screen without loading the waveform pattern, click the **Cancel** button in the Load Setting screen.

3.1.10 Calculation & Play

Note:

This function is available only when this software is used on MG3710A.

When **Calculation & Play** is selected, after waveform creation is completed, the created waveform is loaded into memory, selected and output.

When the 2nd Vector Signal Generator (option) is installed, the Select SG screen is displayed before the start of waveform generation. This screen is used to select the signal generator for outputting the created waveform pattern.

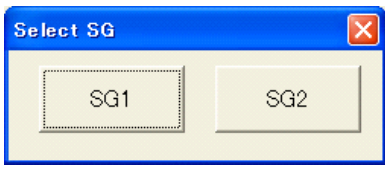

Figure 3.1.10-1 Select SG Screen

3.1.11 Resetting all parameters

Open the following file to reset all parameters.

X:\IQproducer\TD-SCDMA\TD-SCDMA_InitialParameter.xml
("X:\IQproducer" indicates the folder where the IQproducer™ is installed.)

3.2 Waveform Pattern Generation Procedure

3.2.1 Downlink

This section shows a procedure for creating a waveform pattern, using an TD-SCDMA downlink waveform pattern as an example.

1. Start the software.
2. Set the Common Setting parameters as shown in Table 3.2.1-1. The parameters that are not shown below are used with their default values, or are automatically set according to other parameter settings.

Table 3.2.1-1 Common Setting

Common Setting	
Number of Sub-frames	1
Link	DL
Number of Carriers	1

3. Set the parameters in Carrier#1 tab as shown in Table 3.2.1-2.

Table 3.2.1-2 Carrier#1 Setting

Carrier#1	
Frequency Offset	0 MHz
Relative Power	0.00 dB
Channel Coding	OFF
Switching Point	3
Scrambling Code	0
Midamble Config	Default

4. Click **Channel Setting**, and set the State of each channel displayed in Channel Setting as in Table 3.2.1-3.

Table 3.2.1-3 State of Each Channel

Channel Setting	
P-CCPCH	ON
S-CCPCH	OFF
DwPCH	ON
PDSCH	OFF
PICH	OFF
DPCH	ON
HS-PDSCH	OFF
HS-SCCH	OFF

5. Click the P-CCPCH tab, and set the parameters as in Table 3.2.1-4.

Table 3.2.1-4 P-CCPCH Setting

P-CCPCH	
State	ON
Power	0.00 dB
Data Type	PN9
UE spec shift	Disabled
SF	16 (display only)

6. Click the DwPCH tab, and set the parameters as in Table 3.2.1-5.

Table 3.2.1-5 DwPCH Setting

DwPCH	
State	ON
Power	0.00 dB
Sync-DL code	0

7. Click the DPCH tab, and set the parameters as in Table 3.2.1-6.

Table 3.2.1-6 DPCH Setting

DPCH	
Number of RMC	3
RMC = 1	
State	ON
Power	0.00
RMC Type	---
Time Slot	4
Channel Code	1
DTCH Data Type	PN9
DTCH Rate Matching Attribute	---
DCCH Data Type	---
DCCH Rate Matching Attribute	---
SF	16
TFCI	---
TPC	---
SS	---
Midamble K	16
UE spec shift	---
Number of DPCH per TS	8
Block Size	---

Table 3.2.1-6 DPCH Setting (Continued)

RMC = 2	
State	ON
Power	0.00
RMC Type	---
Time Slot	5
Channel Code	1
DTCH Data Type	PN9
DTCH Rate Matching Attribute	---
DCCH Data Type	---
DCCH Rate Matching Attribute	---
SF	16
TFCI	---
TPC	---
SS	---
Midamble K	16
UE spec shift	---
Number of DPCH per TS	8
Block Size	---
RMC = 3	
State	ON
Power	0.00
RMC Type	---
Time Slot	6
Channel Code	1
DTCH Data Type	PN9
DTCH Rate Matching Attribute	---
DCCH Data Type	---
DCCH Rate Matching Attribute	---
SF	16
TFCI	---
TPC	---
SS	---
Midamble K	16
UE spec shift	---
Number of DPCH per TS	8
Block Size	---

8. Click the **Calculation** button to display the Export File screen. Enter TD_SCDMA and Downlink_8DPCH for the Package name and File name, respectively. Then click **OK**.
9. The Calculation screen is displayed and waveform pattern generation starts. After the calculation is completed, click **OK** to finish the waveform generation.
10. The following files are output in the folder specified in 3.1.7 “Export File screen”:
    Downlink_8DPCH.wvi, Downlink_8DPCH.wvd

3.2.2 Uplink

This section shows a procedure for creating a waveform pattern, using an TD-SCDMA uplink waveform pattern as an example.

Procedure for generating Uplink waveform

1. Start the software.
2. Set the Common Setting parameters as shown in Table 3.2.2-1. The parameters that are not shown below are used with their default values, or are automatically set according to other parameter settings.

Table 3.2.2-1 Common Setting

Common Setting	
Number of Sub-frames	1
Link	UL
Number of Carriers	1

3. Set the parameters in Carrier#1 tab as shown in Table 3.2.1-2.

Table 3.2.2-2 Carrier#1 Setting

Carrier#1	
Frequency Offset	0 MHz
Relative Power	0.00 dB
Channel Coding	ON
Switching Point	3
Scrambling Code	0
Midamble Config	Default

4. Click **Channel Setting**, and set the State of each channel displayed in Channel Setting as in Table 3.2.2-3.

Table 3.2.2-3 State of Each Channel

Channel Setting	
UpPCH	ON
PUSCH	OFF
DPCH	ON
HS-SICH	OFF
E-PUCH	OFF

5. Click the UpPCH tab, and set the parameters as in Table 3.2.2-4.

Table 3.2.2-4 UpPCH Setting

UpPCH	
State	ON
Power	0.00
Sync-UL code	0

6. Click the DPCH tab, and set the parameters as in Table 3.2.2-5.

Table 3.2.2-5 DPCH Setting

DPCH	
Number of RMC	1
RMC = 1	
State	ON
Power	0.00
RMC Type	12.2 kbps
Time Slot	1
Channel Code	1
DTCH Data Type	PN9
DTCH Rate Matching Attribute	256
DCCH Data Type	PN9
DCCH Rate Matching Attribute	256
SF	8
TFCI	0
TPC	All 0
SS	All 0
Midamble K	16
UE spec shift	---
Block Size	244

7. Click the **Calculation** button to display the Export File screen. Enter TD_SCDMA and UL_RMC_12_2kbps for the Package name and Export File Name, respectively. Then click **OK**.
8. The Calculation screen is displayed and waveform pattern generation starts. After the calculation is completed, click **OK** to finish the waveform generation.
9. The following files are output in the folder specified in 3.1.7 “Export File screen”: UL_RMC_12_2kbps.wvi
   UL_RMC_12_2kbps.wvd

3.3 Saving/reading parameters

The numeric values and settings for each item can be saved in a parameter file by using the software.

3.3.1 Saving parameter file

When running on PC, MS2690A/MS2691A/MS2692A, or MS2830A

(1) Click **Save Parameter File** button in **File** menu or click button to display the parameter file saving screen.

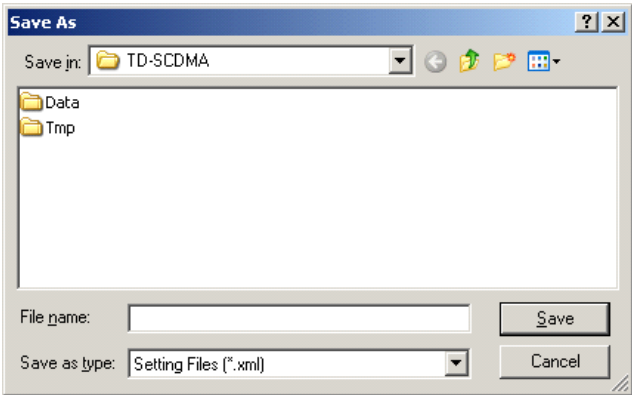

Figure 3.3.1-1 Parameter File Saving Screen

(2) Assign the Input Folder, enter a desired name into the File Name box and then click Save button to save the parameter.

When running on MG3710A

(1) Click the **Save Parameter File** button in **File** menu or click the button to display the parameter file saving screen.

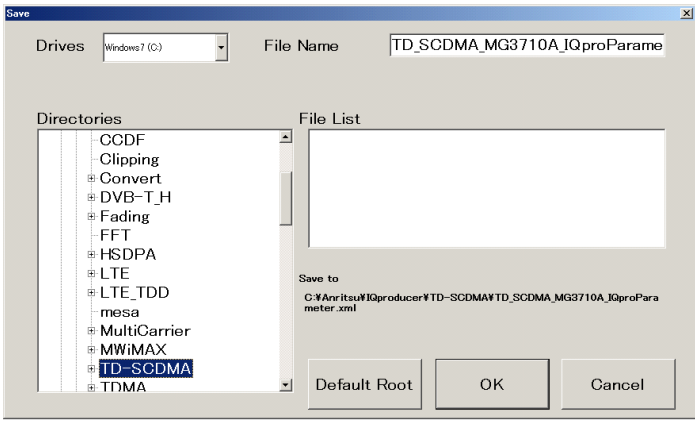

Figure 3.3.1-2 Parameter File Saving Screen (MG3710A)

(2) Select the folder to store the file in the **Directories** field, and then enter the name of the file using the **File Name** box. Click **OK** to save the parameter file. To initialize the setting in the **Directories** field, click the **Default Root** button.

3.3.2 Reading parameter file

When running on PC, MS2690A/MS2691A/MS2692A, or MS2830A

(1) Select **Recall Parameter File** from the **File** menu or click the tool button to display the parameter file reading screen.

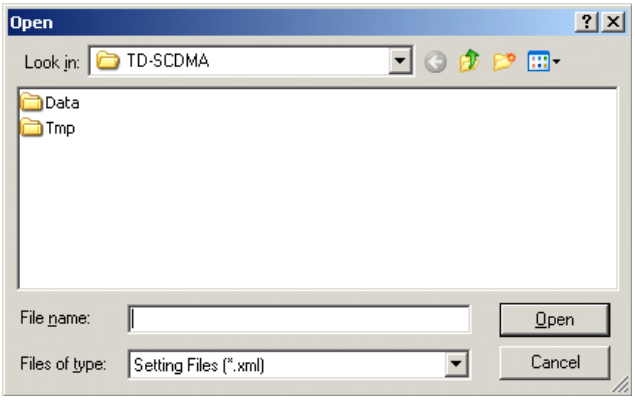

Figure 3.3.2-1 Parameter File Reading Screen

(2) Select a parameter file to be read from the file list, and then click the **Open** button to read the selected parameter file.

When running on MG3710A

(1) Select **Recall Parameter File** from the **File** menu or click the tool button to display the parameter file reading screen.

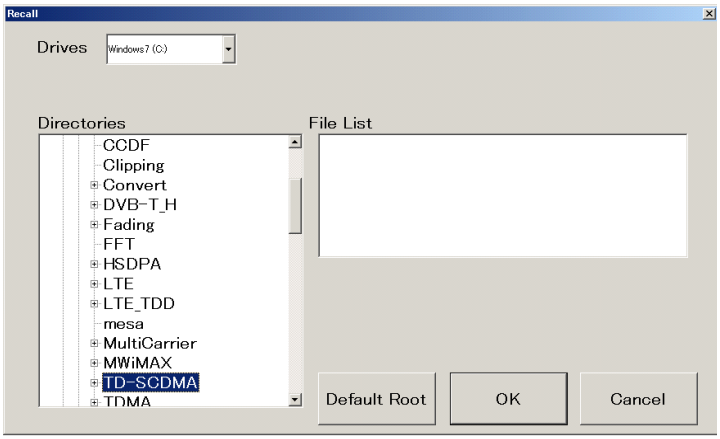

Figure 3.3.2-2 Parameter File Reading Screen (MG3710A)

(2) Select the directory where the files to be loaded is stored in the **Directories** field. Click the desired file from the **File List**, and click **OK**. To initialize the setting in the **Directories** field, click the **Default Root** button.

3.4 User File Reading Screen

When running on PC, MS2690A/MS2691A/MS2692A, or MS2830A

(1) When **User File** is selected for **Data Type** setting in the Channel Setting screen, the user file reading screen is displayed.

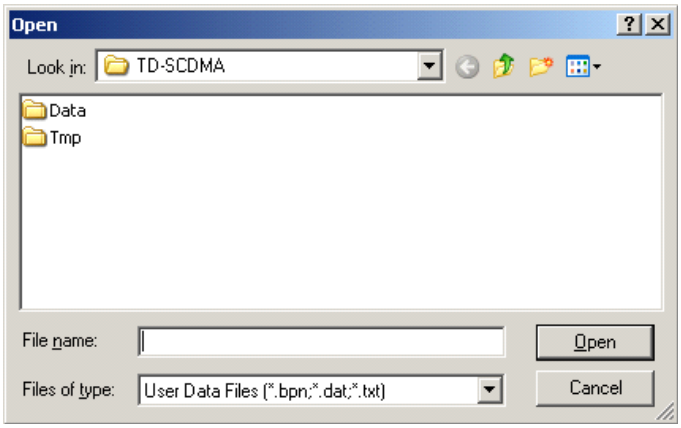

Figure 3.4-1 User File Reading Screen

(2) Select a user file to be read from the file list, and then click **Open** to read the selected user file.

If an unsupported User File is selected, an error is displayed. Refer to Appendix B "User File Format" for details on the user file format.

When running on MG3710A

(1) When **User File** is selected for **Data Type** setting in the Channel Setting screen, the user file reading screen is displayed.

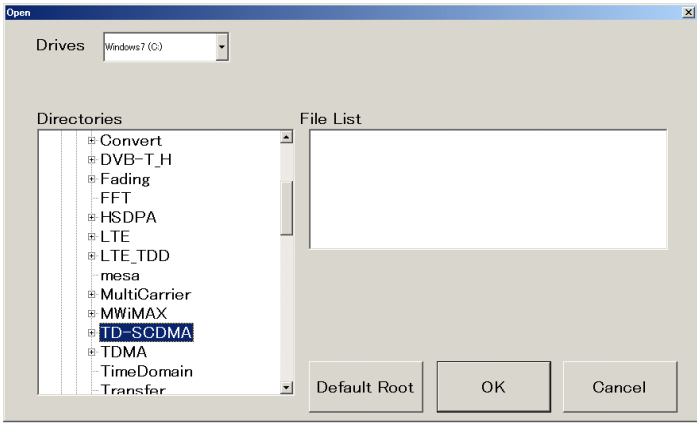

Figure 3.4-2 User File Reading Screen (MG3710A)

(2) Select the directory where the user files to be loaded is stored in the **Directories** field. Click the desired file from the **File List**, and click **OK**. To initialize the setting in the **Directories** field, click the **Default Root** button.

If an unsupported User File is selected, an error is displayed. Refer to Appendix B "User File Format" for details on the user file format.

3.5 Displaying Graph

The generated waveform pattern can be displayed in a CCDF, FFT, and Time Domain graph by using this software. For details of graph display, refer to each one of the following:

- *MG3700A/MG3710A/MG3710E Vector Signal Generator MG3740A Analog Signal Generator Operation Manual (IQproducer™)*
  4.3 "CCDF Graph Display", 4.4 "FFT Graph Display", 4.13 "Time Domain Graph Display"
- *MS2690A/MS2691A/MS2692A or MS2830A/MS2840A Signal Analyzer Vector Signal Generator Operation Manual (IQproducer™)*
  4.3 "CCDF Graph Display", 4.4 "FFT Graph Display", 4.9 "Time Domain Graph Display"

Displaying CCDF graph

(1) Generate a waveform pattern menu by executing "Calculation".

(2) Select **CCDF** from the **Simulation** menu or click the tool button. The CCDF Graph Monitor screen shown is displayed with the trace of the generated waveform pattern.

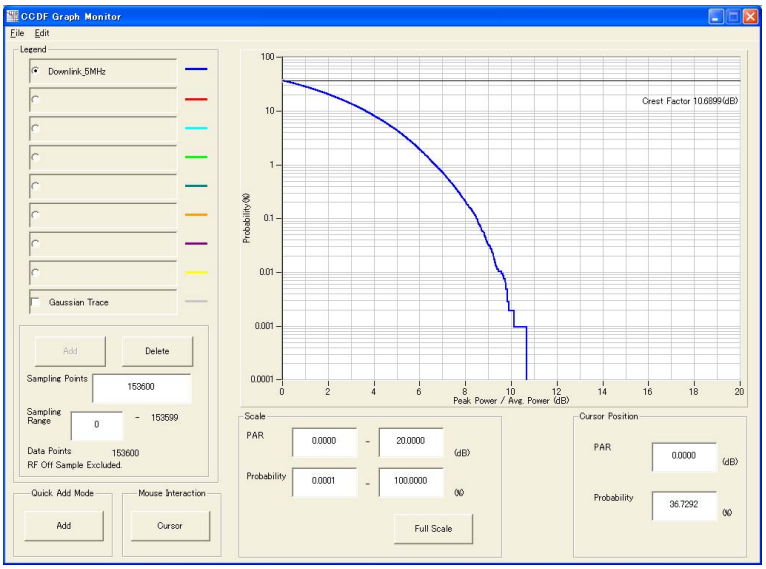

Figure 3.5-1 CCDF Graph Monitor Screen

When a waveform pattern is generated by changing parameters and executing "Calculation" while other traces are displayed in the CCDF Graph Monitor screen, the trace of the waveform pattern newly generated can be displayed in either of the following two methods:

- Displaying the new trace in the same screen as the previous traces
- Deleting the previous traces to display the new trace

> ***Note:***
>
> The CCDF, FFT, and Time Domain graphs cannot be generated at the same time. When displaying one graph while another graph is being displayed, execute the graph generation of the former after that of the latter is completed.

■ Displaying the new trace in the same screen as the previous traces

(1) Set **Add** for **Quick Add Mode** on the lower-left of the CCDF Graph Monitor screen.

(2) Select **CCDF** from the **Simulation** menu or click the tool button. The CCDF Graph Monitor screen shown is displayed with the trace of the generated waveform pattern.
Up to eight traces can be displayed by repeating this procedure.

■ When deleting the previous traces to display a new trace:

(1) Set **Clear** for **Quick Add Mode** on the lower-left of the CCDF Graph Monitor screen.

(2) Select **CCDF** from the **Simulation** menu or click the tool button. The confirmation message shown in Figure 3.5-2 below appears:

Figure 3.5-2 Confirmation Message

Click **Yes**. The previous traces are deleted, and the trace of the waveform pattern newly generated is displayed.

Displaying FFT graph

(1) Generate a waveform pattern menu by executing “Calculation”.

(2) Select **FFT** from the **Simulation** menu or click the tool button. The FFT Graph Monitor screen shown is displayed with the trace of the generated waveform pattern.

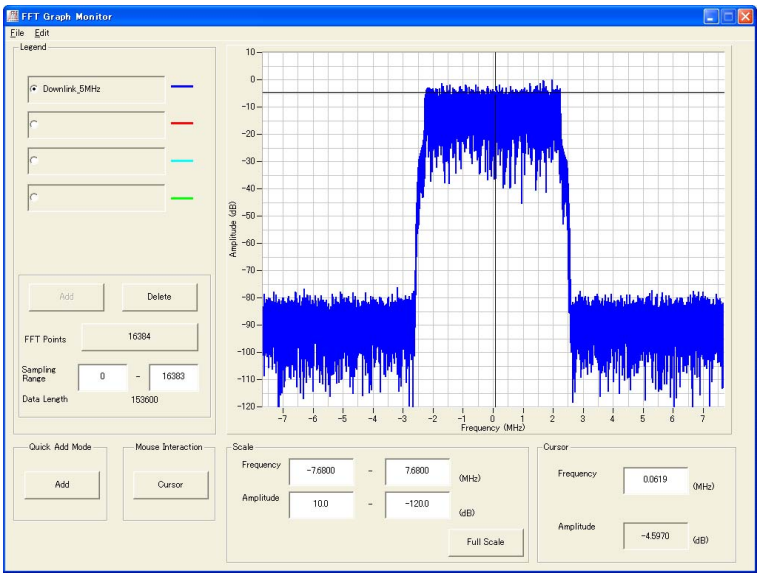

Figure 3.5-3 FFT Graph Monitor Screen

When a waveform pattern is generated by changing parameters and executing "Calculation" while other traces are displayed in the FFT Graph Monitor screen, the trace of the waveform pattern newly generated can be displayed in either of the following two methods:

- Displaying the new trace in the same screen as the previous traces
- Deleting the previous traces to display the new trace

Note:

The CCDF, FFT, and Time Domain graphs cannot be generated at the same time. When displaying one graph while another graph is being displayed, execute the graph generation of the former after that of the latter is completed.

■ Displaying the new trace in the same screen as the previous traces

(1) Set **Add** for **Quick Add Mode** on the lower-left of the FFT Graph Monitor screen.

(2) Select FFT from the Simulation menu or click the tool button. The FFT Graph Monitor screen shown is displayed with the trace of the generated waveform pattern.
Up to four traces can be displayed by repeating this procedure.

■ When deleting the previous traces to display a new trace:

(1) Set **Clear** for **Quick Add Mode** on the lower-left of the FFT Graph Monitor screen.

(2) Select **FFT** from the **Simulation** menu or click the tool button. The confirmation message shown in Figure 3.5-4 below appears:

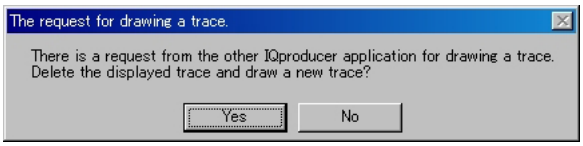

Figure 3.5-4 Confirmation Message

Click **Yes**. The previous traces are deleted, and the trace of the waveform pattern newly generated is displayed.

Displaying the Time Domain graph

(1) Generate a waveform pattern menu by executing "Calculation".

(2) When **Time Domain** is clicked in the **Simulation** menu or is clicked, the Time Domain graph screen shown in Figure 3.5-5 is displayed, along with a trace of the generated waveform pattern.

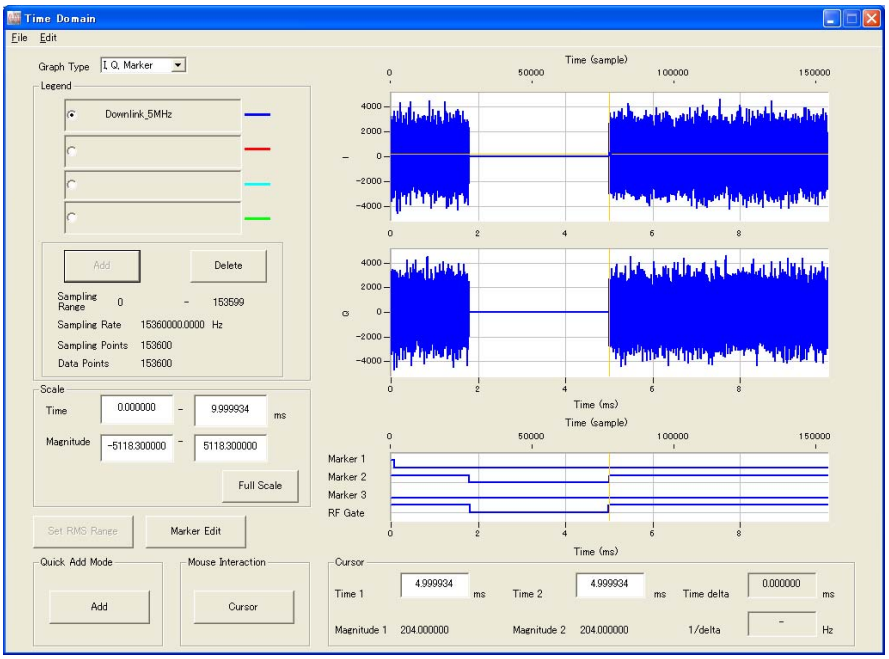

Figure 3.5-5 Time Domain Screen

When a waveform pattern is generated by changing parameters and executing "Calculation" while other traces are displayed in the Time Domain screen, the trace of the waveform pattern newly generated can be displayed in either of the following two methods:

- Displaying the new trace in the same screen as the previous traces
- Deleting the previous traces to display the new trace

> ***Note:***
> The CCDF, FFT, and Time Domain graphs cannot be generated at the same time. When displaying one graph while another graph is being displayed, execute the graph generation of the former after that of the latter is completed.

■ Displaying the new trace in the same screen as the previous traces

(1) Set **Add** for **Quick Add Mode** on the lower-left of the Time Domain screen.

(2) When **Time Domain** is clicked in the **Simulation** menu or is clicked, a trace of the newly generated waveform pattern is added to the Time Domain graph screen.
Up to four traces can be displayed by repeating this procedure.

■ When deleting the previous traces to display a new trace:

(1) Set **Clear** for **Quick Add Mode** on the lower-left of the Time Domain screen.

(2) Select **Time Domain** from the **Simulation** menu or click the tool button. The confirmation message shown in Figure 3.5-6 below appears:

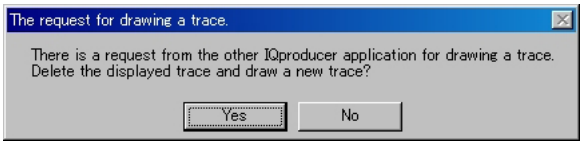

Figure 3.5-6 Confirmation Message

Click **Yes**. The previous traces are deleted, and the trace of the waveform pattern newly generated is displayed.

3.6 Clipping

This function performs clipping processing for a waveform pattern generated by each signal generation application.

(1) Click **Clipping** from the **Edit** menu or click the tool button. The Clipping setting screen s appears.

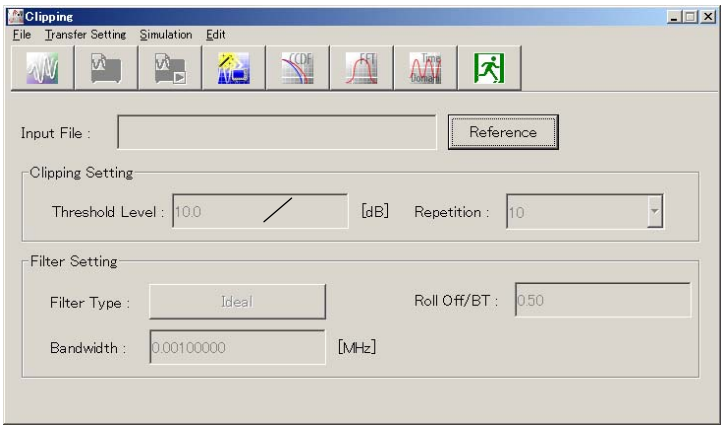

Figure 3.6-1 Clipping Setting Screen

(2) Click to select the wvi file of the waveform pattern to be used. The full path of the selected wvi file is displayed in the **Input File** text box.

(3) Set values in the **Threshold Level, Repetition, Filter Type**, **Roll Off/BT**, and **Bandwidth** text boxes.

(4) Select **Calculation** from the **Edit** menu or click the button to complete setting.

(5) Make settings on the Export File screen and click the **OK** button to generate a waveform pattern.

(6) Display the generated waveform pattern in graph. Refer to 3.5 "Graph display".

For details on clipping, refer to each one of the following:

- *MG3700A/MG3710A/MG3710E Vector Signal Generator MG3740A Analog Signal Generator Operation Manual (IQproducer™)*
  4.14 "Clipping"
- *MS2690A/MS2691A/MS2692A or MS2830A/MS2840A Signal Analyzer Vector Signal Generator Operation Manual (IQproducer™)*
  4.10 "Clipping"

3.7 Other functions

3.7.1 Auxiliary signal output

Select a waveform pattern generated by the TD-SCDMA IQproducer™ on this equipment to output the marker that is synchronized with the RF signal as an auxiliary signal from the AUX on the rear panel of this equipment.

Markers described below are automatically set for the waveform patterns when they are generated. By using the Marker Edit function which is a peripheral function of the Time Domain graph, a waveform pattern can be generated with these markers edited.

For details of Marker Edit function, refer to each one of the following:

- *MG3700A/MG3710A/MG3710E Vector Signal Generator MG3740A Analog Signal Generator Operation Manual (IQproducer™)*
  4.13.12 "Marker edit function"
- *MS2690A/MS2691A/MS2692A or MS2830A/MS2840A Signal Analyzer Vector Signal Generator Operation Manual (IQproducer™)*
  4.9.12 "Marker edit function"

As an auxiliary signal, the following pulses are output.

- Pulse synchronized with the beginning of Sub-frame

  This pulse is output as Marker1 signal.
- Pulse synchronized in the time period during which Time Slot or SYNC UL/DL code is ON

  This pulse is output as Marker 2 signal.

For the error range of the auxiliary signals against the RF output, refer to each one of the following:

- *MG3700A/MG3710A/MG3710E Vector Signal Generator MG3740A Analog Signal Generator Operation Manual (IQproducer™)*
  4.5.6 "Input file format"
- *MS2690A/MS2691A/MS2692A or MS2830A/MS2840A Signal Analyzer Vector Signal Generator Operation Manual (IQproducer™)*
  4.5.6 "Input file format"

Chapter 4 How to Use Waveform Patterns

The following operations are required to output a modulated signal from this equipment using the waveform pattern generated by this software:

- Transferring waveform pattern to internal hard disk
- Loading waveform patterns from the hard disk to the waveform memory
- Selecting a waveform pattern to be output from this equipment

This chapter explains the details of these operations.

4.1 For MG3700A or MG3710A 4-2
4.1.1 Transferring waveform pattern to internal hard disk 4-2
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4.1 For MG3700A or MG3710A

This section describes how to download a waveform pattern created for the MG3700A/MG3710A to the hard disk of the MG3700A/MG3710A and output the pattern.

4.1.1 Transferring waveform pattern to internal hard disk

The waveform pattern created with this software can be transferred to the internal hard disk in the following ways:

Note:

This operation is not necessary if you are using MG3710A and have generated waveform patterns on MG3710A.

For MG3700A
- LAN
- CompactFlash Card

For MG3710A
- LAN
- External device such as USB Memory

■Transferring from PC via LAN (MG3700A, MG3710A)

Two IQproducer™ tools can be used to transfer a waveform pattern to the MG3700A/MG3710A via a LAN.

- Transfer & Setting Wizard
  Start this wizard by clicking the **Transfer & Setting Wizard** button of this software or by selecting **Simulation & Utility** tab → **Transfer & Setting Wizard** from the IQproducer™ after creating a waveform pattern. For details, refer to Section 4.7 "File Transfer and Loading to Memory Using Transfer & Setting Wizard" in the *MG3700A/MG3710A/MG3710E Vector Signal Generator MG3740A Analog Signal Generator Operation Manual (IQproducer™)*.
  Transferring a waveform pattern to the internal hard disk of the MG3700A/MG3710A, loading the waveform from the hard disk to the waveform memory, and then outputting the waveform pattern can be done using this wizard.

- Transfer & Setting Panel
  This function is loaded by selecting **Transfer & Setting Panel** in the **Simulation & Utility** tab of the IQproducer™. For details, refer to Section 5.2 "Transferring Waveform Pattern" in the *MG3700A/MG3710A/MG3710E Vector Signal Generator MG3740A Analog Signal Generator Operation Manual (IQproducer™)*.
  Specify the folder that contains the waveform pattern to transfer to the MG3700A/MG3710A in the PC-side tree of **Transfer & Setting Panel**.

■Transferring using a CF card (MG3700A)

Copy the waveform pattern (***.wvi and ***.wvd files) to be downloaded to the MG3700A to the root directory of a CF card.

Insert the CF card into the card slot on the front panel of the MG3700A, and then copy the file to the hard disk. For details about how to use a CF card to transfer a waveform pattern, refer to (1) Loading waveform file in memory in Section 3.5.2 of the *MG3700A Vector Signal Generator Operation Manual (Mainframe)*.

■Transferring via external device such as USB memory (MG3710A)

For details about how to transfer a waveform pattern created using this software to the hard disk of the MG3710A, refer to Section 7.3.6 "Copying external waveform pattern: Copy" in the *MG3710A/MG3710E Vector Signal Generator MG3740A Analog Signal Generator Operation Manual (Mainframe)*.

4.1.2 Loading to Waveform Memory

To output a modulated signal using a waveform pattern, it is necessary to load the waveform pattern that was transferred to the internal hard disk of the MG3700A/MG3710A (described in Section 4.1.1 "Transferring waveform pattern to internal hard disk") to the waveform memory. A waveform pattern can be loaded into the waveform memory in the following two ways.

■Configuring using the mainframe

A waveform pattern can be loaded into the waveform memory by using the instruction panel of the MG3700A/MG3710A or by using a remote command.

For operation using the front panel, refer below:

- Section 3.5.2 (1) "Loading waveform file in memory" in the *MG3700A Vector Signal Generator Operation Manual (Mainframe)*
- Section 7.3.4 "Loading waveform pattern: Load" in the *MG3710A/MG3710E Vector Signal Generator MG3740A Analog Signal Generator Operation Manual (Mainframe)*

For operation using remote commands, refer below:

- Chapter 4 "Remote Control" in the *MG3700A Vector Signal Generator Operation Manual (Mainframe)*
- Section 7.3.4 "Loading waveform pattern: Load" in the *MG3710A/MG3710E Vector Signal Generator MG3740A Analog Signal Generator Operation Manual (Mainframe)*

■Using Transfer & Setting Panel of IQproducer™

A waveform pattern can be loaded from the LAN-connected PC to the memory by using **Transfer & Setting Panel**, which can be opened from the **Simulation & Utility** tab. For details, refer to Section 4.6 "File Transfer and Loading to Memory Using Transfer & Setting Panel" in the *MG3700A/MG3710A/MG3710E Vector Signal Generator MG3740A Analog Signal Generator Operation Manual (IQproducer™)*.

4.1.3 Selecting Waveform Pattern

Select a waveform pattern to use for modulation from the waveform patterns loaded into the waveform memory of the MG3700A/MG3710A according to Section 4.1.2 "Loading to waveform memory". A waveform pattern can be selected in the following two ways.

■Configuring using the MG3700A/MG3710A

Waveform patterns to be used for modulation can be selected by operating the equipment panel or by using a remote command.

For operation using the front panel, refer below:

- Section 3.5.2 (4) "Outputting pattern loaded in Memory A for modulation in Edit mode" in the *MG3700A Vector Signal Generator Operation Manual (Mainframe)*
- Section 7.3.5 "Selecting output waveform pattern: Select" in the *MG3710A/MG3710E Vector Signal Generator MG3740A Analog Signal Generator Operation Manual (Mainframe)*

For operation using remote commands, refer below:

- Chapter 4 "Remote Control" in the *MG3700A Vector Signal Generator Operation Manual (Mainframe)*
- Section 7.3.5 "Selecting output waveform pattern: Select" in the *MG3710A/MG3710E Vector Signal Generator MG3740A Analog Signal Generator Operation Manual (Mainframe)*

■Using Transfer & Setting Panel of IQproducer™

A waveform pattern can be loaded from the LAN-connected PC to the memory, and also selected for modulation. This is done by using **Transfer & Setting Panel**, which can be opened from the **Simulation & Utility** tab. For details, refer to Section 4.6 "File Transfer and Loading to Memory Using Transfer & Setting Panel" in the *MG3700A/MG3710A/MG3710E Vector Signal Generator MG3740A Analog Signal Generator Operation Manual (IQproducer™)*.

4.2 For MS2690A/MS2691A/MS2692A or MS2830A

This section describes how to download a waveform pattern created for the MS2690A/MS2691A/MS2692A or MS2830A to the hard disk of the MS2690A/MS2691A/MS2692A or MS2830A and output the pattern.

4.2.1 Transferring waveform pattern to internal hard disk

For details about how to transfer a waveform pattern created using this software to the hard disk of the MS2690A/MS2691A/MS2692A or MS2830A, refer below:

- Section 2.4.4 "Copying waveform file(s) to hard disk" in the *MS2690A/MS2691A/MS2692A Signal Analyzer Option 020: Vector Signal Generator Operation Manual (Operation)*
- Section 2.4.4 "Copying waveform file(s) to hard disk" in the *MS2830A/MS2840A Signal Analyzer Vector Signal Generator Operation Manual (Operation)*

Note:

Transferring waveform patterns is not required if the patterns are created using this software.

4.2.2 Loading to Waveform Memory

In order to output a modulated signal using the waveform pattern, it is necessary to load the waveform patterns stored in the internal hard disk to the waveform memory.

■Loading to Waveform Memory

Waveform patterns can be loaded to waveform memories by operating the panel or by using a remote command.

For operation using the front panel, refer below:

- Section 2.4.1 "Loading waveform file in memory" in the *MS2690A/MS2691A/MS2692A Signal Analyzer Option 020: Vector Signal Generator Operation Manual (Operation)*
- Section 2.4.1 "Loading waveform pattern(s) to memory" in the *MS2830A/MS2840A Signal Analyzer Vector Signal Generator Operation Manual (Operation)*

For operation using remote commands, refer below:

- *MS2690A/MS2691A/MS2692A Signal Analyzer Option 020: Vector Signal Generator Operation Manual (Remote Control)*
- *MS2830A/MS2840A Signal Analyzer Vector Signal Generator Operation Manual (Remote Control)*

4.2.3 Selecting Waveform Pattern

Select waveform patterns to be used for modulation from those loaded in the waveform memory as described in Section 4.2.1 "Transferring waveform pattern to internal hard disk" above.

■Selecting waveform pattern

Waveform patterns to be used for modulation can be selected by operating the equipment panel or by using a remote command.

For operation using the front panel, refer below:

- Section 2.4.2 "Loading waveform file in memory" in the *MS2690A/MS2691A/MS2692A Signal Analyzer Option 020: Vector Signal Generator Operation Manual (Operation)*
- Section 2.4.2 "Loading waveform pattern(s) to memory" in the *MS2830A/MS2840A Signal Analyzer Vector Signal Generator Operation Manual (Operation)*

For operation using remote commands, refer below:

- *MS2690A/MS2691A/MS2692A Signal Analyzer Option 020: Vector Signal Generator Operation Manual (Remote Control)*
- *MS2830A/MS2840A Signal Analyzer Vector Signal Generator Operation Manual (Remote Control)*

Appendix A Error Messages

A list of error messages is shown below. In this list, x, n_1, and n_2 indicate a numeric value, and s indicates a character string.

Table A-1 Error messages

Error Messages List	Message Content
Cannot read file (“*s*”).	—
Cannot write file.	—
Cannot write file (“*s*”).	—
Input Export File Name.	—
Input Package Name.	—
Invalid file format	—
The Setting value is out of range. (“$s = x(n_1 - n_2)$”)	—
Invalid Setting.	—
The RU is occupied already.	— Change Time Slot or Channel Code.
Selection of an inaccurate file. ("")	—
Not enough hard disk space.	—
Folder or media not found. Aborted with error.	—
The Waveform data file is not generated.	Waveform is not yet generated. To draw, generate waveform.
FTP connection error.	Check the network setting of MG3700A, MG3710A, or your PC.

A list of warning message is shown below.

Table A-2 Warning message

Warning Message	Message Content
A Transfer wizard is already running.	—
Clipping was done.	—

Appendix B User File Format

This section shows examples of the user file format that can be used in this software. A user file must be a text file. It is not necessarily required to specify an extension to user files. Note that an error occurs if a user file that does not conform to the format is read.

Be sure to write an unmodulated binary sequence into a user file. An error occurs if a user file that contains characters other than 0, 1, line feed, comma, period, and space is read. All line feeds, commas, periods, and spaces in a user file are ignored when the user file is read.
A user file format example is shown below.

User file format example

```
1111111110000011110111110001011100110010000010010100111011010001
1110011111001101100010101001000111000110110101011100010011000100
0010000000010000100011000010011100101010110000110111101001101 1
1001000101000010101101001111110110010010010110111111001001101 01
0011001100000000110001100101000110100101111111010001011000111010
1100101100111100011111011101000001101011011011101100000101101 01
1111010101010000001010010101111001011101110000001110011101001 00
1111010111010100010010000110011100001011110110110011010000111 01
1110000
```

0s and 1s in a user file are sequentially read from the leftmost of the first line.

When the number of data to be processed is larger than that in the user file, the user file is read again from the top. If the user file contains more data than that to be processed, data reading terminates halfway.

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