

R3267 Series OPT08

Rx Control Option

Operation Manual

MANUAL NUMBER FOE-8370665C00

Applicable models R3264 R3267 R3273



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Safety Summary

To ensure thorough understanding of all functions and to ensure efficient use of this instrument, please read the manual carefully before using. Note that Advantest bears absolutely no responsibility for the result of operations caused due to incorrect or inappropriate use of this instrument.

If the equipment is used in a manner not specified by Advantest, the protection provided by the equipment may be impaired.

• Warning Labels

Warning labels are applied to Advantest products in locations where specific dangers exist. Pay careful attention to these labels during handling. Do not remove or tear these labels. If you have any questions regarding warning labels, please ask your nearest Advantest dealer. Our address and phone number are listed at the end of this manual.

Symbols of those warning labels are shown below together with their meaning.

- **DANGER**: Indicates an imminently hazardous situation which will result in death or serious personal injury.
- **WARNING**: Indicates a potentially hazardous situation which will result in death or serious personal injury.
- **CAUTION**: Indicates a potentially hazardous situation which will result in personal injury or a damage to property including the product.

Basic Precautions

Please observe the following precautions to prevent fire, burn, electric shock, and personal injury.

- Use a power cable rated for the voltage in question. Be sure however to use a power cable conforming to safety standards of your nation when using a product overseas.
- When inserting the plug into the electrical outlet, first turn the power switch OFF and then insert the plug as far as it will go.
- When removing the plug from the electrical outlet, first turn the power switch OFF and then pull it out by gripping the plug. Do not pull on the power cable itself. Make sure your hands are dry at this time.
- Before turning on the power, be sure to check that the supply voltage matches the voltage requirements of the instrument.
- Be sure to plug the power cable into an electrical outlet which has a safety ground terminal. Grounding will be defeated if you use an extension cord which does not include a safety ground terminal.
- Be sure to use fuses rated for the voltage in question.
- Do not use this instrument with the case open.
- Do not place objects on top of this product. Also, do not place flower pots or other containers containing liquid such as chemicals near this product.

- When the product has ventilation outlets, do not stick or drop metal or easily flammable objects into the ventilation outlets.
- When using the product on a cart, fix it with belts to avoid its drop.
- When connecting the product to peripheral equipment, turn the power off.

Caution Symbols Used Within this Manual

Symbols indicating items requiring caution which are used in this manual are shown below together with their meaning.

- **DANGER**: Indicates an item where there is a danger of serious personal injury (death or serious injury).
- WARNING: Indicates an item relating to personal safety or health.
- **CAUTION**: Indicates an item relating to possible damage to the product or instrument or relating to a restriction on operation.

Safety Marks on the Product

The following safety marks can be found on Advantest products.





Protective ground (earth) terminal.





CAUTION - Risk of electric shock.

Replacing Parts with Limited Life

The following parts used in the instrument are main parts with limited life.

Replace the parts listed below after their expected lifespan has expired.

Note that the estimated lifespan for the parts listed below may be shortened by factors such as the environment where the instrument is stored or used, and how often the instrument is used. The parts inside are not user-replaceable. For a part replacement, please contact the Advantest sales office for servicing.

There is a possibility that each product uses different parts with limited life. For more information, refer to Chapter 1.

Main Parts	with	Limited Life	
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Part name	Life	
Unit power supply	5 years	
Fan motor	5 years	
Electrolytic capacitor	5 years	
LCD display	6 years	
LCD backlight	2.5 years	
Floppy disk drive	5 years	

• Hard Disk Mounted Products

The operational warnings are listed below.

- Do not move, shock and vibrate the product while the power is turned on. Reading or writing data in the hard disk unit is performed with the memory disk turning at a high speed. It is a very delicate process.
- Store and operate the products under the following environmental conditions. An area with no sudden temperature changes. An area away from shock or vibrations. An area free from moisture, dirt, or dust. An area away from magnets or an instrument which generates a magnetic field.
- Make back-ups of important data. The data stored in the disk may become damaged if the product is mishandled. The hard disc has a limited life span which depends on the operational conditions. Note that there is no guarantee for any loss of data.

• Precautions when Disposing of this Instrument

When disposing of harmful substances, be sure dispose of them properly with abiding by the state-provided law.

Harmful substances: (1) PCB (polycarbon biphenyl)

- (2) Mercury
- (3) Ni-Cd (nickel cadmium)
- (4) Other

Items possessing cyan, organic phosphorous and hexadic chromium and items which may leak cadmium or arsenic (excluding lead in sol der).

Example: fluorescent tubes, batteries

Environmental Conditions

This instrument should be only be used in an area which satisfies the following conditions:

- An area free from corrosive gas
- An area away from direct sunlight
- A dust-free area
- An area free from vibrations



Figure-1 Environmental Conditions

• Operating position



Figure-2 Operating Position

• Storage position



Figure-3 Storage Position

This instrument can be used safely under the following conditions:

- Altitude of up to 2000 m
- Installation Categories II
- Pollution Degree 2

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1.1 Outline

1 OUTLINE OF THE PRODUCT

This chapter has summarized the option.

1.1 Outline

When the spectrum analyzer R3267 Series is connected to test a receiver using the R3560, R3561 or R3562, this option enables you to set up the R3560, R3561 or R3562 from the panel on the R3267 Series in order to measure the receiver from the panel on the R3267 Series.

<Features>

Various settings of R3560, R3561 or R3562 can be performed from the front panel of R3267 Series.
 Parameters that can be set:

Frequency, level, modulation type, etc.

(2) Measurement of R3560, R3561 or R3562 can be performed from the front panel of R3267 Series. Also, the measurement results can be shown on the display of R3267 Series.

CAUTION:

 R3560, R3561 or R3562 GPIB code is not supported in this option. Also, this option does not provide special GPIB commands. Therefore, R3560, R3561 or R3562 cannot be controlled by using R3560, R3561 or R3562 GPIB command from GPIB port of R3267 Series, and also the function of this option cannot be controlled from GPIB.
 When you control R3267 Series and R3560, R3561 or R3562 from CBIB by using external personal com

When you control R3267 Series and R3560, R3561 or R3562 from GPIB by using external personal computer, connect the external computer to both GPIB ports and control them individually.

2. Some functions may not be supported depending on the version of the R3560 main unit. Before using, contact the nearest ADVANTEST Field Office or representative.

2.1 Confirmation of the accessories

2 BEFORE STARTING

This chapter provides a description of the confirmation of accessories and the connection to R3560, R3561 or R3562.

2.1 Confirmation of the accessories

Check the quantity and rating of standard accessories to assure their conformance with Table 2-1.

Items	Specification (Type)	Quantity	Remarks
R3560 interface cable	A01274	1	
R3267 Series OPT08 Operation Manual	ER3267/73OPT08	1	English

Table 2-1 Standard accessories

Note: Please inform ADVANTEST the type when you order additional accessories.

2.2 How to connect to R3560, R3561 or R3562

2.2 How to connect to R3560, R3561 or R3562

2.2.1 Connecting the R3267 Series to R3560

(1) Connections on the rear panel

Connect the cable (see note *1) from the serial I/O connector on the R3267 Series to the serial I/O connector on the R3560 as shown in Figure 2-1.



Figure 2-1 Connection between R3267 Series and R3560 (Rear panel)

(2) Connections on the front panel

Connect the cable (see note *2) from the INPUT 50W on the R3267 Series to the TO ANALYZER 50W on the R3560 as shown in Figure 2-2.



Figure 2-2 Connection between R3267 Series and R3560 (Front panel)

2.2 How to connect to R3560, R3561 or R3562

2.2.2 Connecting the R3267 Series to R3561 or R3562

Connections on the rear panels.

Connect the cable (see note *1) from the serial I/O connector on the R3267 Series to the serial I/O connector on the R3561 or R3562 as shown in Figure 2-3 which shows the R3267 Series and R3561 rear panels.



Figure 2-3 Connection between R3267 Series and R3561 or R3562 (Rear panel)

2.3 Serial port setting

2.3 Serial port setting

Pressing **CONFIG** and *RS232* displays the serial port setting menu. Before using OPT08, check that Rx Control is selected. If a mode other than Rx Control is selected, change the mode to Rx Control.

		1	GPI
			8
Ē	RS232	_	RS2:
	Select : Remote Control Rx Control		Cop
	Baud Rate : 600 1200 2400 4800 9600 19200		Conf
	Data Length : 7 8	╢┢	1
	Stop Bit : 1 2		Date/
	Parity Bit : NORE ODD EVEN		
	Flow Control : NONE XON/XOFF	-	; Tra Poir 1001
Lui.	ما المربعة الله والأمام والتروي بنار ومأكله وورو ومن أخذ والمربعة ووالمربعة ووالمربعة والمربعة والمربعة والمربعة والمرابع	Ē	Disp
n gent	กลังกุญแสดงเป็น และการกระบบกันที่สุดที่หนุกและการสุดที่แนะ ไปปกระเทศ ในมากๆ ได้ทระการกุมส์ตระบบที่ กุณ์ตรไทย		ON

Figure 2-4 Serial port selection screen

3.1 Outline

3 HOW TO OPERATE THE R3560

This chapter describes all key functions of the R3560.

3.1 Outline



Figure 3-1 Initial screen

The operation menu of R3560 is placed under the ADVANCE.

Press **ADVANCE** and *Rx Control [R3560]*, R3267 Series becomes R3560 control mode and displays Initial screen shown in Figure 3-2 to set and measure R3560.

In this mode, operation with only soft-key or dialog box becomes effective except **FREQ** and **LEVEL**. The operation with **SPAN** and so on which can be used in ordinary operation mode cannot be performed. In order to return to the ordinary operation mode, press **POWER**, **UTIL**, **TRANSIENT** or *Quit*.

	R× C	ontrol [R3560]		E00+B+D	ļ
Mode Frequer Level	: ncy : ;	PDCL 810.00 -80.0	0 MHz dBm		R3560 1 BER
Slot Config : Modulation :	DNT ON				Sens
Filter :	BOOT NYOU	TST			Bonomatan
Output :	TRX				Setup
[Burst]	[CC(Hex)]	[SACCH(Hex)]	[Pattern]	[Sync Word]	4 Output
Slot1 : ON	00	000000	PN15	S1	
Slot2 : ON	00	000000	PN15	S2	
Slot3 : DN	00	000000	PN15	\$3	Save
					6 Recall
Scramble	:U⊢F S	cramble Code	: 00	U [Hex]	7 Quit

Figure 3-2 Initial screen (R3560 mode)

3.2 Reference

This section describes the functions of all panel and soft keys.

- Menu Index: Use this index as a key index to Chapter 3.
- Menu Map: Shows a list of hierarchical menus on a panel key basis.
- Functional Description: Explains the functions of the panel and soft keys.

The panel keys are arranged in alphabetical order.

3.2.1 Menu Index

This menu index is used to easily find the keys described in Chapter 3.

Operation Key	Pages	
Average Times	3-3,	3-6.
6	3-8	,
BER	3-3,	3-5
Bit Length	3-3,	3-6,
	3-8	
Burst	3-3,	3-13
Burst Trigger	3-3,	3-10
Burst Trigger ON/OFF	3-3,	3-6,
	3-8	
Clock Polarity	3-3,	3-6,
	3-8	
Color Code	3-3,	3-13
CS	3-14	
Data Polarity	3-3,	3-6,
	3-8	
Filter	3-3,	3-10
Frame	3-3,	3-6,
	3-8	
FREQ	3-4	
Interval	3-3,	3-6,
	3-8	
	3-4	2 10
Level Unit	3-3,	3-10
Modulation	3-3, 2-2	3-9 2 10
Modulation	3-3, 2-2	3-10
	3-3, 2 2	2.6
	3-3, 3.8	3-0, 3-15
Paramatar Satun	3-0,	3-15
	3-3, 3-7	3-9,
Pattern	3_3	5-7
PS	3-14	
Ouit	3-3	3-6
2	3-9	5 0,
Rate	3-3.	3-12
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Recall Register List	3-3	

Operation Key	Pages	
Rx Control [R3560]	3-3	
SACCH	3-3,	3-13
Save	3-3,	3-16
Save Register List	3-3	
Scramble	3-3,	3-13
Scramble Code	3-3,	3-14
Sens	3-3,	3-7
Slot	3-3	
Slot Config	3-3,	3-10
Slot Setup	3-3,	3-12
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Step	3-3,	3-8
Stop	3-3,	3-8
Sync ON/OFF	3-3,	3-6,
	3-9	
Sync Word	3-3,	3-15
Target BER	3-3,	3-8
Trig Polarity	3-3,	3-10
Trigger Delay	3-3,	3-11
User Scramble	3-3,	3-14
User Scramble Code	3-3,	3-14

3.2.2 Menu Map

All R3560 soft menus, which are under the ADVANCE key, are shown below.

NOTE:	Unless otherwise noted	Represents a panel key. Represents a dialog box. I the soft menus are shown	
ADVANCE Rx Control [R3560]	BER BER Sens Parameter Setup - Output ON/OFF Save Recall Quit	Parameter Setup Burst Trigger ON/OFF *1*3 Output ON/OFF Sync ON/OFF *2 Quit Parameter Setup Burst Trigger ON/OFF *1*3 Output ON/OFF Sync ON/OFF *2 Quit Slot Setup	Bit Length Average Times Interval Clock Polarity Data Polarity Frame Start Stop Step Target BER Bit Length Average Times
*1 When Mode is s Valid Slot Confi DEV, DNT, UP USYNC.	et to PHS: iguration is set to T, DSYNC or	Slot Config Modulation Filter Output Level Unit	Clock Polarity Data Polarity Frame = = = = = = = = = = = = = = = = = = =
When Mode is s Valid Slot Confi or UPT.	et to PDCL or PDCH: guration is set to DEV	Burst Trigger Trig Polarity *1*3 Trigger Delay *1*3	Pattern Burst Color Code
*2 Valid when Moo Slot Configurati UPT, DSYNC o	de is set to PHS and on is set to DNT, r USYNC.	► Save Register List	SACCH Scramble Scramble Code
*3 There is a possib is not available of sions of the R35	vility that this function depending on the revi- 60 main unit.		User Scramble Code Sync Word *3

3.2.3 Functional Description

(1) Output frequency setting

FREQ

Sets output frequency.

The frequencies which can be set are different depending on the system mode. PDCL: PDC 800 MHz band PDCH: PDC 1.5 GHz band DNT: Downlink traffic channel UPT: Uplink traffic channel

- PHS: 1.9GHz band
- (2) Output level setting

LEVEL

Sets output level.

Maximum output levels are different depending on RF terminal or Tx/Rx terminal.

Terminal	Maximum output	Minimum output	Output step
Tx/Rx	-7dBm	-125Bm	0.1dB
RF	+6dBm	-125 Bm	0.1dB

(3) BER measurement

Press **SINGLE** or **REPEAT(START/STOP)** to start the measurement. Press **REPEAT(START/STOP)** to stop the current measurement.

BER

Enters into BER (Bit Error Rate) measurement mode.

Bit Error Rate Measurement [R3560] E00+B+D	
BER %	BER ¹ Parameter Setup
<pre><<< Parameters >>> Frequency : 810.000 MHz Level : -80.0 dBm Bit Length : 2556 Average Times : 1 Interval : 0 µs Clock Polarity : NE6 Data Polarity : POS Frame : 0FF</pre>	3 Burst Trigger DN OFF 4 Output DN OFF 5 Sync DN OFF 7 Quit

Figure 3-3 BER measurement screen

Parameter Setup

Dialog box for BER measurement parameter setting is displayed to set bit length or average number of times, etc.

Bit Error Rate Measurement [R3560] E00+B+D	
BER %	BER ¹ Parameter Setup
<pre> State Parameters >>> Frequency : 810.00 Level : -80.0 Bit Length : 2556 Average Times : 1 Interval : 0 µs Clock Polarity : NE6 Data Polarity : POS Frame : 0FF Frame : POS NE6 DI D</pre>	3 Burst Trigger ON OFF 4 Output ON OFF 5 Sync OH UFF 7 Quit

Figure 3-4 Dialog box for BER measurement screen

Bit 1	Length
-------	--------

Set BER measurement time with the bit length.

The setting range of the bit length is 1000 to 1000000 bits.

Average Times

Set measurement averaging count.

The setting range of the averaging count is 1 to 32 times.

Interval

Set interval time between receipt of measurement start from R3560 and actual measurement start.

When average measurement is specified, it also can be used as the interval time between the end of the measurement and the start of the next measurement. Refer to R3560 operation manual for details.

The setting range of the interval time is 0.00 to 1.00 second which has steps of 0.01 second (10 ms.).

Clock Polarity

Select from which edge you get data, the rising edge of the signal from BER clock terminal or the falling edge.

- POS: Rising
- NEG: Falling

Data Polarity

Select if you invert BER DATA terminal data or not.

- POS: Positive logic (not invert)
- NEG: Negative logic (invert)
- *Frame* Perform the timing control of TCH frame. If you use the TCH frame timing signal that is entered from the FRAME terminal for BER measurement, specify a logic of the TCH frame timing.
 - OFF: Not use.
 - POS: Positive logic
 - NEG: Negative logic

Burst Trigger ON/OFF

Select ON or OFF to make the Burst Trigger function enabled or disabled.

Output ON/OFF

Switches the signal of the output terminal to ON/OFF.

Sync ON/OFF

Switch the synchronization burst output of PHS to ON/OFF. This is available only on conditions that the system mode is PHS and that the slot pattern is DNT/UPT. When ON is selected, the synchronization burst frame is output. When OFF is selected, the output of the synchronization burst frame is stopped.

Quit

Quits BER measurement mode.

(4) Receiver sensitivity (Sens) measurement

Press SINGLE or REPEAT(START/STOP) to start the measurement. Press REPEAT(START/STOP) to stop the current measurement.

Sens

Enters into the receiver sensitivity measurement mode.

Ç	Sens	Measurement [R3560] E00+B+	D	
				Sens
Sen	s	dBm		¹ Parameter
				Setup
<<< Parameters >>	·>			
Frequency	:	810.000 MHz		
Level	:	-80.0 dBm		³ Burst
Start	:	-100.0 dBm		Trigger
Stop	:	-120.0 dBm		
Step	:	1.0 dB		4 Nutput
Target BER	:	1.0 %		
Bit Length	:	2556		
Average Times	:	1		5 Sync
Interval	:	0 µs		
Clock Polarity	:	NEG		
Data Polarity	:	POS		
Frame	:	OFF		
				Í Š
				Quit

Figure 3-5 Sens measurement screen

Parameter Setup

Displays a dialog box to set the receiver sensitivity measurement parameter and sets output level, etc to start the receiver sensitivity measurement.

Sens Measurement [R3560] E00+B+D]
Sens dBm	Sens ¹ Parameter Setup
Sens Parameter SetupFrequency81Level-8Start-100.0 dBmStart-10Stop-1Stop-1Stop-1Step1.Target BER1.0 dBBit Length2556Average Times1Interval0Clock PolarityNEData PolarityPDFrame0FFrame0FFrame0FFrame0F	3 Burst Trigger ON OFF 4 Output 5 Sync ON OFF 7 Quit

Figure 3-6 Dialog box screen for Sens Parameter setting

R3267 Series Option08 Rx Control Option Operation Manual

3.2 Reference

	<i>a.</i> .	
	Start	Set output level (the search upper limit value) to start sensitivity
		The relationship between the search upper limit value and the
		search lower limit value should be:
		Search upper limit value > Search lower limit value
	Ston	Set output level (the search lower limit value) to end sensitivity
	Stop	measurement.
	Step	Set the width of output level change.
	Target 1	BER
	-	Specify BER point to search. The setting range of the search
		points is 0% to 5% which has steps of 0.1%.
	Bit Leng	gth
		Set the time for BER measurement with bit length.
		The setting range is 1000 to 1000000 bits.
	Average	? Times
		Set the averaging times for BER measurement.
	.	The setting of averaging times is between 1 and 32 times.
	Interval	
		Set R3560 interval time for BER measurement. The setting range is 0.00 to 1.00 s, which has store of 0.01 s. (10 ms)
		The setting range is 0.00 to 1.00 s. which has steps of 0.01s. (10 ms.).
	Clock P	olarity
		Select at which edge you get the data for BER measurement,
		the rising edge of the signal from BER clock terminal or the
		falling edge.
		POS: Rising
		NEG: Falling
	Data Po	olarity
		Select to invert or not to invert BER DATA terminal data for
		BER measurement.
		POS: Positive logic (not invert)
		NEG: Negative logic (invert)
	Frame	Control the timing of TCH frame for BER measurement.
		If you use the TCH frame timing signal that is entered from the
		FRAME terminal for BER measurement, specify a logic of the
		TCH frame timing.
		OFF: Not use.
		POS: Positive logic
		INEU: INEGATIVE IOGIC
Burst Trigger ON	//OFF	
	Select C	IN or OFF to make the Burst Trigger function enabled or disabled.
Output ON/OFF		

Switches the signal of the output terminal to ON/OFF.

Sync ON/OFF				
2	Switch the synchronization burst output of PHS to ON/OFF.			
	This is available only on conditions that the system mode is PHS and that the slot pattern is DNT/UPT.			
	When ON is selected, the synchronization burst frame is output.			
	When OFF is selected, the output of the synchronization burst frame is stopped.			
Quit				
-	Quits the receiver sensitivity measurement mode.			
System mode and slot setting				

Sets R3560 system mode and slot configuration, etc.

Parameter Setup

(5)

The dialog box is displayed on the screen to set the system mode and the slot configuration, etc.

* How to operate the dialog-box

The operation to select the set items and set parameters is performed using the data knob and step keys in the same manner as the standard dialog-box in the R3267 Series.

Rx Tester Parameter Setup	1
Mode: PDCL PDCH PHS	Param Setup
Slot Config: FIL DEV DNT UPT	
Modulation: ON OFF	Setup
Filter: ROOT NYQUIST NYQUIST	
Output: TRX RF	
Level Unit: dBm dBµVemf	
Burst Trigger: OH OFF Trig Polarity: POS NEG	
Trigger Delay: [Symbol]	
[Burst] [CC(Hex)] [SACCH(Hex)] [Pattern] [Sync Word]	
Slot1 : ON 00 000000 PN15 S1	
Slot2: ON 00 000000 PN15 S2	
Slot3: ON 00 000000 PN15 S3	
Scramble : OFF Scramble Code : 000 [Hex]	

Figure 3-7 SETUP setting screen

ModeSet R3560 system mode.PDCL:PDC system 800 MHz bandPDCH:PDC system 1.5 GHz bandPHS:PHS system

Slot Co	nfig
	Sets slot pattern.
	FIL: FILL pattern
	DEV: Frame for device evaluation
	DNT: Downlink traffic channel
	UPT: Uplink traffic channel
	DSYNC:
	Downlink synchronization burst frame (PHS only)
	USYNC:
	Uplink synchronization burst frame (PHS only)
Modula	ation
	Switches modulation and non-modulation of the output.
	ON: Modulation signal ($\pi/4$ DQPSK)
	OFF: Non-modulation signal (cw)
Filton	Switches the base hand filter
riuer	Switches the base band litter.
	ROOT NIQUIST:
	NVOLUST.
	N I QUISI. Nyouist filter
• • •	
Output	Switches the signal output terminal.
	TRX: Tx/Rx terminal
	RF: RF terminal
Level U	Jnit
	Selects the setting of signal level and the display unit.
	dBm: Sets the level unit to dBm.
	dBµVemf:Sets the level unit to dBµVemf.
Rurst 7	Prioger (*1)
Dursei	Selects ON or OFF to make the Burst Trigger function enabled
	or disabled This setting can be made from the SoftKey menu
	in the BER/SENS measurement screen
	ON: Enables the Burst Trigger function
	OFF: Disables the Burst Trigger function
<i></i>	orr. Distores the burst migger function.
Trig Po	larity
	Selects POS or NEG to make the rising edge or the falling edge
	of the input signal of the R3560 Burst Trigger in terminal
	enabled.
	POS: Selects the rising edge.
	NEG: Selects the falling edge.
*1: Th	e timing to output the R3560 RF signal is controlled by synchronizing
wi	th the input signal of R3560 Burst Trigger in terminal.
Th	is function takes effect when the modulation is in the ON state and
set	ttings of the system mode and the slot configuration are as shown in
Та	ble 3-2 Conditions.

Trigger Delay

Sets the delay from the input signal of the R3560 Burst Trigger in terminal in symbols. When a signal effective to the Burst Trigger in terminal is gotten,delay can be changed within ±10 symbols (resolution of 0.1 symbols) based on the time "T" (see Table 3-1 and Figure 3-8) defined according to the system mode and the rate.

Table 3-1 Time defined according to the system mode and the rate

System mode	Rate	Time "T" defined according to the system mode
PDCI /PDCH	FULL	20[ms]
rDCL/rDCII	HALF	40[ms]
PHS		5[ms]



Figure 3-8 Timing of RF signal output vs the Burst Trigger input signal

Table 3-2 Effective	setting	condition	in Burs	t Trigger	functions
Table 5-2 Effective	scung	contantion	III Dui S	1116601	runctions

System			Slot conf	iguration		
mode	FIL	DEV	DNT	UPT	DSYNC	USYNC
PDCL			~		Not	sot
PDCH	×	\circ		\bigcirc	INO	l Sel
PHS			0		0	0



Slot Setup

The dialog box to set modulation pattern and communication rate in the slot is displayed.

	Slot Parameter Setup	
Γ	Rate: FULL HALF	Param Setun
	Slot: SLOT1 SLOT2 SLOT3	1 Slot
	Pattern: PN9 PN15 ALLO ALL1	Setup
	Burst: ON OFF	
	Color Code: 00 [Hex]	
	SACCH: 000000 [Hex]	
	Scramble: ON OFF Scramble Code: 000 [Hex]	
	Sync Word: S1 S2 S3 S4 S5 S6	
	S7 S8 S9 S10 S11 S12	
'	SLot1: DN 00 000000 PN15 S1	
	Slot2 : DN 00 000000 PN15 S2	
	Slot3: ON 00 000000 PN15 S3	
	Scramble : OFF Scramble Code : 000 [Hex]	
		IJ

Figure 3-9 SLOT setting screen

- Rate Switch the communication rate. The setting can be performed only when the system mode is PDCL/PDCH.
 FULL: Full rate HALF: Half rate
 Slot Specify to which slot the Pattern, Burst, Color Code, and SACCH are set.
- PatternSelect a pattern of the user information transmiting channel of
traffic channel for PDC, information channel I of traffic
channel for PHS, and pseudo random pattern (frame for device
evaluation or continuous pseudo random pattern).PN9:PN9 patternPN15:PN15 patternALL0:ALL 0 patternALL1:ALL 1 pattern

Burst (*1)

Switch ON/OFF of the current slot which was selected at Slot.

ON: Sets the slot to ON.

OFF: Sets the slot to OFF.

Color Code (*1, *2)

Set the color code in the slot.

The setting can be performed only when the system mode is PDCL/PDCH.

The setting range is 0 to FF in hexadecimal.

SACCH (*2)

Set slow associated control channel.

The setting can be performed only when the slot configuration is DNT/UPT.

The setting range is as Table 3-3 with hexadecimal.

Table 3-3 SACCH settable range

System mode	Slot configuration	Setting range of SACCH		
System mode	Slot configuration	Minimum value	Maximum value	
PDCL/PDCH	Downlink traffic channel: DNT Uplink traffic channel: UPT	0 (Hexadecimal) 0 (Hexadecimal)	1FFFFF (Hexadecimal) 7FFF (Hexadecimal)	
PHS	Downlink traffic channel: DNT Uplink traffic channel: UPT	0 (Hexadecimal) 0 (Hexadecimal)	FFFF (Hexadecimal) FFFF (Hexadecimal)	

Scramble (*1)

The setting to perform or not to perform scramble control to traffic channel for PDC communication, traffic channel, and synchronization burst for PHS communication.

The ranges of the scramble are different depending on the

communication system, uplink/downlink, and so on. Refer to R3560 operation manual for details.

ON:The scramble control is performed.

OFF: The scramble control is not performed.

- *1: The setting may be limited depending on the state of the slot configuration. Refer to R3560 Operation Manual Slot Configuration for details.
- *2: The input is performed in hexadecimal. The input of A to F in hexadecimal is performed as follows with the shift key.
 - Input valueOperation A:Shift→0 B:Shift→1 C:Shift→2 D:Shift→3 E:Shift→4 F:Shift→5

Scramble Code (*2)

Set scramble pattern.

The setting ranges are different depending on the system mode.

Table 3-4 Scramble pattern setting range

System mode	Setting range		
System mode	Minimum value	Maximum value	
PDCL/PDCH	0 (Hexadecimal)	1FF (Hexadecimal)	
PHS	0 (Hexadecimal)	3FF (Hexadecimal)	

User Scramble

Set to do user scramble or not to do user scramble to the physical slot for communication.

The setting can be performed only when the system mode is PHS.

ON: The user scramble is performed.

OFF: The user scramble is not performed.

User Scramble Code (*2)

Set user scramble pattern to the traffic channel. The setting range of the user scramble pattern is 0 to FFFF in

hexadecimal.

- PS (*2) Calling identification pattern is set. The setting can be performed only when the system mode is PHS and the slot configuration is USYNC/DSYNC. The setting range is 0 to FFFFFFF in hexadecimal.
- CS (*2) Called identification pattern is set.

The setting can be performed only when the system mode is PHS and the slot configuration is USYNC/DSYNC. The setting range is 0 to 3FFFFFFFFFF in hexadecimal.

*2: The input is performed in hexadecimal. The input of A to F in hexadecimal is performed as follows with the shift key.

Input value	Operation
A:	Shift $\rightarrow 0$
B:	Shift $\rightarrow 1$
C:	Shift $\rightarrow 2$
D:	Shift \rightarrow 3
E:	Shift \rightarrow 4
F:	Shift \rightarrow 5

Sync Word

Specify the slot and change the synchronization word. This command can be set when the system mode is PDCL or PDCH and the slot configuration is UPT or DNT. Setting value of the synchronization word is shown in Table 3-5.

Sync word	20-bit synchronization we	ord pattern (hexadecimal)
No.	DNT	UPT
S 1	87A4B	785B4
S2	9D236	62DC9
S3	81D75	7E28A
S4	A94EA	56B15
S5	5164C	AE9B3
S 6	4D9DE	B2621
S 7	31BAF	CE450
S 8	1E56F	E1A90
S 9	E712C	18ED3
S10	FBC1F	043E0
S11	8279E	7D861
S12	98908	676F7

Note: S1 to S12 in the table correspond to the 20-bit synchronization word pattern numbers of STD-27.

(6) Output ON/OFF setting

Output ON/OFF

Switches the signal of the output terminal to ON/OFF.

(7) Saving

Saves all currently-set conditions to the R3560 backup memory according to the specified memory number.

Save

The save operation screen is displayed. To select the memory number and to execute data saving, use a knob.

		R×	Control [R356	0]	E00+B+D]
N F L	iode Trequ Level	iency	: PDCL : 810.00 : -80.0	00 MHz dBm		R3560
SI	ot Confi dulation	g : DNT : DN				z Sens
Fi Ou	lter tput	: ROOT NY : TRX	QUIST			³ Parameter Setup
		Sa	ve Register Lis	st		4 Output
No	Mada		-			
	noue	Slot Conf.	Frequency	Level	Output	ON OFF
1: 2: 3: 4:	PDCL PHS PHS empty	DNT DNS DNS DNS	810.000MHz 1895.150MHz 1895.150MHz	-80.0dBm -80.0dBm -80.0dBm -80.0dBm	Output ON OFF OFF	ON OFF 5 Save
1: 2: 3: 4: 5: 6: 7: 8:	PDGL PHS PHS empty PDCH PDCL empty empty	DNT DNS DNS DEV DNT	Frequency 810.000MHz 1895.150MHz 1895.150MHz 1477.001MHz 810.000MHz	-80.0dBm -80.0dBm -80.0dBm -80.0dBm -100.0dBm -80.0dBm	Output ON OFF OFF ON ON	ON OFF 5 Save 6 Recall

Figure 3-10 Save operation screen

In the save operation screen, the major settings inside the R3560 backup memory are displayed.

Details on the settings are explained below.

<i>No</i> :	The memory number is displayed.
Mode:	The set system mode is displayed.
Slot conf:	The set pattern of the slot is displayed.
Frequency:	The set output frequency is displayed. (The unit is fixed to MHz.)
Level:	The set output level is displayed. (The unit is fixed to dBm.)
Output:	The set condition (ON or OFF) of the data output is displayed.
NOTE:	When empty is displayed after the column of No., it shows that no condition is saved to that memory number.

(8) Recalling

Re-sets all set conditions of the memory according to the specified memory number of the R3560 backup memory.

Recall

The recall operation screen is displayed. To select the memory number and to execute data recalling, use a knob. The explanation of the recall operation screen is the same as that of the save operation screen. Refer to the explanation in the above (a).

(9) Measurement error message displaying function

With this function, measurement error messages in the Bit Error Rate measurement (hereafter called BER measurement) and the receiver sensitivity measurement (hereafter called SENS measurement) are displayed.

The cause that the BER or the SENS measurement was not properly executed is displayed. The measurement error messages and details on errors are as follows.

1. Sync error

Synchronization cannot be taken with the data input from the DATA terminal of the BER measurement.

2. Clock error

A clock is not input to the clock terminal of the BER measurement.

3. SensPoint is not found

The point of BER (Target BER) specified in the Sens measurement is not found. (This message is output only in the Sens measurement.)

Bit Error Rate Measurement [R3560]	E00+B+D	
		BER
BER 99.9999 % 9.99999E-1		¹ Parameter Setup
<pre></pre> <pre></pre> <pre></pre> <pre>Frequency : 810 000 MHz Level Error [652] Bit Len Average Clock error. Interva Clock Porarity · RC0 Data Polarity : POS Frame : OFF </pre>		³ Burst Trigger DN UFF ⁴ Output ON OFF ⁵ Sync ON UFF

Figure 3-11 BER measurement screen (in occurrence of Sync error)

3.3 Example of the measurement (BER measurement)

3.3 Example of the measurement (BER measurement)

Here explains the outline of the operation with a measurement example of a receiver which has a control mode to receive physical channel for down communication.



Figure 3-12 BER measurement connection

Follow the procedure below

- 1. Connect as shown in Figure 3-12.
- 2. Pressing *SETUP* displays dialog box for system mode and slot configuration setting.

In this box, the selection of each parameter setting value with the data knob and the movement between parameters with the step key can be performed.

After selecting 1 parameter with the data knob, in order to define the setting, press the data knob or Hz.

Set system mode by using this dialog box. Set slot configuration in downlink traffic channel (DNT) as well.

- Pressing *SLOT* displays dialog box for the setting in the slot. By operating this dialog box, slot No., slot TCH pattern, PN 9 pattern, etc. for the measurement are set. Set SACCH, scramble, etc. as needed. After the setting in the slot, press *return* twice and return the menu to the top step of *Rx Test* menu.
- 4. Press **FREQ** and set the frequency to test R3560 frequency.

3.3 Example of the measurement (BER measurement)

- 5. Press **LEVEL** and set R3560 output level to a suitable level for the receiver.
- 6. Set the receiver in a receivable mode using the receiving controller.
- 7. Pressing *BER* and *BER Param* displays dialog box for BER counter setting. Set demodulation data, polarity of demodulation clock, average times, interval, etc.
- 8. Pressing **REPEAT** or **SINGLE** starts the measurement.

4.1 Outline

4 HOW TO OPERATE THE R3561

This chapter describes all key functions of the R3561.

4.1 Outline



Figure 4-1 Initial screen

The operation menu of R3561 is placed under the ADVANCE.

Press **ADVANCE** and *Rx Control [R3561]*, R3267 Series becomes R3561 control mode and displays Initial screen shown in Figure 4-2 to set and measure R3561.

In this mode, operation with only soft-key or dialog box becomes effective except **FREQ** and **LEVEL**. The operation with **SPAN** and so on which can be used in ordinary operation mode cannot be performed. In order to return to the ordinary operation mode, press **POWER**, **UTIL**, **TRANSIENT** or *Quit*.

R× Control	[R3561] A03	
Freq.: 870.030	MHZ CH : 1 ch	R3561
Level: -80.0	dBm Offset: 0.0 dB	1
<<< Parameters >>>		Modulation
Link : FORWARD		
Channel Mode : MULTI		
Generator Mode : SIGNAL		
Modulation : ON		
Equalizing : ON		3
Data Burst 🔅 OFF		Frequency
Eb/No : 10.0 dB		& Level
CHLevel (CHA) : DN	Ratio ∶ -16.3 dB	
(CH B) : AUTO	Ratio : -1.1 dB	4
(CH C) : DN	Ratio ∶ -7.0 dB	Other
CH Assign (CH A) : TR(Primary)	Code Ch : 8 ch	
(CH B) : SYNC	Code Ch : 32 ch	5
(CH C) : PILOT	Code Ch : 0 ch	Modulation
PN Offset : 0.00		ON OFF
ALC Mode : S/H		
I/Q Source : INTERNAL		6 Output
<<< Clock >>>		ON OFF
Synth Ref : INTERNAL	CDMA Clock Out : EXT EVEN	7
CDMA-TB Source : INTERNAL	1.2288/19.6608	lí an Ì
Even Second In : DISABLE	Clock Out : OFF	Quit

Figure 4-2 Initial Screen (R3561 mode)
4.2 Reference

This section describes the functions of all panel and soft keys.

- Menu Index: Use this index as a key index to Chapter 4.
- Menu Map: Shows a list of hierarchical menus on a panel key basis.
- Functional Description: Explains the functions of the panel and soft keys.

The panel keys are arranged in alphabetical order.

4.2.1 Menu Index

This menu index is used to easily find the keys described in Chapter 4.

Operation Key	Pages		Operation Key	Pages	
1.2288/19.6608 Clock Out	4-5		Generator Mode	4-4,	4-5,
10MHz Ref Adj	4-5			4-7	
ALC Mode	4-5,	4-12	I/Q Source	4-4,	4-5,
AWGN	4-5,	4-15		4-8	
AWGN Cal Corr ON/OFF	4-5,	4-15	LEVEL	4-6	
Cal/Test	4-5,	4-14	Level Offset	4-5,	4-12
CDMA Clock Out	4-5		Level Ratio	4-4,	4-5,
CDMA-TB Source	4-5			4-7	
CH A	4-4,	4-5,	Level Setup	4-5,	4-11
	4-7		Link	4-4,	4-5,
СН В	4-4,	4-5,		4-6	
	4-7		Menu Assistant ON/OFF	4-4,	4-9
CH C	4-4,	4-5,	Menu Assistant Setup	4-4,	4-9
	4-7		Modulation	4-4,	4-6,
CH Start Freq.	4-5,	4-11		4-12	
CH Start No	4-5,	4-11	Modulation ON/OFF	4-4,	4-5,
CH Step Freq	4-5,	4-11		4-10,	4-12,
Channel Assign	4-4,	4-8		4-16	
Channel Mode	4-4,	4-5,	Modulator	4-5,	4-15
	4-7		Modulator Cal Corr ON/OFF	4-5,	4-15
Clock Setup	4-5,	4-13	Offset Value	4-5,	4-12
Code Channel	4-4,	4-9	Other	4-4,	4-13
Data Burst	4-4,	4-5,	Output ON/OFF	4-4,	4-5,
	4-7			4-10,	4-12,
Data Rate	4-4,	4-9		4-17	
Eb/No [CH A/No]	4-4,	4-5,	PN Offset	4-4,	4-5,
	4-7			4-8	
Equalizing	4-4,	4-5,	Preset	4-5,	4-16
	4-7		Quit	4-4	
Even Second In	4-5		Recall	4-5,	4-16
Frame A Setup	4-4,	4-8	Recall Register List	4-5	
Frame B Setup	4-4,	4-8	Rx Control [R3561]	4-4	
FREQ	4-6		Save	4-5,	4-16
Freq Input	4-5,	4-11	Save Register List	4-5	
Frequency & Level	4-4,	4-11	Self Test	4-5,	4-15
Frequency Setup	4-5,	4-11	Step Size	4-5,	4-11,
General Setup	4-4,	4-6		4-12	

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4.2 Reference

Synth Ref	4-5	
Traffic PRBS	4-4,	4-9
Unit	4-5,	4-12
Upper Limit	4-5,	4-12

4.2.2 Menu Map

A list of soft menus, which are under the ADVANCE key, used with the R3561 are shown below.

-	Unlo	ess otherwise noted, the soft m	nei	nus are shown.		
	ADVANCE Rx Control [R3561]	Modulation Frequency & Level Other	•	General Setup Frame A Setup Frame B Setup	→]	Link *1 Channel Mode *1*2 Generator Mode *1
		Modulation ON/OFF		Menu Assistant ON/OFF		Equalizing *1
		Output ON/OFF		Menu Assistant Setup		Data Burst *1*3
		Quit		Modulation ON/OFF		Eb/No [CH A/No] *1
				Output ON/OFF		CH A *1
						Level Ratio *1
						₁ CH B *1*4
						Level Ratio *1*4
Val NA	id when I/Q Sourd	ce is set to INTER-				CH C *1*4
Val	id when Link is so	et to FORWARD.				Level Ratio *1*4
(W)	hen set to REVER	SE, the setting can-				PN Offse *1*3
not	be changed from	SINGLE.)				I/Q Source
Val	id when Link is so	et to REVERSE.			╘	Channel Assign *1
Val MI	id when Channel	Mode is set to				Code Channel *1*5
Val	id when Link is se	et to FORWARD.				Traffic PRBS *1*6
Val	id when Channel	Assign in Frame A is				Data Rate *1
set	to TR PRIMARY	or TR PN.				Channel Assign *7
Val	id when I/Q Sour	ce is set to INTER-				Code Channel *7
NA	L and Channel M	ode is set to MULTI.				
vai	to TR PRIMARY	Assign in Frame B is				Traffic PRBS */*8
301		OF TREES.	1			Data Rate *7

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*9 Valid when Freq Input is set to CHANNEL No.

- *10 Valid when Freq Input is set to FREQUENCY.
- *11 Valid when I/Q Source is set to INTERNAL and Link is set to REVERSE.

4.2.3 Functional Description

(1) Setting the output frequency

FREQ

A window prompting numeric values is displayed. Sets the output frequency. Use the up or down keys, the data knob and the numeric keys to enter data.

(2) Setting the output level

LEVEL

A window prompting numeric values is displayed. Used to set the output level. Use the up or down keys, the data knob and the numeric keys to enter data.

(3) Setting the modulation

Modulation

Displays the menu used with the modulation function. When *return* is pressed, the screen display returns to the initial screen.

General Setup

The display box used to set general items such as Link and Channel mode is displayed on the screen.



Figure 4-3 General Dialog Screen

Link

Specifies the Link-Direction of the signals used in the R3561. REVERSE:

Sends signals from the Mobil station to the Base station. The modulation method is OQPSK.

FORWARD:

Sends signals from the Base station to the Mobil station. The modulation method is OQPSK.

Channel Mode	Selects the When in the MULT:	base band channel multiplexing. The Reverse link, only SINGLE mode can be used. Multiplexed output from channels A, B and C is
	SINGLE	obtained. Outputs channel A only
Generator Mod	ø	
Generator Mou	Selects the CONV blo SIGNAL: NOISE: Eb/Nt (No	signal input to the I Q-Modulator in the MOD/ ck. Selects CDMA signals. Selects an AWGN output with a bandwidth of 2 MHz.): Selects CDMA signal superimposed on AWGN signal. The ratio of channel A signal to the AWGN output level can be changed by Eb/NO [CH A/No].
	NOTE: A ge W SI	WGN calibration must be performed to select the nerator mode Eb/Nt(No). hen an IQ Sequence is set to EXTAC or EXTDC, only GNAL is selected for the generator mode.
Equalizing	Toggles th automatica	e Equalizing Filter on or off. This setting is illy toggled when the setting for Link is changed.
Data Burst	Toggles th	e Data burst on or off.
Eb/No [CH A/N	[0]	
	Sets the va valid when	lue of Eb/Nt(No) for channel A. This setting is the Generator mode is set to Eb/Nt(No).
CHA		
CH B		
СН С	This setting and channed B can select channel B levels (of c When set t the Channed	g is valid when the Channel mode is set to MULTI, els A and C can set this function on or off. Channel et AUTO, MANUAL or OFF. When set to AUTO, level is automatically set so that the sum of the channels A, B and C) is 0 (dB). o MANUAL, an arbitrary value can be specified by el Level Ratio.
Level Ratio	This settin Each chann channels A	g is valid when the channel mode is set to MULTI. nel level is set in relation to the sum of the levels (of A, B and C).
	NOTE: A	ratio is obtained when channel B is set to AUTO for the hannel ON/OFF.

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4.2 Reference

PN Offset	Sets the PN sequence offset value. 1PN Offset = 64 chips	
I/Q Source	Selects the signal to be input to the IQ-Modulator. INTERNAL:	
	Connects the internal base band IQ signal.	
	EXT AC: Couples the external IQ signal with an AC coupling.	
	EXT DC: Couples the external IQ signal with a DC coupling	5.
	CAUTION:An alarm will sound when the IQ Source is selected to EXT DC and its input level exceeds the upper limit Lower the input level below the upper limit immediately	0 t. y

WARNING: There is a possibility that this instrument will be damaged if an input level at the EXTERNAL IQ input terminal l exceeds the upper limit. Be sure to use within the specified range.

Frame A Setup Frame B Setup Sets frame details for channels A and B.

Rx Control [R3561] A03]
Freq.: 870.030 MHz CH : 1 ch	Modulation
Level: -80.0 dBm Offset: 0.0 dB	¹ General
<<< Parameters >>>	Setup
Link : FORWARD	· · ·
Channel Mode : MULTI	² Frame A
Generator Mode : SIGNAL	Satur
Modulation : UN	Setup
Equalizing UN	3 E P
Data Burst UFF	Frame B
ED/NO i IU.U OB	Setup
CHLEVEL (CHH) · UN KATIO · -10.3 OB	4 Monu
Frame A Parameter Setup	Assistant
	ON OFF
Channel Assign. Pillut Still R PRIMART	5 11
TR PN USER	- Menu
Pr Code Channel: 8 ch	ASSISTANT
	Setup
	Modulation
Data Rate: 9600 4800 2400 1200	
\$s 14400 7200 3600 1800	
CDMA-IB Source : INTERNAL 1.2288/19.6608	7 Output
Even Second In : DISABLE Clock Out : OFF	output

Figure 4-4 Frame A Dialog Box Screen

Channel Assign Selects channel signals for channels A and B.

Channel Signal Type	Description
PILOT	When LINK is set to FORWARD, this becomes the PILOT channel based on the TIA/EAI IS95 standards.
ZEROS (ZEROES)	When LINK is set to REVERSE, the data pattern is DATA ALL0.
SYNC	This is enabled only when the LINK is set to FORWARD. This becomes the SYNC channel based on the TIA/EAI IS95 standard.
TR PRIMARY (TRAFFIC PRI- MARY)	Selects the frame which inserts PRBS into the Primary Traffic section within Information bits in the Traffic channel frame.
TR PN (TRAFFIC PN)	Selects the frame which inserts PRBS into all of the Information bits in the Traffic channel frame.
USER	Downloads data from the outside into the User Defined Buffer in this instrument, and outputs this data. For detailed information on how to use USER, refer to User Define Buffer Functions in the R3561 Operation manual.

Table 4-1 Channel Signals

Code Channel	This function selects the type of code channel for channels A and B. Orthogonal code spreading is performed for each channel using the Walsh function corresponding to the selected code channel.
	The code channel is always set to 0 (zero) when the channel assignment is set to PILOT. When set to SYNC, the code channel is set to 32.
Traffic PRBS	This function selects the PRBS inserted into Information Bits in the Traffic channel frame.PN9: Pattern based on ITU-T V5.2PN15: Pattern based on ITU-T 0.151
Data Rate	Selects the data rate for channels A and B.

Menu Assistant ON/OFF

When this key is turned on, set items for the general dialog box are edited by Edit Menu.

Menu Assistant Setup

Displays the screen where set items used in the General dialog box are edited.

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	Rx Control [R3561]		A03	1
Freq.: 870	3.030 MHz	CH :		Modulation
<pre>Cevel: -</pre>	Menu Assistant	Parameter	0.0 ab	General Setup
Channel Mode Generator Mode Modulation	Channel Mode: Generator Mode:	ON C	OFF	² Frame A Setup
Equalizing : Data Burst : Eb/No : CH Level (CH A)	Equalizing: Data Burst: Eb/NoTCH A/Nol:		OFF	³ Frame B Setup
(CH B) : (CH B) : (CH C) : (CH Assign (CH A) :	CH A: Level Ratio:		OFF OFF	⁴ Menu Assistant ON OFF
(CH B) : : (CH C) : PN Offset : ALC Mode :	CH B: Level Ratio: CH C:	ON CON	OFF OFF	⁵ Menu Assistant Setup
I/Q Source :	Level Ratio: PN Offset:	ON CON	OFF	Modulation
CDMA-TB Source : IN Even Second In : DI	. 1/Q Source: SABLE Clo	ck Out : (JFF	7 Output

Figure 4-5 Edit Menu Dialog Box Screen

The items you set to ON (on this screen) can be changed on the general dialog box screen shown in Figure 4-3. If you set unnecessary items to OFF, these items will be skipped when operating the step keys.

It is possible to simplify the operation using this method for specific applications. *Menu Ass. ON/OFF*, however, must be turned on to enable the Edit menu.

Modulation ON/OFF

Toggles the modulation on or off.

Output ON/OFF

Toggles the output signal on or off.

(4) Setting the output frequency and output level

Frequency & Level

A dialog box related to frequency and level settings will be displayed.

Frequency Setup

A dialog box related to frequency parameter settings will be displayed.

Rx Control [R3561] A03	
Freq.: 870,030 MHz CH 1 ch Level: -80.0 dBm Offset: 0.0 dB	Freq & Lvl
<<< Parameters >>> Link : FORWARD	Setup
Channel Mode : MULTI Generator Mode : SIGNAL Modulation : DN	² Level Setup
Equalizing : ON Data Burst : OFF Fb/No _m <u>to an</u>	
CH Le Frequency Parameter Setup	
Freq Input: FREQUENCY CHANNEL No CH As CH Start Freq.: 870.030000 MHz CH Start Freq.: 0.030000 MHz	
PN Of CH Start No.: 1	5 Modulation ON OFF
ALC M Step Size. U.UU2019 Mrz	6 Output
<pre><<< Clock >>> Synth Ref : INTERNAL CDMA Clock Out : EXT EVEN CDMA-TB Source : INTERNAL 1.2288/19.6608 Even Second In : DISABLE Clock Out : OFF</pre>	ON OFF

Figure 4-6 Freq Para. Dialog Screen

Freq Input	Selects the frequency entry mode.
	FREQUENCY:
	Directly enters a frequency value.
	CHANNEL No:
	Enters a channel number.
CH Start Freq.	Sets the channel start frequency.
CH Step Freq.	Sets the channel spacing.
CH Start No.	Sets the channel start number.
Step Size	Sets a step value of the up or down keys.

When *return* is pressed, the screen display returns to the initial screen.

Level Setup

A dialog box to set parameters associated with the output level is displayed.

Rx Control [R3561] A03]
Freq.: 870,030 MHz CH : 1 ch Level: -80.0 dBm Offset: 0.0 dB	Freq & Lvl
<<<< Parameters >>> Link : FORWARD Channel Mode : MULTI Generator Mode : SIGNAL Modulation : DN Event interest : DN	Setup ² Level Setup
Cqualizing . UN Data Burst : OFF Eb/No CH Level Unit: CBm dBµVemf Upper Limit: 0.0.dBm CH Assign Level Offert: 000 DEE	
PN Offset Offset Value: 0.0 dB ALC Mode I2.0 dB I/Q Source ALC Mode:	Modulation ON OFF
Synth Ref : INTERNAL CDMA Clock Out : EXT EVEN CDMA-TB Source : INTERNAL 1.2288/19.6608 Even Second In : DISABLE Clock Out : OFF	

Figure 4-7 Level Para. Dialog Screen

Unit	Selects the unit to display or enter the data.			
Upper Limit	Sets the upper limit.			
Level Offset	Toggles	the level offset addition function on or off.		
Offset Value	Sets the	level offset value.		
Step Size	Sets the	up or down keys step value.		
ALC Mode	Selects t	he ALC operating mode.		
	Automat	ically selects the optimum operating mode depending		
	on the R	on the R3561 settings. (For details, refer to the R3561		
	Operatio	n manual.)		
	AUTO:	Normal ALC		
	S/H:	Sample and hold using the reference modulation		
		pattern.		
	HOLD:	ALC voltage hold when the reference modulation		
		pattern is used.		

CAUTION: When not set to the optimum operation mode, the output from the RF OUT terminal may deviate from the target value.

Modulation ON/OFF

Toggles the modulation on or off.

Output ON/OFF

Toggles the output signal on or off.

When *return* is pressed, the screen display returns to the initial screen.

* How to operate the dialog-box

The operation to select the set items and set parameters is performed using the data knob and step keys in the same manner as the standard dialog-box in the R3267 Series.

(5) Others

Using this screen, other functions can be set.

Other

Furthermore, *Preset*, *Clock Setup* and so on are displayed. When *return* is pressed, the screen display returns to the initial screen.

Rx Control [R3561]	A03
Freq.: 870.030 MHz CH : 1	ch Other dB U
	Clock
<<< Parameters >>>	Setup
Link : FUKWARD	
Channel Mode : MULII	
Generator Mode : SIGNAL	
Modulation : ON	
Equalizing : ON	3
Data Burst : OFF	Cal/Test
Eb/No : 10.0 dB	00171000
CH Level (CH A) : ON Ratio : -16.3 dB	
(CH B) ÷ AUTO Ratio ÷ -1.1 dB	
(CH C) ∶ ON	
CH Assign (CH A) : TR(Primary) Code Ch : 8 ch	
(CHB) : SYNC Code Ch : 32 ch	5
(CHC): PILOT Code Ch: O ch	Save
PN Offset : 0.00	00110
ALC Mode : S/H	
I/Q Source : INTERNAL	B
<<< Clock >>>	Recall
Synth Ref : INTERNAL CDMA Clock Out : EXT EV	EN
CDMA-TB Source : INTERNAL 1.2288/19.6608	l N
Even Second In : DISABLE Clock Out : OFF	Preset

Figure 4-8 Other Screen

Clock Setup

The dialog box which sets various clock signals is displayed.

	By Control [B3561] A03	٦
		-
Freq.:	870.030 MHZ CH : 1 ch	Other
Level:	-80.0 dBm Offset: 0.0 dB	¹ Clock
	Clock Parameter Setup	Setup
Synth Ref:	1 1.2288 2 2.4576 4.9152	
[MHz]	5 9.8304 10 15 19.6608	i
	INTERNAL	
CDMA-TB Source:	1 1.2288 2 2.4576 4.9152	3
[MHz]	5 9.8304 10 15 19.6608	Cal/Test
	INTERNAL	
Even Second In:	ENABLE DISAULE	
CDMA Clock Out:	EXT EVEN 20mSec 26.6mSec 80mSec 2Sec	
1.2288/19.6608: Clock Out	OFF 1.2288 19.6608	5 Save
10MHz Ref Adj.:	-2000	
I/Q Source	: INTERNAL	6
<<< Clock >>>		Recall
Synth Ref	: INTERNAL CDMA Clock Out : EXT EVEN	7
CDMA-TB Source	INTERNAL 1.2288/19.6608	December 1
Even Second In	.: DISABLE Clock Uut : UFF	Preset

Figure 4-9 Clock Dialog Box Screen

Synth Ref	Selects the reference frequency of the signal which is output from the SYNTHE REF IN terminal and input to the RF synthesizer reference circuit. When INTERNAL is selected, however, the internal reference oscillator signal is input to the RF synthesizer reference circuit.
CDMA-TB Sour	ce
	Selects the reference frequency of the signal which is output from the CDMA TIMEBASE IN terminal and input to the CDMA TIMEBASE reference circuit. When INTERNAL is selected, however, the internal reference oscillator signal is input to the CDMA TIMEBASE reference circuit.
EvenSecond In	Specifies whether or not the R3561 base band block functions in sync with the signal from EVENSEC/SYNC IN connector on the front panel.
CDMA Clock Of	ut

Selects the CDMA frame clock signal to be output from the CDMA CLOCK OUT terminal.

Table 4-2 Types of CDMA Frame Clock

CDMA Frame Clock	Description
EVEN SECOND IN	Outputs the signal that is input to the EVEN SEC/ SYNC IN termial. This output is obtained only when the input signal is applied to the EVEN SEC/ SYNC IN terminal.
2 s 80 ms 26.6 ms 20 ms	Outputs the clock signal in the base band block of this instrument.

1.2288/19.6608 Clock Out

Selects the signal to be output from the PN CHIP OUT terminal.

10 MHz Ref Adj.

Sets a frequency of the internal reference oscillator and corrects the frequency deviation due to the variation of time. The factory-shipped setting is 0, and its range is between -2000 and +2000.

These values represent the variable range, but not the frequency range.

Cal/Test

Switches the screen display to set or select each function of the R3561 calibration and self-test.

When *return* is pressed, the screen display returns to the initial screen.

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4.2 Reference

	Rx Control	[83561]		A03	
Freq.; 87	0.030	MHz 0		1 ch	Cal/Test
Level:	-80.0	d.Bm Di	fset	0.0 dB	1
((C Parameters)))					wwan
Link :	FURNARD				
Channel Hode :	NULTI				- W/GN
Generator Mode :	STONAL				Col Corr
Modulation :	DH				ON UPP
Equalizing :	DH				
Data Burst :	DFF				
Eb/No :	10.0 dB				Hodulator
CH Level (CH A) :	DN	Ratio	: -16.3	66	L
(CH B) :	AUTO	Ratio	: -1.1 d	8	* Nodulator
(CH C) :	DH	Batio	: -7.0 d	8	Cal Corr
CH Assign (CH A) :	TR(Prinary)	Code Ch	: 8 oh		ON OFF
(CH B) :	SYNC	Code Ch	: 32 ch		
(CH C) :	PILOT	Code Ch	: 0 ch		
PN Offset :	0.00				
ALC Mode :	S/H				
I/Q Source :	INTERNAL				*
and filest say					Self Test
South Pol - Th	TEDMAN	CDMA Classic I	Add - EM	E EVEN	
COMA-TE Surrea : Te	TTTOMAL	1 2286/19 64	NIC - EN	E HEA	
Fuen Second In 1 B	SARLE	Laced/13.6	oos National DEE	.	
Even second IN : 01	SHOLE.	CTOCK I	are on		

Figure 4-10 Cal/Self Test Screen

AWGN

Calibrates the AWGN level and CDMA signal level. When the generator mode is selected to "Eb/Nt(Eb/No)", a calibration is required.

CAUTION: It takes 10 to 30 seconds to perform the calibration. When an abnormal condition is detected during calibration, an error message will be displayed and the calibration will be terminated.

AWGN Cal Corr ON/OFF

Specifies whether or not to use the correction data obtained in the AWGN calibration.

Modulator

The IQ-Modulator balance is calibrated.

CAUTION: It takes 10 to 30 seconds to perform the calibration. When an abnormal condition is detected during calibration, an error message will be displayed and the calibration will be terminated.

Modulator Cal Corr ON/OFF

Specifies whether or not to use the correction data obtained in the Modulator calibration.

Self Test

This function performs a self-test for each block of this instrument. The POWER, REMOTE and SYNTHE UNLOCK lamps are turned on during the test. An alarm will sound when the self-test is complete.

When the self-test is finished, the instrument will revert to its initial state.

When the self-test detects an error, an error message and the corresponding error code will be displayed with the POWER, REMOTE and SYNTHE UNLOCK lights lit at the same time (for more detailed information on error codes, refer to the R3561 Operation manual). Contact the nearest ADVANTEST Field Office or representative.

Save

Saves the currently set value in the R3561 back-up memory.Pressing this key displays the contents of the R3561 back-up memory (see Figure 4-11). To save the current setting in the back-up memory, press the data knob or the **ENTER** after selecting the file number using the data knob. A maximum of 10 settings can be saved in the back-up memory.

Pressing **RETURN** returns the screen display to the Other screen.

	R× Contro	[R3561]		A03	
Freq.: 8	870.030	MHz	CH :	1 ch	Other
Level:	-80.0	dBm	Offset:	0.0 dB	
<<< Parameters >>>	•				Setup
Link	: Forward				
Channel Mode	: MULTI				
Generator Mode	: SIGNAL				
Modulation	: ON				
Equalizing	: ON				3
Data Burst	: OFF				C-1/T+
Eb/No	: 10.0 dB				Cal/lest
CHLevel (CHA)	: ON	Ratio	: -16.3	dR	
	Save Regis	ter List			
No. I/Q Source L	Link Free	quency	Level	Output	
1: INTERNAL FO	DRWARD 870.03	BOOOOMHz ·	-80.0dBm	ON	-
2: EXTDC FO	DRWARD 870.03	30000MHz ·	-80.0dBm	ON	P _
3: EXTDC FO	DRWARD 870.03	30000MHz ·	-80.0dBm	ON	Save
4: empty					
5: INTERNAL FO	DRWARD 870.03	30000MHz ·	-80.0dBm	ON	6
6: empty					Recall
7: empty					
8: empty					-
9: empty			00.0.10	orr	ľ N
10. INTERNAL RE	EVERSE 870.0.	SUUUUMHZ	-80.VaBm	UFF	Preset

Figure 4-11 Save/Recall Display Screen

Recall

This key is used to read a value saved in the R3561 back-up memory and to set
the instrument using this value. Pressing this key displays the contents of the
R3561 back-up memory (see Figure 4-9).
To read and reset the contents of the back-up memory, press the data knob or the
ENTER after selecting the file number using the data knob.
Pressing RETURN returns the screen display to the Other screen.
Initialize the following sections of the R3561: the frequency, RF level,
modulation, frame and input/output blocks. The settings of the other sections will
not be reset to the factory defaults.
Table 4-3 shows set or selected values after the preset.

(6) Setting the Modulation

Preset

Modulation ON/OFF

Toggles the modulation on or off.

(7) Setting the Output level

Output ON/OFF

Toggles the output signal on or off

4.2.4 Preset Values

Table 4-3 Set	Values w	when Preset (1 of	4)

Section	Item to Be Set	Channel	Set value/Selected value
Output frequency	Frequency input mode		Direct input mode
	Output frequency		870.03 MHz
	Output channel		1
	Channel start number		1
	Channel spacing		30 kHz
	Start frequency		870.03 MHz
RF level	Output level		-80.0 dBm
	Output level upper limit value		0.0 dBm
	Output level offset ON/OFF		OFF
	Output level offset value		0.0 dB
	Output ON/OFF		ON
	ALC mode		SAMPLE&HOLD

Section	Item to Be Set	Channel	Set value/Selected value
Modulation	Modulation ON/OFF		ON
	Link		FORWARD
	Channel mode		MULTI
	Generator mode		SIGNAL ONLY
	Equalizing Filter ON/OFF		ON
	Data burst		OFF
	Eb/No (Eb/Nt) value		10.0 dB
	Channel ON/OFF	А	ON
		В	AUTO
		С	ON
	Channel level	А	-16.3 dB
		В	-1.1 dB
		С	-7.0 dB
	PN Offset value		0.00
	IQ source value		INTERNAL

Table 4-3 Set Values when Preset (2 of 4)

Section	Item to Be Set	Channel	Set value/Selected value
Frame	Channel assignment	А	TRAFFIC PRIMARY
		В	SYNC
		С	PILOT
	Channel code	А	8
		В	32
		С	0
	Traffic PRBS	А	PN15
		В	PN15
		С	
	Data rate	А	9600bps
		В	1200bps
		С	***
	Start frame number specification*1	А	1
		В	
		С	
	Repetitive frame number specification*1	А	600
		В	
		С	
	Frame number specification		***
	Frame data		***

 Table 4-3 Set Values when Preset (3 of 4)

Table 4-3 Set	Values wh	en Preset (4 of 4)

Section	Item to Be Set	Channel	Set value/Selected value
Input/Output	EVEN SEC/SYNC IN		DISABLE
	CDMA CLOCK OUT		EVEN SECOND IN
	CDMA TIMEBASE OUT		OFF
	Synthe Reference IN		INTERNAL
	CDMA TIMEBASE IN		INTERNAL

*1 : Factory-shipped set value. This value is not set even if the preset is performed after changing the set value. *** : Cannot be set or this value is pending.

5.1 Outline

5 HOW TO OPERATE THE R3562

This chapter describes all key functions of the R3562.

5.1 Outline



Figure 5-1 Initial Screen (For the R3562 Standard Configuration)

The operation menu of R3562 is placed under the ADVANCE.

Press **ADVANCE** and *Rx Control [R3562]*, R3267 Series becomes R3562 control mode and displays the screen shown in Figure 5-3 to set and measure R3562.

In this mode, operation with only soft-key or dialog box becomes effective except **FREQ** and **LEVEL**. The operation with **SPAN** and so on which can be used in ordinary operation mode cannot be performed. In order to return to the ordinary operation mode, press **POWER**, **UTIL**, **TRANSIENT** or *Quit*.

5.1 Outline

[Setting up the communication system]



Figure 5-2 Initial Screen (with the R3562 OPT 65 Installed)

If OPT65 is installed in the R3562, the R3562 communication system must always be set to the 3GPP mode. When the Comm.sys key on the Initial screen is set to cdma2000 (highlighted) (Figure 5-2), a mode is not set correctly.

Use the procedure shown below to switch the communication system:

- 1. Press the Comm.sys key to set 3GPP (highlighted).
- 2. Turn the R3562 power switch off, and then on again.

NOTE: Always perform steps 1 and 2 to change the communication system (performing step 1 only does not complete the operation).

5.1 Outline

Rx Control [R3562 36PP3.1.0]	C00/C00
Freq.: 2.1100000 GHz CH : Level: -80.0 dBm Offset:	1 ch 0.0 dB BER
<<<< Base Band >>> I/Q Direction : OFF Link : DOWNLINK Scramble Code : O	2 Modulation
[UPCH Channel Config] Rate : 12.2kbps/30ksps Slot Format No. Data Mode : INFORMATION Channel Code No	: 11 S.: 2 S.: 2
DPDCH Data : PN9 DTCH Data : PN9 FEC : ON CRC : NO DCCH Data : PN9 FEC : ON CRC : NO	RMAL Other
[Channel Power Ratio]	Modulation
CPICH : 0.0 dB P-CCPCH : 0.0 dB	ON OFF
DPCH : 0.0 dB	° Output
<<< Clock/Timing Signal >>>	ON OFF
Synth Ref In : INTERNAL MOD-TB In : INTERN Clock Out1 : OFF Clock Out2 : OFF	VAL 7 Quit

Figure 5-3 R3562 Control Main Screen (3GPP)

5.2 Reference

This chapter describes the functions of all panel and soft keys.

- Menu Index: Use this index as a key index to Chapter 5.
- Menu Map: Shows a list of hierarchical menus on a panel key basis.
- Functional Description: Explains the functions of the panel and soft keys.

The panel keys are arranged in alphabetical order.

5.2.1 Menu Index

This menu index is used to easily find the keys described in Chapter 5.

Operation Key	Pages		Operation Key	Pages	
[Channel Power Ratio]	5-6,	5-13	Direction	5-7,	5-17,
[DCCH]	5-7,	5-18,		5-19	
	5-20		DPCCH Gain Code	5-6,	5-15
[DTCH]	5-7,	5-17,	DPCCH Power Ratio	5-6,	5-15
	5-20		DPCCH Setup	5-7,	5-16,
[Gain Parameter]	5-6,	5-15	-	5-19	
[I/Q Input]	5-8,	5-25	DPCCH Slot Format	5-6,	5-14
[I/Q Output]	5-8,	5-25	DPCH	5-6	
[TPC Insert]	5-7,	5-17,	DPCH Channel Config.	5-6,	5-12
	5-19		DPCH Channel. Code	5-6,	5-13
10MHz Ref Adj	5-6,	5-8,	DPDCH Channel Conf	5-6,	5-13
-	5-10,	5-24	DPDCH Data	5-6,	5-13,
ALC Mode	5-8,	5-23		5-14	
BER	5-6,	5-9	DPDCH Gain Code	5-6,	5-15
Bit Length	5-6,	5-9	DPDCH Power Ratio	5-6,	5-15
CAL	5-8,	5-25	DTCH/DCCH Setup	5-7,	5-17,
Cal Corr ON/OFF	5-8,	5-25	-	5-19	
Cal/Test	5-8,	5-25	Ext I/Q Setup	5-8,	5-24
CH Start Freq.	5-8,	5-22	Ext Trigger	5-7,	5-21
CH Start No.	5-8,	5-22	Ext Trigger Setup	5-7,	5-21
CH Step Freq	5-8,	5-22	FBI Pattern	5-7,	5-19
Clock & Timing Setup	5-6,	5-8,	FEC	5-7,	5-18,
	5-10,	5-23		5-20,	5-21
Clock Edge	5-6,	5-9	FREQ	5-9	
Clock Out 1	5-6,	5-8,	Freq Input	5-8,	5-22
	5-10,	5-24	Frequency & Level	5-6,	5-22
Clock Out 2	5-6,	5-8,	Frequency Setup	5-8,	5-22
	5-10,	5-24	General Setup	5-6,	5-11
Count	5-7,	5-17,	I Gain	5-8,	5-25
	5-19		I/Q Direction	5-6,	5-8,
CPICH	5-6			5-16,	5-24
CRC	5-7,	5-18,	I/Q Phase Adj	5-8,	5-25
	5-20,	5-21	LEVEL	5-9	
Data	5-6,	5-7,	Level Offset	5-8,	5-22
	5-9,	5-17,	Level Setup	5-8,	5-22
	5-18,	5-20	Link	5-6,	5-16
Data Polarity	5-6,	5-9	MOD-TB In	5-6,	5-8,

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5.2 Reference

	5-10.	5-24
Modulation	5-6	5-10
Modulation ON/OFF	5-6	5-8
	5-9	5-16
	5_23	5-26
Offset Value	5-23, 5-8	5-22
Other	5-6	5-23
Output ON/OFF	5-6	5-8
	5-10	5-16
	5-23	5-26
Parameter Setup	5-6	5-9
P-CCPCH	5-6	57
Preset	5-8	5-26
O Gain	5-8	5-25
Quit	5-6	5-10
2011	5-26	5 10,
Recall	5-8.	5-26
Recall Register List	5-8	0 20
REPEAT	5-9	
Rx Control [R3562]	5-6	
Save	5-8.	5-25
Save Register List	5-8	0 20
Scrambling Code	5-6.	5-11.
~	5-13	,
Self Test	5-8.	5-25
SINGLE	5-9	
START	5-9	
STD Setup	5-6.	5-15
Step Size	5-8.	5-22.
1	5-23	,
STOP	5-9	
Synthe Ref In	5-6,	5-8,
•	5-10,	5-23
TFCI	5-7,	5-17,
	5-19	
TPC Insert	5-7,	5-16,
	5-19	
TPC Repeat Count	5-7,	5-17,
-	5-19	
Trig Polarity	5-7,	5-21
Trigger Delay	5-7,	5-21
Unit	5-8,	5-22
Upper Limit	5-8,	5-22

5.2.2 Menu Map

A list of soft menus, which are under the ADVANCE key, used with the R3562 are shown below.

NOTE:		Represents a panel key.
	r	Represents a dialog box.
	Unless otherwise n	oted, the soft menus are shown.



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*1 When LINK is set to Downlink.

*2 When LINK is set to Uplink.

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- *4 The settings in this dialog box are the same as the settings in the "Modulation \rightarrow Clock & Timing Setup dialog box."
- *5 Sets the step size for the step keys(data knob) on the R3267 Series.

5.2.3 Functional Description

This section describes the front panel keys and the soft menus associated with them.

FREQ	A window prompting numeric values is displayed. Sets the output frequency. Use the up or down keys, the data knob and the numeric keys enter data.	to
LEVEL	A window prompting numeric values is displayed. Used to set the output level. Use the up or down keys, the data knob and the numeric keys enter data.	to
SINGLE	Makes one BER measurement.	
REPEAT (START/STOP)	Makes repeated BER measurements, or stops the current BI measurement.	ER
BER	Displays the BER Measurement Mode menu.	
Parameter Setup	Displays the BER Parameter Setup dialog box.	
	BER Parameter SetupData:PNSPN15Bit Length:10000Clock Edge:POSNEGData Polarity:POSNEG	
	Figure 5 4 PED Dependent Setup Dieleg Per	
	Figure 5-4 BER Parameter Setup Dialog Box	
Data	Figure 5-4 BER Parameter Setup Dialog Box Selects test data type. DN0: Selects DN0	
Data	Figure 5-4 BER Parameter Setup Dialog BoxSelects test data type.PN9:Selects PN9.PN15:Selects PN15	
Data Bit Lengtl	Figure 5-4 BER Parameter Setup Dialog BoxSelects test data type.PN9:Selects PN9.PN15:Selects PN15.Set BER measurement time with the bit length.The setting range of the bit length is 1000 to 10000000 bits.	
Data Bit Length Clock Pole	Figure 5-4 BER Parameter Setup Dialog Box Selects test data type. PN9: Selects PN9. PN15: Selects PN15. Selects PN15. Set BER measurement time with the bit length. The setting range of the bit length is 1000 to 10000000 bits. ity Select from which edge you get data, the rising edge of the sign from BER clock terminal or the falling edge.	nal
Data Bit Length Clock Pole	Figure 5-4 BER Parameter Setup Dialog Box Selects test data type. PN9: Selects PN9. PN15: Selects PN15. Selects PN15. Set BER measurement time with the bit length. The setting range of the bit length is 1000 to 10000000 bits. ity Select from which edge you get data, the rising edge of the sign from BER clock terminal or the falling edge. POS: Rising	nal
Data Bit Length Clock Pol	Figure 5-4 BER Parameter Setup Dialog Box Selects test data type. PN9: Selects PN9. PN15: Selects PN15. Set BER measurement time with the bit length. The setting range of the bit length is 1000 to 10000000 bits. ity Select from which edge you get data, the rising edge of the sign from BER clock terminal or the falling edge. POS: Rising NEG: Falling	nal
Data Bit Length Clock Pole Data Pola	Figure 5-4 BER Parameter Setup Dialog Box Selects test data type. PN9: Selects PN9. PN15: Selects PN15. Set BER measurement time with the bit length. The setting range of the bit length is 1000 to 10000000 bits. ity Select from which edge you get data, the rising edge of the sign from BER clock terminal or the falling edge. POS: Rising NEG: Falling y Select if you invert BER DATA terminal data or not.	nal
Data Bit Lengtl Clock Pola Data Pola	Figure 5-4 BER Parameter Setup Dialog Box Selects test data type. PN9: Selects PN9. PN15: Selects PN15. Set BER measurement time with the bit length. The setting range of the bit length is 1000 to 10000000 bits. ity Select from which edge you get data, the rising edge of the sign from BER clock terminal or the falling edge. POS: Rising NEG: Falling y Select if you invert BER DATA terminal data or not. POS: Positive logic (not invert)	nal
Data Bit Lengtl Clock Pole Data Pola	Figure 5-4 BER Parameter Setup Dialog BoxSelects test data type.PN9:Selects PN9.PN15:Selects PN15.Set BER measurement time with the bit length. The setting range of the bit length is 1000 to 10000000 bits.idvSelect from which edge you get data, the rising edge of the sign from BER clock terminal or the falling edge.POS:Rising NEG:POS:FallingvSelect if you invert BER DATA terminal data or not. POS:POS:Positive logic (not invert) NEG:NEG:Negative logic (invert)	nal
Data Bit Length Clock Pole Data Pola Modulation ON/OFF	Figure 5-4 BER Parameter Setup Dialog Box Selects test data type. PN9: Selects PN9. PN15: Selects PN15. Set BER measurement time with the bit length. The setting range of the bit length is 1000 to 10000000 bits. ity Select from which edge you get data, the rising edge of the sign from BER clock terminal or the falling edge. POS: Rising NEG: Falling v Select if you invert BER DATA terminal data or not. POS: Positive logic (not invert) NEG: Negative logic (invert) Turns the RF output modulation function on or off.	nal

	OFF:	Does not modulate the RF output.
Output ON/OFF	Turns the	RF output on or off.
	ON:	Turns the RF signal on.
	OFF:	Turns the RF signal off.
Quit	Exits from	n BER Measurement Mode.
ulation	Displays	the modulation 1/2 menu.

Modulation

Clock & Timing Setup

Displays the Clock/Timing Signal Parameter Setup dialog box.

Clock/Timing Signal Parameter Setup				
Synth Ref In:	1MHz 2M	íHz 5MHz	10MHz 15MHz	
	INTERNAL			
10MHz Ref Adj.:	0			
MOD-TB In:	3.84MHz 7.	68MHz 15.36	(Hz INTERNAL	
Clock Out 1:	OFF	RADIO FRAME	SLOT TIMING	
	CHIP CLOCK	TPC REPEAT	TPC INSERT	
Clock Out 2:	OFF	RADIO FRAME	SLOT TIMING	
	CHIP CLOCK	TPC REPEAT	TPC INSERT	

Figure 5-5 Clock/Timing Signal Parameter Setup Dialog Box

Synthe Ref In	Selects the reference signal from the synthesizer.	
	1 MHz:	Uses an external signal of 1 MHz.
	2 MHz:	Uses an external signal of 2 MHz.
	5 MHz:	Uses an external signal of 5 MHz.
	10 MHz:	Uses an external signal of 10 MHz.
	15 MHz:	Uses an external signal of 15 MHz.
	INTERNAL	: Uses the internal reference signal.
10MHz Ref Adj.	Sets internal ed.	reference signal's frequency difference to be correct-
MOD-TB In	Selects the re	eference signal used for the modulation.
	3.84 MHz:	Uses an external signal of 3.84 MHz.
	7.68 MHz:	Uses an external signal of 7.68 MHz.
	15.36 MHz:	Uses an external signal of 15.36 MHz.
	INTERNAL	: Uses the internal reference signal.
Clock Out 1/Cloc	k Out 2	
	Outputs the CLOCK OU	modulation timing signals to the CLOCK OUT1 and T2 connectors.
	OFF:	Turns the output signal off.
	RADIO FRA	ME:

Outputs the timing for the radio frame.

SLOT TIMING:

Outputs the slot timing.

CHIP CLOCK:

Outputs the CHIP clock.

TPC REPEAT:

Outputs the first slot timing used for the TPC command sequence during Repeat operation.

TPC INSERT:

Outputs the first slot timing used for the TPC command sequence during the Insert operation.

General Setup

Displays the General Parameter setup dialog box.

6	eneral Parameter Setu	p
Scramble Code:	0	•
DPCH Channel Config:	PHYS.(8)/30ksps	PHYS.(9)/30ksps
	PHYS.(10)/30ksps	PHYS.(11)/30ksps
	PHYS.(12)/60ksps	PHYS.(13)/120ksps
	PHYS.(14)/240ksps	PHYS.(15)/480ksps
	INFO.(11)/12.2kbps	INFO.(13)/64kbps
	INFO.(14)/144kbps	INF0.(15)/384kbps
DPDCH Data:	PN9 PN15 AL	LO ALL1 PN9 ERR
DPCH Channel. Code:	2	
[Channel Power Ratio]	1	
CPICH:	0.0 dB	
P-CCPCH:	0.0 dB	
DPCH:	0.0 dB	

Figure 5-6 General Parameter Setup Dialog box (For the Downlink)



Figure 5-7 General Parameter Setup Dialog box (For the Uplink)

<When set to Downlink>

Scrambling Code Sets the scrambling code number.

DPCH Channel Config.

Select the channel configuration from the following list.

PHYS.(8)/30ksps:

Assigns Physical Data Mode with a slot format number of 8 and a channel symbol rate of 30 [ksps].

PHYS.(9)/30ksps:

Assigns Physical Data Mode with a slot format number of 9 and a channel symbol rate of 30 [ksps].

PHYS.(10)/30ksps:

Assigns Physical Data Mode with a slot format number of 10 and a channel symbol rate of 30 [ksps].

PHYS.(11)/30ksps:

Assigns Physical Data Mode with a slot format number of 11 and a channel symbol rate of 30 [ksps].

PHYS.(12)/60ksps:

Assigns Physical Data Mode with a slot format number of 12 and a channel symbol rate of 60 [ksps].

PHYS.(13)/120ksps:

Assigns Physical Data Mode with a slot format number of 13 and a channel symbol rate of 120 [ksps].

PHYS.(14)/240ksps:

Assigns Physical Data Mode with a slot format number of 14 and a channel symbol rate of 240 [ksps].

PHYS.(15)/480ksps:

Assigns Physical Data Mode with a slot format number of 15 and a channel symbol rate of 480 [ksps].

INFO.(11)/12.2kbps:

Assigns Information Data Mode with a slot format number of 11, an information bit rate of 12.2 [kbps] and a channel symbol rate of 30 [ksps].

INFO.(13)/64kbps:

Assigns Information Data Mode with a slot format number of 13, an information bit rate of 64 [kbps] and a channel symbol rate of 120 [ksps].

INFO.(14)/144kbps:

Assigns Information Data Mode with a slot format number of 14, an information bit rate of 144 [kbps] and a channel symbol rate of 240 [ksps].

INFO.(15)/384kbps:

Assigns Information Data Mode with a slot format

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number of 15, an information bit rate of 384 [kbps] and a channel symbol rate of 480 [ksps].

1%.

DPDCH DataSelects the data to be input to the DPDCH when DPCH Channel
Config is set to Physical Data Mode.

PN9:	Selects PN9.
PN15:	Selects PN15.
ALL0:	Selects all zero data.
ALL1:	Selects all one data.
PN9 ERR:	Selects PN9 with an error of

DPCH Channel. Code

Sets the channelization code number.

[Channel Power Ratio]

NOTE:	When a channel power ratio of -99.9 dB is specified, the specified channel power is turned off.
DPCH:	Sets a power ratio for DPCH.
P-CCPCH:	Sets a power ratio for P-CCPCH and SCH.
CPICH:	Sets a power ratio for CPICH.
Sets the pov	ver ratios for the following physical channels.

<When set to Uplink>

Scrambling Code Sets the scrambling code number.

DPDCH Channel Conf.

Select the channel configuration from the following list.

PHYS.(1)/30ksps:

Assigns Physical Data Mode with a slot format number of 1 and a channel symbol rate of 30 [ksps].

PHYS.(2)/60ksps:

Assigns Physical Data Mode with a slot format number of 2 and a channel symbol rate of 60 [ksps].

PHYS.(3)/120ksps:

Assigns Physical Data Mode with a slot format number of 3 and a channel symbol rate of 120 [ksps].

PHYS.(4)/240ksps:

Assigns Physical Data Mode with a slot format number of 4 and a channel symbol rate of 240 [ksps].

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PHYS.(5)/480ksps:

Assigns Physical Data Mode with a slot format number of 5 and a channel symbol rate of 480 [ksps].

PHYS.(6)/960ksps:

Assigns Physical Data Mode with a slot format number of 6 and a channel symbol rate of 960 [ksps].

INFO.(2)/12.2kbps:

Assigns Information Data Mode with a slot format number of 2, an information bit rate of 12.2 [kbps] and a channel symbol rate of 60 [ksps].

INFO.(4)/64kbps:

Assigns Information Data Mode with a slot format number of 4, an information bit rate of 64 [kbps] and a channel symbol rate of 240 [ksps].

INFO.(5)/144kbps:

Assigns Information Data Mode with a slot format number of 5, an information bit rate of 144 [kbps] and a channel symbol rate of 480 [ksps].

INFO.(6)/384kbps:

Assigns Information Data Mode with a slot format number of 6, an information bit rate of 384 [kbps] and a channel symbol rate of 960 [ksps].

DPDCH DataSelects the data to be input to the DPDCH when DPDCH Channel
Config is set to Physical Data Mode.

PN9:	Selects PN9.

- PN15: Selects PN15.
- ALLO: Selects all zero data.
- ALL1: Selects all one data.
- PN9 ERR: Selects PN9 code with an error of 1%.

DPCCH Slot Format

Selects a slot format from the following list.

0:	Uses the bit configuration for the slot format number 0.
1:	Uses the bit configuration for the slot format number 1.
2:	Uses the bit configuration for the slot format number 2.
3:	Uses the bit configuration for the slot format number 3.
4:	Uses the bit configuration for the slot format number 4.

- 5: Uses the bit configuration for the slot format number 5.
- *[Gain Parameter]* Sets the gain (power) ratio for a DPCCH to a DPDCH. There are four possible combinations.

DPCCH Gain Code

Sets the ratio for DPCCH gain to βc , using the gain parameter code if DPDCH gain to βd is 1.

- 1 thru 15: The gain ratio complies with the 3GPP standard.
- OFF: Turns the DPCCH power off.

***: Displays the situation under which an incorrect value for the gain power code was used to set a DPCCH power ratio.

DPCCH Power Ratio

Sets the ratio for the DPCCH power to Pc [dB] if the ratio of DP-DCH to Pd is 0 [dB].

NOTE: The DPDCH power is turned off if -99.9 dB is specified.

DPDCH Gain Code

Sets the ratio for DPDCH gain to βd , using the gain parameter code if DPCCH gain to βc is 1.

- 1 thru 15: The gain ratio complies with the 3GPP standard.
- OFF: Turns the DPDCH power off.
- ***: Displays the situation under which an incorrect value for the gain power code was used to set a DP-DCH power ratio.

DPDCH Power Ratio

Sets the ratio for the DPDCH power to Pd [dB] if the ratio of DPCCH to Pc is 0 [dB].

NOTE: The DPCCH power is turned off if -99.9 dB is specified.

STD Setup

Displays the STD Parameter setup dialog box.

STD Parameter Setup			
I/Q Direction:	OFF	IN	TUTTUO TU
Link:	DOWNL 1	[NK	UPLINK

Figure 5-8 STD Parameter Setup Dialog box

I/Q Direction	Exchanges the external IQ terminals between the input and output and selects the IQ signal paths to the IQ modulator.		
	OFF:	Turns off the IQ output, and inputs the internal baseband signal to the IQ modulator.	
	INPUT:	Inputs the IQ signal from the outside to the IQ modulator.	
	OUTPUT:	Turns on the IQ output, and inputs the internal baseband signal to the IQ modulator.	
	NOTE:	The level and modulation accuracy of the RF output can- not be guaranteed while in the OUTPUT mode.	
Link	Selects the link direction.		
	DOWNLINK:		
		Outputs the Downlink signal.	
	UPLINK:	Outputs the Uplink signal.	
Modulation ON/OFF	Turns the RF output modulation function on or off.		
	ON:	Modulates the RF output using transmission data.	
	OFF:	Does not modulate the RF output.	
Output ON/OFF	Turns the RF output on or off.		
	ON:	Turns the RF signal on.	
	OFF:	Turns the RF signal off.	
more 2/2	Displays the modulation 2/2 menu.		
<when downlink="" set="" to=""></when>			
TPC Insert	The TPC command is inserted during Repeat operation. The direction and slot length of the TPC command you want to in- sert can be specified in the TPC Insert item in the DPCCH Param- eter dialog box.		
DPCCH Setup	Displays th	e DPCCH Parameter Setup dialog box.	
	DPCCH TPC Repeat Co [TPC Insert] Direction: Count: TFCI:	Parameter Setup unt: 1 UP DDMM 1 000 [Hex]	

Figure 5-9 DPCCH Parameter Setup Dialog box (For the Downlink)

TPC Repeat Cou	nt		
-	Sets the TPC	slot length for the Repeat operation.	
[TPC Insert]	Inserts TPC commands of 1 or 0 into consecutive slots as speci- fied by the TPC insertion slot length during the Repeat operation.		
Direction	Selects the direction (Up or Down) during the Insert operation		
	UP:	Insets TPC commands of 1 into consecutive slots.	
	DOWN:	Insets TPC commands of 0 into consecutive slots.	
Count	Sets the TPC insertion slot length used during Insert operation.		
TFCI	Sets a TFCI consisting of one frame in hexadecimal. specified using 10 TFCI bits, which are input to the T		
	Input value	Operation	
	A:	$\text{Shift} \rightarrow 0$	
	B:	$\text{Shift} \rightarrow 1$	
	C:	$\text{Shift} \rightarrow 2$	
	D:	$\text{Shift} \rightarrow 3$	
	E:	$\text{Shift} \rightarrow 4$	
	F:	$\text{Shift} \rightarrow 5$	

DTCH/DCCH Setup

Displays the DTCH/DCCH Parameter setup dialog box.

DTCH/DCCH Parameter Setup		
[DTCH]		
Data:	PN9 PN15 ALLO ALL1 PN9 ERR	
FEC:	ON OFF	
CRC :	NORMAL INVERSE ADD ERR	
[DCCH]		
Data:	PN9 PN15 ALLO ALL1 PN9 ERR	
FEC:	ON OFF	
CRC :	NORMAL INVERSE ADD ERR	

 $Shift \rightarrow 5$

Figure 5-10 DTCH/DCCH Parameter Setup Dialog box (For the Downlink)

[DTCH]	The DTCH value set when the data mode for the channel config-
	uration settings is set to Information Data Mode is valid.

Data

Selects the data used for Information data.					
PN9:	Selects PN9.				
PN15:	Selects PN15.				
ALL0:	Selects all zero data.				
ALL1:	Selects all one data.				
PN9 ERR:	Selects PN9 with an error of 1%.				
FEC	Sets whether cessing is pe	Sets whether or not FEC (Convolutional or Turbo Coding) processing is performed.			
--------	---	--	--	--	--
	ON:	FEC processing is performed.			
	OFF:	FEC processing is not performed.			
CRC	Sets the modest calculated C	Sets the mode used to generate CRC data which is based on the calculated CRC value.			
	NORMAL:	The calculated CRC value is used as CRC data (correct CRC data is output).			
	INVERSE:	The value obtained by logically inverting the CRC is used as CRC data (incorrect CRC data is output).			
	ADD ERR:	A block containing an error of 1% is generated us- ing the NORMAL operation linked with the IN- VERSE operation.			
[DCCH]	The DCCH was uration setting	value set when the data mode for the channel config- ngs is set to Information Data Mode is valid.			
Data	Selects the d	ata used for Information data.			
	PN9:	Selects PN9.			
	PN15:	Selects PN15.			
	ALL0:	Selects all zero data.			
	ALL1:	Selects all one data.			
	PN9 ERR:	Selects PN9 with an error of 1%.			
FEC	Sets whether cessing is pe	r or not FEC (Convolutional or Turbo Coding) pro- rformed.			
	ON:	FEC processing is performed.			
	OFF:	FEC processing is not performed.			
CRC	Sets the mode used to generate CRC data which is based on the calculated CRC value.				
	NORMAL:	The calculated CRC value is used as CRC data (correct CRC data is output).			
	INVERSE:	The value obtained by logically inverting the CRC is used as CRC data (incorrect CRC data is output).			
	ADD ERR:	A block containing an error of 1% is generated us- ing the NORMAL operation linked with the IN- VERSE operation.			
	Displays the modulation $1/2$ menu.				

more 1/2

<When set to Uplink>

TPC Insert

The TPC command is inserted during Repeat operation. The direction and slot length of the TPC command you want to insert can be specified in the TPC Insert item in the DPCCH Parameter dialog box.

DPCCH Setup

Displays the DPCCH Parameter Setup dialog box.

DPCCH Parameter Setup				
TPC Repeat Count:	1			
[TPC Insert] Direction:	UP DOWN			
Count:	1			
TFCI Code Word:	000 [Hex]			
FBI Pattern:	00000000 [Hex]			

Figure 5-11 DPCCH Parameter Setup Dialog box (For the Uplink)

TPC Repeat Count	<i>t</i> Sets the TPC slot length for the Repeat operation.		
[TPC Insert]	Inserts TPC commands of 1 or 0 into consecutive slots as speci- fied by the TPC insertion slot length during the Repeat operation.		
Direction	Selects the di	rection (Up or Down) during the Insert operation.	
	UP:	Insets TPC commands of 1 into consecutive slots.	
	DOWN:	Insets TPC commands of 0 into consecutive slots.	
Count	Sets the TPC	insertion slot length used during Insert operation.	
TFCI	Sets a TFCI consisting of one frame in hexadecimal. The TFCI is specified using 10 TFCI bits, which are input to the TFCI coder.		
	Input value	Operation	
	A: B: C: D: E: F:	Shift $\rightarrow 0$ Shift $\rightarrow 1$ Shift $\rightarrow 2$ Shift $\rightarrow 3$ Shift $\rightarrow 4$ Shift $\rightarrow 5$	
FBI Pattern	Sets a FBI bit pattern consisting of one frame in hexadecimal. The number of FBI bits per slot is determined by the DPCCH channel configuration settings: if the number is not 0, the value in the FBI bit pattern setting is valid.		
DTCH/DCCH Setup	Displays the DTCH/DCCH Parameter setup dialog box.		

5.2 Reference

-					
	DTCH/DCCH Parameter Setup				
[DTCH]					
Data:	PN9 PN15 ALLO ALL1 PN9 ERR				
FEC:	ON OFF				
CRC :	NORMAL INVERSE ADD ERR				
[DCCH]					
Data:	PN9 PN15 ALLO ALL1 PN9 ERR				
FEC:	ON OFF				
CRC:	NORMAL INVERSE ADD ERR				

Figure 5-12 DTCH/DCCH Parameter Setup Dialog box (For the Downlink)

[DTCH]	The DTCH value set when the data mode for the channel config- uration settings is set to Information Data Mode is valid.		
Data	Selects the data used for Information data.		
	PN9:	Selects PN9.	
	PN15:	Selects PN15.	
	ALL0:	Selects all zero data.	
	ALL1:	Selects all one data.	
	PN9 ERR:	Selects PN9 with an error of 1%.	
FEC	Sets whether cessing is per	or not FEC (Convolutional or Turbo Coding) pro- rformed.	
	ON:	FEC processing is performed.	
	OFF:	FEC processing is not performed.	
CRC	Sets the mode used to generate CRC data which is bacalculated CRC value.		
	NORMAL:	The calculated CRC value is used as CRC data (correct CRC data is output).	
	INVERSE:	The value obtained by logically inverting the CRC is used as CRC data (incorrect CRC data is output).	
	ADD ERR:	A block containing an error of 1% is generated us- ing the NORMAL operation linked with the IN- VERSE operation.	
[DCCH]	The DCCH value set when the data mode for the channel config- uration settings is set to Information Data Mode is valid.		
Data	Selects the data used for Information data.		
	PN9:	Selects PN9.	
	PN15:	Selects PN15.	
	ALL0:	Selects all zero data.	
	ALL1:	Selects all one data.	

	PN9 ERR:	Selects PN9 with an error of 1%.		
FEC	Sets whether cessing is per	or not FEC (Convolutional or Turbo Coding) pro-		
	ON:	FEC processing is performed.		
	OFF:	FEC processing is not performed.		
CRC	Sets the mode used to generate CRC data which is based on the calculated CRC value.			
	NORMAL:	The calculated CRC value is used as CRC data (correct CRC data is output).		
	INVERSE:	The value obtained by logically inverting the CRC is used as CRC data (incorrect CRC data is output).		
	ADD ERR:	A block containing an error of 1% is generated us- ing the NORMAL operation linked with the IN- VERSE operation.		
Ext Trigger	Synchronizes the baseband block (of this instrument) to the EXT TRIG IN signal. When this command is entered, the baseband block of this instrument is ready to receive the trigger signal from the EXT TRIG IN terminal.			
	NOTE: This function is enabled only when LINK is set to Uplink $(UE \rightarrow BS)$.			
Ext Trigger Setup	Displays the	Ext Trigger Parameter setup dialog box.		
	Ext Trigger Parameter Setup Trig Polarity: POS NEG Trigger Delay: 20 chip			
	Figure 5-13	Ext Trigger Parameter Setup Dialog box		
Trig Polarity	Sets which edge of the signal input to the EXT TRIG IN terminal is used to synchronize the baseband block in this instrument.			
	POS:	The rising edge is used to synchronize the baseband block.		
	NEG:	The falling edge is used to synchronize the base- band block.		
Trigger Delay	Sets the delay when the bas A time delay which is com	y time (chips) from when the trigger signal is input to be band block is synchronized. y of "Setting value + 1024 (a UL-DL Timing offset apliant with the 3GPP standard)" is obtained.		
more 1/2 Displays th		e modulation 1/2 menu.		

```
Frequency & Level
```

Frequency Setup

Displays the Frequency & Level menu.

Displays the Frequency Parameter Setup dialog box.

Frequency Parameter Setup				
Freq Input:	FREQUENCY CHANNEL No			
CH Start Freq.:	800.000000 MHz			
CH Step Freq.:	5.000000 MHz]		
CH Start No.:	1			
Step Size:	100.000000 MHz			

Figure 5-14 Frequency Parameter Setup Dialog Box

Freq Input	Selects the frequency entry mode.
	FREQUENCY: Directly enters a frequency value.
	CHANNEL No: Enters a channel number.
CH Start Freq.	Sets the channel start frequency.
CH Step Freq.	Sets the channel spacing.
CH Start No.	Sets the channel start number.
Step Size	Sets the step value of the step keys and data knob.

Level Setup

Displays the Level Parameter Setup dialog box.

Level Parameter Setup				
Unit:	dBm	dBuVemf		
Upper Limit:	0.0	dBm		
Level Offset:	ON	OFF		
Offset Value:	0.0 dB			
Step Size:	20.0 dB			
ALC Mode:	AUTO	S/H HOLD		

Figure 5-15 Level Parameter Setup Dialog Box

Unit	Selects the unit to display or enter the data.		
	dBm:	Sets a level-related unit to dBm.	
	dBµVemf:	Sets a level-related unit to $dB\mu Vemf$.	
Upper Limit	Sets the uppe	r limit.	
Level Offset	Toggles the level offset function on or off.		
	ON: Tu	rns the level offset function on.	
	OFF: Tu	rns the level offset function off.	
Offset Value	Sets the level	offset value.	

	Step Size	Sets the step value of the step keys.		
	ALC Mode	Selects the ALC operating mode. Automatically selects the optimum operating mode depending on the R3562 settings. (For details, refer to the R3562 Operation manual.)		
		AUTO:	Normal ALC	
		S/H:	Sample and hold using the reference modulation pattern.	
		HOLD:	ALC voltage hold when the reference modulation pattern is used.	
		NOTE:	When not set to the optimum operation mode, the output from the RF OUT terminal may deviate from the target value.	
Modulation	o ON/OFF	Turns the	e RF output modulation function on or off.	
		ON:	Modulates the RF output using transmission data.	
		OFF:	Does not modulate the RF output.	
Output ON	/OFF	Turns the	RF output on or off.	
		ON:	Turns the RF signal on.	
		OFF:	Turns the RF signal off.	
		Displays	the Other menu.	
Clock & Til	ming Setup	Displays	the Clock/Timing Signal Parameter Setup dialog box.	
		Ì.	Clock/Timing Signal Parameter Setup	

Other

Clock/Timing Signal Parameter Setup					
Synth Ref In:	1MHz 2N	(Hz 5MHz	10MHz 15MHz		
INTERNAL					
10MHz Ref Adj.:	0				
MOD-TB In:	3.84MHz 7.	.68MHz 15.361	MHz INTERNAL		
Clock Out 1:	OFF	RADIO FRAME	SLOT TIMING		
	CHIP CLOCK	TPC REPEAT	TPC INSERT		
Clock Out 2:	OFF	RADIO FRAME	SLOT TIMING		
	CHIP CLOCK	TPC REPEAT	TPC INSERT		

Figure 5-16 Clock/Timing Signal Parameter Setup Dialog Box

Synthe Ref InSelects the reference signal from the synthesizer.1 MHz:Uses an external signal of 1 MHz.

- 2 MHz: Uses an external signal of 2 MHz.
- 5 MHz: Uses an external signal of 5 MHz.
- 10 MHz: Uses an external signal of 10 MHz.

	15 MHz·	Uses an external signal of 15 MHz
	INTERNAL	Uses the internal reference signal
	n (i Ela i Ela)	eses die interna reference signal.
10MHz Ref Adj.	Sets internal r ed.	eference signal's frequency difference to be correct-
MOD-TB In	Selects the re-	ference signal used for the modulation.
	3.84 MHz:	Uses an external signal of 3.84 MHz.
	7.68 MHz:	Uses an external signal of 7.68 MHz.
	15.36 MHz:	Uses an external signal of 15.36 MHz.
	INTERNAL:	Uses the internal reference signal.
Clock Out 1/Clock	Out 2	
	Outputs the m CLOCK OUT	nodulation timing signals to the CLOCK OUT1 and T2 connectors.
	OFF:	Turns the output signal off.
	RADIO FRA	ME: Outputs the timing for the radio frame.
	SLOT TIMIN	IG:
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Outputs the slot timing.
	CHIP CLOCI	K: Outputs the CHIP clock.
	TPC REPEAT	Г:
		Outputs the first slot timing used for the TPC com- mand sequence during Repeat operation.
	TPC INSERT	<u>`:</u>
		Outputs the first slot timing used for the TPC com- mand sequence during the Insert operation.
Ext I/Q Setup	Displays the l	External I/Q Parameter Setup dialog box.
	External I I/Q Direction: [ I/Q Input ] I Gain: Q Gain: I/Q Phase Adj. [ I/Q Output ] I Gain: Q Gain:	/Q Parameter Setup         OFF       INPUT OUTPUT         2000         2000         2000         2000         0         0         0

# Figure 5-17 External I/Q Parameter Setup Dialog Box

*I/Q Direction* Exchanges the external IQ terminals between the input and output and selects the IQ signal paths to the IQ modulator.

OFF: Turns off the IQ output, and inputs the internal baseband signal to the IQ modulator.

		INPUT:	Inputs the IQ signal from the outside to the IQ mod- ulator.
		OUTPUT	: Turns on the IQ output, and inputs the internal baseband signal to the IQ modulator.
		NOTE:	The level and modulation accuracy of the RF output can- not be guaranteed while in the OUTPUT mode.
	[I/Q Input]	Sets the p	arameter if I/Q Direction is set to Input.
	I Gain	Sets the g	ain of the amplifier that inputs the I signal.
	Q Gain	Sets the g	ain of the amplifier that inputs the Q signal.
	I/Q Phase Ad	<i>dj.</i> Sets the p	hase difference to be corrected
	[I/Q Output]	Sets the p	arameter if I/Q Direction is set to Output.
	I Gain	Sets the g	ain of the amplifier that outputs the I signal.
	Q Gain	Sets the g	ain of the amplifier that outputs the Q signal.
Cal/Test		Displays t	he Cal/Test menu.
	CAL	Performs correction	a calibration. When the calibration is completed, the value obtained from the calibration can be used.
	Cal Corr ON/OFF	~	
		Selects the	e calibration correction mode on or off.
		ON:	Makes the correction value obtained from the calibra- tion be used.
		OFF:	Does not perform the correction.
	Self Test	The self-te	est is run.
Save		Displays when the	the Save Register List dialog box. Save is performed <b>ENTER</b> is pressed after the register has been selected.

		Sav	ve Register List		
No.	I/Q Dir.	Link	Frequency	Level	Output
1:	INPUT	UPLINK	2110.000000MHz	-80.0dBm	ON
2: 3:	OUTPUT empty	DOWNLINK	1000.000000MHz	-80.0dBm	ON

Figure 5-18 Save Register List Dialog Box

Recall	Displays the Recall Register List when the <b>ENTER</b> is pressed after	dialog box. Recall is performed the register has been selected.
	Recall Register Lis	t
	No. I/Q Dir. Link Frequency	Level Output
	1: INPUT UPLINK 2110.0000000HFz 2: OUTPUT DOWNLINK 1000.000000HHz 3: empty	-80.0018m UN -80.0018m ON
	Figure 5-19 Recall Register List	t Dialog Box
Preset	Initializes the settings.	
Modulation ON/OFF	Turns the RF output modulation t	function on or off.
	ON: Modulates the RF output	ut using transmission data.
	OFF: Does not modulate the	RF output.
Output ON/OFF	Turns the RF output on or off.	
	ON: Turns the RF signal on.	
	OFF: Turns the RF signal off	
Quit	Exits from the Rx Control option	

5.3 Measurement Example

# 5.3 Measurement Example

This example shows the BER measurement of channel used in the Downlink.

Measurement conditions: The items to be measured are shown below. Set the measurement conditions to be suitable for the targeted measurement.

Output signal	
Frequency:	2110 MHz
Output level:	-80 dBm
Link:	DOWNLINK
DPCH channel configuration:	Information mode Slot format number=11, Information bit rate=12.2kbps
Scrambling Code:	0
DPCH Channelization Code:	2
DTCH data:	PN9
BER counter	
Measurement data pattern:	PN9
Measurement data length:	10000 bits
Input clock polarity:	NEG (trailing edge)
Input data polarity:	POS (noninverting)

## Setup

1. Connect the instrument as shown below.



Figure 5-20 Connecting the DUT

5.3 Measurement Example

Setting up the unit under test

2. The measurement conditions are set accodeing to the specifications of the unit under test.

Initialization

3. Press ADVANCE, Rx Control[R3562], Other and Preset.

Setting the output signal

- 4. Press **FREQ**, **2**, **1**, **1**, **0** and **MHz**.
- 5. Press Level, -, 8, 0 and GHz(dBm).
- 6. Press *Modulation* and *STD Setup*. The STD Parameter Setup dialog box is displayed.

	7
Kx Control [K3562 36PP3.1.0] C00/C00	-
Freq.:         2.1100000         GHz         CH         1 ch           Level:         0.0         dBm         Offset:         0.0         dB	Mod. (1/2) ¹ Clock
<	Setup
I/Q Direction : OFF Link : DOWNLINK Scramble Code : O	² General Setup
[UPCH Channel Contig] Rate : 12.2kbps/30ksps Slot Format No.: 11 Data Mode : TUFEDRMATION Channel Code No.: 2 STD Parameter Setun	³ STD Setup
DPDCH I/Q Direction: OFF INPUT OUTPUT DTCH D DCCH D; Link: DDANLINK UPLINK NORMAL	
[Chappel Power Ratio]	5 Modulation
CPICH : 0.0 dB P-CCPCH : 0.0 dB	ON OFF
DPCH : 0.0 dB	° Output
<<< Clock/Timing Signal >>>	ON OFF
Synth Ref In : INTERNAL MOD-TB In : INTERNAL Clock Out1 : OFF Clock Out2 : OFF	more 2/2

## Figure 5-21 STD Parameter Setup Dialog Box

7. Set the following items.

I/Q direction:OFF

Link:Downlink

8. Press *General Setup*. The General Parameter Setup dialog box is displayed.

5.3 Measurement Example

R×	Control [R350	52 3GPP3.	1.0]	C00/C00	]
Freq.: 2.1	100000	GHz	CH :	1 ch	Mod. (1/2)
Level:	0.0	dBm	Offset:	0.0 dB	¹ Clock
6	eneral Parame	eter Setu	р		Setup
Scramble Code:	0				2 Gonoral
DPCH Channel Config:	PHYS.(8)/3	30ksps	PHYS.(9)/	30ksps	Sotup
	PHYS.(10)/	30ksps	PHYS.(11)/	'30ksps	Jetap
	PHYS.(12)/	60ksps	PHYS.(13)/	120ksps	³ STD
	PHYS.(14)/2	240ksps	PHYS.(15)/-	480ksps	Setup
	INF0.(11)/1	2.2kbps	INF0.(13)/	64kbps	
	INF0.(14)/1	.44kbps	INF0.(15)/	384kbps	
DPDCH Data:	PN9 PN	15 AL	LO ALL1	PN9 ERR	
DPCH Channel. Code:	2				5 Modulation
[ Channel Power Ratio ]	l				ON OFF
CPICH:	0.0 dB				6
P-CCPCH:	0.0 dB				Output
DPCH :	0.0 dB				
					7
					more 2/2
					-



9. Set the following items.

Scrambling Code:0 DPCH Channel Config: INFO.(11)/12.2kbps DPDCH DATA:PN9 DPCH Channel. Code: 2 [Channel Power Ratio] CPICH: 0dB P-CCPCH: 0dB DPCH: 0dB

10. Press *more 2/2* and *DTCH/DCCH Setup*. The DTCH/DCCH Parameter Setup dialog box is displayed.

5.3 Measurement Example

Rx Control [R3562 36PP3.1.0] COO	)/COO	
Freq.:         2.1100000         GHz         1         1           Level:         0.0         dBm         Offset:         0.0	ch dB	lod.(2/2) PC Insert
<<< Base Band >>>	Ľ	i insert
I/W Direction : UFF Link : DDWNLINK Scramble Code : O	2	DPCCH Setup
[DPCH Channel Config] Rate : 12.2kbps/30ksps Slot Format No. :	11	TCH/DCCH
Data Mode DTCH/DCCH Parameter Setup		Setup
DPDCH Da     [ DTCH ]       DTCH Data     PN9       DCCH Data     FEC:       ON     OFF	ERR	
[Channel P CRC: NORMAL INVERSE ADD ERR CPICH [ DCCH ] P=CPCH Data: PN9 [PN15] ALLO ALL1 [PN9	ERR	t Trigger
DPCH FEC: ON DFF </td <td>Ď</td> <td>ct Trigger Setup</td>	Ď	ct Trigger Setup
Synth Ref In : INTERNAL MOD-TB In : INTERNAL Clock Out1 : OFF Clock Out2 : OFF	7	more 1/2

## Figure 5-23 DTCH/DCCH Parameter Setup Dialog Box

11. Set the following items for DTCH and DCCH.

Data:PN9 FEC:ON CRC:NORMAL

12. Press Return.

Setting the BER counter

 Press *BER* and *Parameter Setup*. The BER Parameter Setup dialog box is displayed.

Dit Former Data Maaroon		1
BIT Error Rate Measure	ment [K3562 30PP3.1.0] 000/000	1
DED		BER
BER	76	Parameter
		Setup
Data : PN9 Bit Length : 10000 bit	Clock Edge : NEG Clock Polarity : POS	
Freq.: 2.1100000 Level: 0.0	GHZ CH : 1 ch dBm Offset: 0.0 dB	
<<< Base Band >>>		1
I/Q Direction : OFF	BER Parameter Setup	
Link : DOWNLINK	Data: PN9 PN15	
Scramble Code : 0	Bit Length: 10000	5 Modulation
[DPCH Channel Config]	Clock Edge: POS NEG	ON DEE
Data Mode : INFORMATION	Data Polarity: POS NEG	
		Output
Unannei rower Katioj		ON OFF
		7
DPCH : 0.0 dB		Quit

Figure 5-24 BER Parameter Setup Dialog Box

5.3 Measurement Example

14. Set the following items. Data:PN9Bit Length:10000Clock Edge:NEG

## Data Polarity:POS

Starting the measurement

15. Press **REPEAT**.

The bit error rate is displayed.

Bit Error Rate Measurement [R3562 36PP3.1.0] COO/COO	
	BER
BER 0.0000 % 0.0000000E+0	¹ Parameter Setup
Data : PN9 Clock Edge : NEG Bit Length : 10000 bit Clock Polarity : POS	
Freq.:         2.1100000         GHz         CH         1 ch           Level:         0.0         dBm         Offset:         0.0 dB	
<pre>&lt;&lt;&lt; Base Band &gt;&gt;&gt;     I/Q Direction : DFF Link : DOWNLINK Scramble Code : 0 IDPCH Channel Config]</pre>	5 Modulation
Rate : 12.2kbps/30ksps Slot Format No. : 11 Data Mode : INFORMATION Channel Code No. : 2	ON OFF
[Channel Power Ratio] СРІСН : 0.0 dB Р-ССРСН : 0.0 dB DPCH : 0.0 dB	Quit

Figure 5-25 Measurement Result on the Bit Error Rate

6.1 Outline

# 6 HOW TO OPERATE THE R3562 OPT65

This chapter describes all key functions of the R3562 OPT65 cdma2000 option.

# 6.1 Outline

The operation menu of R3562 is placed under the ADVANCE.

Press **ADVANCE** and *Rx Control [R3562]*, R3267 Series becomes R3562 control mode and displays the screen shown in Figure 6-2 to set and measure R3562.

In this mode, operation with only soft-key or dialog box becomes effective except **FREQ** and **LEVEL**. The operation with **SPAN** and so on which can be used in ordinary operation mode cannot be performed. In order to return to the ordinary operation mode, press **POWER**, **UTIL**, **TRANSIENT** or *Quit*.

[Setting up the communication system]



#### **Figure 6-1 Initial Screen**

To control the OPT65 (cdma2000) of R3562 using this option, the R3562 communication system must be set to the cdma2000 mode. When the Comm.sys key on the Initial screen is set to 3GPP (highlighted) (Figure 6-1), a mode is not set correctly.

Use the procedure below to change the communication system:

- 1. Press the Comm.sys key to set cdma2000 (highlighted).
- 2. Turn the R3562 power switch off, and then on again.

NOTE: Always perform steps 1 and 2 to change the communication system (performing step 1 only does not complete the operation).

# 6.1 Outline

Rx Control [R3562 cdma2000] E00/B00	
Freq.:         800.0000         MHz         CH         1 ch           Level:         -80.0         dBm         Offset:         0.0 dB	R3562
C(4) Direction       : 0FF         Link       : REVERSE       Radio Config.       : RC1         Generator       Mode       : SIGNAL       Eb/No       : 10.0 dB	2 Modulation
Primary Ch.(Eb): FUH(A) Power Adj. Ch.: External Trigger: DISABLE Coding Channel: FCH(A) PN Offset : 0.00 [Frame Satting]	³ Frequency & Level
[I'rate occurre]         [Frame]         [Rate]         [Walsh]           FCH(A)         0.0 dB         20.0 mSec         9.6 kbps        /	4 Other
	Modulation
<pre></pre>	Output
	Quit

Figure 6-2 R3562 Control Main Screen (cdma2000)

# 6.2 Reference

This chapter describes the functions of all panel and soft keys.

- Menu Index: Use this index as a key index to Chapter 6.
- Menu Map: Shows a list of hierarchical menus on a panel key basis.
- Functional Description: Explains the functions of the panel and soft keys.

The panel keys are arranged in alphabetical order.

# 6.2.1 Menu Index

This menu index is used to easily find the keys described in Chapter 6.

[DCCH]       6-6, 6-8, 6-8, 6-17, 6-26       AWGN Cal Corr       6-10         [FCH(A)]       6-7, 6-8, 6-7, 6-8, 6-20, 6-25, 6-28       BER       6-6, 6-7, 6-8, 6-9, 6-28         [FCH(B)]       6-6, 6-7, 6-8, 6-17, 6-8, 6-20, 6-22, 6-32, 6-30, 6-22, 6-30       Burst       6-30         [FCH(C)]       6-7, 6-20, 6-20, 6-20, 6-20, 6-20, 6-20, 6-20, 6-20, 6-20, 6-20, 6-20, 6-20, 6-20, 6-20, 6-20, 6-20, 6-20, 6-20, 6-30       6-7, 6-20, 6-20, 6-30         [FCH(C)]       6-7, 6-20, 6-20, 6-20, 6-20, 6-20, 6-30       6-7, 6-20, 6-20, 6-30	6-11 6-32, 6-34, 6-36, 6-38, 6-40 6-14 6-41 6-41
6-17, 6-26       AWGN Cal Corr ON/OFF	6-11 6-11 6-32, 6-34, 6-36, 6-38, 6-40 6-14 6-44 6-41 6-41
[FCH(A)]	6-11 6-32, 6-34, 6-36, 6-38, 6-40 6-14 6-41 6-41 6-41
6-20, 6-25,       Bit Length	6-11 6-32, 6-34, 6-36, 6-38, 6-40 6-14 6-44 6-41 6-41
6-28       Block Interleaver	6-32, 6-34, 6-36, 6-38, 6-40 6-14 6-44 6-41 6-41
[FCH(B)]       6-6, 6-7, 6-8, 6-17, 6-35, 6-35, 6-20, 6-22, 6-37, 6-26, 6-28, 6-39, 6-30       6-30       Burst	6-34, 6-36, 6-38, 6-40 6-14 6-44 6-41 6-41
6-8, 6-17,       6-35,         6-20, 6-22,       6-37,         6-26, 6-28,       6-39,         6-30       Burst	6-36, 6-38, 6-40 6-14 6-44 6-41 6-41
6-20, 6-22,       6-37,         6-26, 6-28,       6-39,         6-30       Burst	6-38, 6-40 6-14 6-44 6-41 6-41
6-26, 6-28,       6-39,         6-30       Burst	6-40 6-14 6-44 6-41 6-41
6-30       Burst	6-14 6-44 6-41 6-41
[FCH(C)]	6-44 6-41 6-41
6-28 CH Start Freq 6-10,	6-41 6-41
<b>A</b>	6-41
[I/Q Input]	6 11
[I/Q Output]	0-41
[PICH]	6-10,
6-17, 6-19, 6-12,	6-42
6-22 Clock Edge 6-6,	6-11
[SCH(A)]	6-10,
6-30 6-13,	6-43
[SCH(C)]	6-10,
6-22, 6-30 6-13,	6-43
[SCH1(C)]	6-24,
6-26 6-26,	6-27,
[SCH2(A)]	
6-17, 6-26 CRC 6-9,	6-31,
[SYNCH]	6-34,
6-22 6-35,	6-36,
10MHz Ref Adj 6-6, 6-10, 6-37,	6-38,
6-12, 6-43 6-39,	6-40
Add. Bit Error	6-33,
6-33, 6-34, 6-34,	6-35,
6-35, 6-36, 6-36,	6-37,
6-37, 6-38, 6-38,	6-39,
6-39, 6-40 6-40	
ALC Mode	6-9,
AWCN	
AWGN         6-10         Data Polarity         6-6,	6-11

# 6.2 Reference

DCCH Setup	6-9,	6-32
Eb/No	6-6,	6-7,
	6-15,	6-16,
	6-19,	6-22
Entry Mode	6-9,	6-32
Equalizing	6-19,	6-21
Equalizing Filter	6-7	
Error Ratio	6-9,	6-32,
	6-33,	6-34,
	6-35,	6-36,
	6-37,	6-38,
	6-39,	6-40
Ext I/O Setup	6-10,	6-43
EXT Trigger	6-14,	6-15
External Trigger	6-6	
FCH(TRCH A) Setup	6-9,	6-31,
	6-36	·
FCH(TRCH B) Setup	6-9,	6-34,
	6-36,	6-39
FCH(TRCH C) Setup	6-9,	6-37
FEC	6-25,	6-27,
	6-28,	6-30
Frame	6-25,	6-26,
	6-28,	6-30
Frame Setup	6-24,	6-25,
1	6-27,	6-28
FREQ	6-11	
Freq Input	6-10,	6-41
Frequency & Level	6-6,	6-40
Frequency Setup	6-10,	6-40
Gating	6-9.	6-32
Gating Rate	6-9,	6-32
General Setup	6-6,	6-13,
I	6-15,	6-18,
	6-21	,
Generator Mode	6-6,	6-7,
	6-14,	6-16,
	6-19,	6-21
I Gain	6-10,	6-44
I/O Direction	6-7.	6-10,
	6-24,	6-44
I/Q Phase Adj	6-10,	6-44
LEVEL	6-11	
Level Offset	6-10,	6-41
Level Setup	6-10,	6-41
Link	6-7,	6-24
MOD-TB In	6-6,	6-10.
	6-12.	6-43
Modulation	6-6,	6-12
Modulation ON/OFF	6-6,	6-10,
	6-11,	6-31,

	6-45	
Modulator	6-10,	6-45
Modulator Cal Corr	6-45	
Modulator Cal Corr ON/OFF	6-10	
Offset Value	6-10,	6-41
Other	6-6,	6-42
Output ON/OFF	6-6,	6-10,
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Parameter Setup	6-6,	6-11
PICH Setup	6-9,	6-32
PN Offset	6-6,	6-14,
	6-16	
Power Adjustment Ch.	6-6,	6-7,
5	6-16,	6-19,
	6-22	,
Power Control Pattern	6-9.	6-32
Preset	6-10,	6-45
Primary Ch.(Eb)	6-6.	6-7.
, , , , , , , , , , , , , , , , , , ,	6-15.	6-16.
	6-19.	6-22
O Gain	6-10.	6-44
OOF	6-31	0 11
Quit	6-6	6-12
2	6-45	0 12,
Radio Configuration	6-7	6-24
Rate	6-25	6-26
	6-28	6-30
Recall	6-10	6-45
Recall Register List	6-10	0 10
Ren Pattern	6-31	6-33
Rep. I attern	6-34	6-35
	6-36	6-37
	6-38	6-39
	6-40	0.57,
REPEAT	6-11	
Repeat Pattern	6-9	
Rx Control [R3562]	6-6	
Save	6-10	6-45
Save Register List	6-10,	0 45
SCH(TRCH A) Setun	6-9	6-38
SCH(TRCH C) Setup	6-9	6-40
SCH1(TRCH C) Setup	6-9	0 +0
SCH2(TRCH A) Setup	6-9	6-33
Self Test	6-10	6-45
SINGLE	6-11	0 <b>-</b> J
START	6_11	
STD Setun	6-6	6-24
Sten Size	6-10	6_/11
STOP	6 <u>1</u> 1	0-41
Synthe Ref In	6-6	6-10
Sjinite iter in	00,	U 10,

	6-12, 6-42
Unit	6-10, 6-41
Upper Limit	6-10, 6-41
Walsh Len	6-26, 6-28,
	6-30
Walsh No.	6-26, 6-28,
	6-30

# 6.2.2 Menu Map

A list of soft menus, which are under the ADVANCE key, used with the R3562 are shown below.

NOTE:		Represents a panel key.
		Represents a dialog box.
	Unless otherwise n	oted, the soft menus are shown.





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*2 The settings in this dialog box are the same as the settings in the "Modulation  $\rightarrow$  Clock & Timing Setup" dialog box.

# 6.2.3 Functional Description

This section describes the front panel keys and the soft menus associated with them.

FREQ	A window pro Sets the outpu Use the up or enter data.	ompting numeric values is displayed. It frequency. I down keys, the data knob and the numeric keys to
LEVEL	A window pro Used to set th Use the up or enter data.	ompting numeric values is displayed. e output level. down keys, the data knob and the numeric keys to
SINGLE	Makes one Bl	ER measurement.
REPEAT (START/STOP)	Makes repeat measurement	ed BER measurements, or stops the current BER
BER	Displays the l	BER Measurement Mode menu.
Parameter Setup	Displays the l	BER Parameter Setup dialog box.
	BER Paramet Data: Bit Length: Clock Edge: Data Polarity:	er Setup PN9 PN15 10000 PUS NEG PUS NEG
	Figure 6-3 B	ER Parameter Setup Dialog Box
Data	<b>Figure 6-3 B</b> Selects test da	ER Parameter Setup Dialog Box
Data	Figure 6-3 B Selects test da PN9:	ER Parameter Setup Dialog Box ata type. Selects PN9.
Data	<b>Figure 6-3 B</b> Selects test da PN9: PN15:	ER Parameter Setup Dialog Box ata type. Selects PN9. Selects PN15.
Data Bit Length	Figure 6-3 Bl Selects test da PN9: PN15: Set BER mea The setting ra	ER Parameter Setup Dialog Box ata type. Selects PN9. Selects PN15. surement time with the bit length. nge of the bit length is 1000 to 10000000 bits.
Data Bit Length Clock Polarity	Figure 6-3 Bi Selects test da PN9: PN15: Set BER mea The setting ra Select from w from BER clo	ER Parameter Setup Dialog Box ata type. Selects PN9. Selects PN15. surement time with the bit length. nge of the bit length is 1000 to 10000000 bits. which edge you get data, the rising edge of the signal bock terminal or the falling edge.
Data Bit Length Clock Polarity	Figure 6-3 Bi Selects test da PN9: PN15: Set BER mea The setting ra Select from w from BER clo POS:	ER Parameter Setup Dialog Box atta type. Selects PN9. Selects PN15. surement time with the bit length. nge of the bit length is 1000 to 10000000 bits. which edge you get data, the rising edge of the signal bock terminal or the falling edge. Rising
Data Bit Length Clock Polarity	Figure 6-3 Bi Selects test da PN9: PN15: Set BER mea The setting ra Select from w from BER clo POS: NEG:	ER Parameter Setup Dialog Box atta type. Selects PN9. Selects PN15. surement time with the bit length. nge of the bit length is 1000 to 10000000 bits. which edge you get data, the rising edge of the signal bock terminal or the falling edge. Rising Falling
Data Bit Length Clock Polarity Data Polarity	Figure 6-3 Bi Selects test da PN9: PN15: Set BER mea The setting ra Select from w from BER clo POS: NEG: Select if you	ER Parameter Setup Dialog Box ata type. Selects PN9. Selects PN15. surement time with the bit length. nge of the bit length is 1000 to 10000000 bits. which edge you get data, the rising edge of the signal bock terminal or the falling edge. Rising Falling invert BER DATA terminal data or not.
Data Bit Length Clock Polarity Data Polarity	Figure 6-3 Bi Selects test da PN9: PN15: Set BER mea The setting ra Select from w from BER clo POS: NEG: Select if you POS:	ER Parameter Setup Dialog Box ata type. Selects PN9. Selects PN15. surement time with the bit length. nge of the bit length is 1000 to 10000000 bits. which edge you get data, the rising edge of the signal bock terminal or the falling edge. Rising Falling invert BER DATA terminal data or not. Positive logic (not invert)
Data Bit Length Clock Polarity Data Polarity	Figure 6-3 Bi Selects test da PN9: PN15: Set BER mea The setting ra Select from w from BER clo POS: NEG: Select if you POS: NEG: NEG:	ER Parameter Setup Dialog Box ata type. Selects PN9. Selects PN15. surement time with the bit length. nge of the bit length is 1000 to 10000000 bits. which edge you get data, the rising edge of the signal bock terminal or the falling edge. Rising Falling invert BER DATA terminal data or not. Positive logic (not invert) Negative logic (invert)
Data Bit Length Clock Polarity Data Polarity Modulation ON/OFF	Figure 6-3 Bi Selects test da PN9: PN15: Set BER mea The setting ra Select from w from BER clo POS: NEG: Select if you POS: NEG: NEG: Turns the RF	ER Parameter Setup Dialog Box ata type. Selects PN9. Selects PN15. surement time with the bit length. nge of the bit length is 1000 to 10000000 bits. which edge you get data, the rising edge of the signal bock terminal or the falling edge. Rising Falling invert BER DATA terminal data or not. Positive logic (not invert) Negative logic (invert) output modulation function on or off.

	OFF:	Does not modulate the RF output.
Output ON/OFF	Turns the RI	Foutput on or off.
	ON:	Turns the RF signal on.
	OFF:	Turns the RF signal off.
Quit	Exits from B	ER Measurement Mode.
lation	Displays the	Mod. 1/2 menu.

Modulation

Clock & Timing Setup

Displays the Clock/Timing Signal Parameter Setup dialog box.

Clo	ck/Timing Si	ignal Pa	ramet	ter Se	etup		
Synth Ref In:	1	1.2288		2	2.457	6	4.9152
MHZ	5	9.8304	1	.0	15		19.6608
	INTERNAL						
10MHz Ref Adj.:	0						
MOD-TB In:	1	1.2288		2	2.457	6	4.9152
[MHz]	5	9.8304	1	.0	15		19.6608
	INTERNAL						
Clock Out 1:	OFF	20mSe	эc	26.0	5mSec		80mSec
	2Sec	5mSe	с	CHIP	CLOCK	E	XT EVEN
Clock Out 2:	OFF	20mSec 2		26.6mSec			80mSec
	2Sec	5mSe	5mSec CHIP CLOCK		E	XT EVEN	

## Figure 6-4 Clock/Timing Signal Parameter Setup Dialog Box

Synthe Ref In	Selects the re	ference signal from the synthesizer.
	1 MHz:	Uses an external signal of 1 MHz.
	1.2288 MHz	Uses an external signal of 1.2288 MHz.
	2 MHz:	Uses an external signal of 2 MHz.
	2.4576 MHz	Uses an external signal of 2.4576 MHz.
	4.9152 MHz:	Uses an external signal of 4.9152 MHz.
	5 MHz:	Uses an external signal of 5 MHz.
	9.8304 MHz	Uses an external signal of 9.8304 MHz.
	10 MHz:	Uses an external signal of 10 MHz.
	15 MHz:	Uses an external signal of 15 MHz.
	19.6608 MH	Z:
		Uses an external signal of 19.6608 MHz.
	INTERNAL:	Uses the internal reference signal.
10MHz Ref Adj.	Sets internal a ed.	reference signal's frequency difference to be correct-
MOD-TB In	Selects the re	ference signal used for the modulation.
	1 MHz:	Uses an external signal of 1 MHz.
	1.2288 MHz	Uses an external signal of 1.2288 MHz.

2 MHz:	Uses an external signal of 2 MHz.
2.4576 MHz:	Uses an external signal of 2.4576 MHz.
4.9152 MHz:	Uses an external signal of 4.9152 MHz.
5 MHz:	Uses an external signal of 5 MHz.
9.8304 MHz:	Uses an external signal of 9.8304 MHz.
10 MHz:	Uses an external signal of 10 MHz.
15 MHz:	Uses an external signal of 15 MHz.
19.6608 MHz	
	Uses an external signal of 19.6608 MHz.
INTERNAL:	Uses the internal reference signal.

#### Clock Out 1/Clock Out 2

Outputs the modulation timing signals to the CLOCK OUT1 and CLOCK OUT2 connectors.

- OFF: Turns the output signal off.
- 20 msec: Outputs the signals for the Traffic Channel frame period.
  26.6 msec: Outputs the signals for the Sync Channel frame period.
  80 msec: Outputs the signals for the Sync Channel super frame period.
  2 sec: Outputs the even-second signal in the base band block.
- 5 msec: Outputs the signals for both the FCH and DCCH Channel frame periods.
- CHIP CLOCK:

Outputs a chip clock of 1.2288 MHz.

EXT EVEN: Outputs an even-second signal which is input to the EXT TRIG terminal.

<When Reverse Is Set to RC1 or RC2>

#### **General Setup**

The General Parameter Setup <Reverse: RC1/RC2> dialog box is displayed if Reverse RC1 or RC2 is selected in the STD Parameter Setup dialog box shown in Figure 6-9.

Genera	Parameter Setup <reverse:rc1 rc2=""></reverse:rc1>
Burst:	ON OFF
Ext Trigger:	ENABLE DISABLE
PN Offset:	0.00
Generator Mode:	SIGNAL NOISE Eb/No
Eb/No:	10.0 dB
Primary Ch.(Eb):	FCH(A)

Figure 6-5 General Parameter Setup Dialog Box <When Reverse Is Set to RC 1 or RC 2>

Burst	Toggles the	Fundamental Channel burst on or off.
	ON:	Turns the burst on.
	OFF:	Turns the burst off.
	NOTE:	The burst is automatically turned off when Radio Config- uration is set to 3 or 4.
EXT Trigger	Sets whethe chronized w terminal on	er or not the baseband block of this instrument is syn- vith the even-second signal input to the EXT TRIG IN the front panel.
	ENABLE:	The baseband block is synchronized with the even- second signal input to the EXT TRIG IN terminal.
	DISABLE:	The baseband block is not synchronized with the even-second signal input to the EXT TRIG IN terminal.
	NOTE:	No signal is output from the RF OUT connector if the EXT Trigger is set to ENABLE but the even-second sig- nal is not input to the EXT TRIG IN connector. In addi- tion, the R3562 may not be synchronized with the base station unless the frequency synchronization between the two is maintained using MOD TIME BASE IN or SYN- THE REFIN.
PN Offset	Sets a PN o is set to EN even-second One PN off the chip qua low:	ffset value for the even-second signal if EXT Trigger VABLE and the instrument is synchronized with the d signal. Set is 64 chips. As a result, the relationship between antity and the PN offset setting value is as shown be-
	OFFSET [ir	$hchips] = Round-off (64 \times PN OFFSET)$
	OFFSET [ir	n chips]:Quantity (in chips) set to this instrument.
	PN OFFSE	Γ: Setting value for the PN offset
	Round-off:	Rounded off at the first decimal place.
Generator Mode	Selects a sig	gnal input to the IQ modulator.
	SIGNAL:	Selects a CDMA signal.
	NOISE:	Selects an AWGN signal with a bandpass of 2 MHz.
	Eb/No:	Selects a CDMA signal combined with the AWGN output signal. A ratio of the primary channel signal level to the AWGN output level is set.

6.2 Reference

*NOTE:* First perform an AWGN calibration before setting the generator mode to Eb/No.

*Eb/No* Sets an Eb/No(Nt) value for the primary channel.

Primary Ch.(Eb) The primary channel is fixed for Radio Configuration 1 or 2.

<When Reverse Is Set to RC3 or RC4>

#### **General Setup**

The General Parameter Setup <Reverse: RC3/RC4> dialog box is displayed if Reverse RC3 or RC4 is selected in the STD Parameter Setup dialog box shown in Figure 6-9.

General	Parameter Setup <reverse:rc3 rc4=""></reverse:rc3>
Ext Trigger:	ENABLE DISABLE
PN Offset:	0.00
Generator Mode:	SIGNAL NOISE Eb/No
Eb/No:	10.0 dB
Primary Ch.(Eb):	DCCH SCH2(A) FCH(B) SCH1(C)
Power Adj. Ch.:	PICH DCCH SCH2(A) FCH(B) SCH1(C)
	OFF
[PICH] Output	: ON OFF Power Ratio: -7.0 dB
[DCCH] Output	: ON OFF Power Ratio: -1.1 dB
[ SCH2(A)] Output	: ON OFF Power Ratio: -20.0 dB
[FCH (B)] Output	: ON OFF Power Ratio: -15.6 dB
[ SCH1(C)] Output	: ON OFF Power Ratio: -20.0 dB

#### Figure 6-6 General Parameter Setup Dialog Box <When Reverse Is Set to RC 3 or RC 4>

*EXT Trigger* Sets whether or not the baseband block of this instrument is synchronized with the even-second signal input to the EXT TRIG IN terminal on the front panel.

ENABLE: The baseband block is synchronized with the evensecond signal input to the EXT TRIG IN terminal.

DISABLE: The baseband block is not synchronized with the even-second signal input to the EXT TRIG IN terminal.

NOTE: No signal is output from the RF OUT connector if the EXT Trigger is set to ENABLE but the even-second signal is not input to the EXT TRIG IN connector. In addition, the R3562 may not be synchronized with the base station unless the frequency synchronization between the two is maintained using MOD TIME BASE IN or SYN-THE REFIN.

PN Offset	Sets a PN offset value for the even-second signal if EXT Trigger is set to ENABLE and the instrument is synchronized with the even-second signal. One PN offset is 64 chips. As a result, the relationship between the chip quantity and the PN offset setting value is as shown be- low:			
		$\operatorname{cmps} = \operatorname{Round-on} \left( \operatorname{64 \times PN} \operatorname{OFFSE1} \right)$		
	OFFSET [in chips]: Quantity (in chips) set to this instrument.			
	PN OFFSET	Setting value for the PN offset		
	Round-off:	Rounded off at the first decimal place.		
Generator Mode	Selects a sig	nal input to the IQ modulator.		
	SIGNAL:	Selects a CDMA signal.		
	NOISE:	Selects an AWGN signal with a bandpass of 2 MHz.		
	Eb/No:	Selects a CDMA signal combined with the AWGN output signal. A ratio of the primary channel signal level to the AWGN output level is set.		
	NOTE:	First perform an AWGN calibration before setting the generator mode to Eb/No.		
Eb/No	Sets an Eb/N	No(Nt) value for the primary channel.		
Primary Ch.(Eb)	Sets the primary channel to Control Channel, Traffic Channel A, Traffic Channel B or Traffic Channel C whose output is turned on. The selected channel is used as the target channel of Eb/ No(Nt).			
	DCCH:	Selects Dedicated Control Channel as the primary channel.		
	SCH2(A):	Selects Supplemental Channel 2 as the primary channel.		
	FCH(B):	Selects Fundamental Channel as the primary chan- nel.		
	SCH1(C):	Selects Supplemental Channel 1 as the primary		
		channel.		

Selects the output supplemental channel from the channels whose outputs are turned on. The output of the selected channel is automatically adjusted so that the sum total of all output channels is 0 dB.

	PICH:	Selects Pilot Channel as the output supplemental channel.		
	DCCH:	Selects Dedicated Control Channel as the output supplemental channel.		
	SCH2(A):	Selects Supplemental Channel 2 as the output supplemental channel.		
	FCH(B):	Selects Fundamental Channel as the output supple- mental channel.		
	SCH1(C):	Selects Supplemental Channel 1 as the output supplemental channel.		
	OFF	Turns the output level supplemental channel off.		
[PICH]	Turns the P	ilot Channel output on or off, and sets Power Ratio.		
[DCCH]	Turns the D Power Ratio	Turns the Dedicated Control Channel output on or off, and sets Power Ratio.		
[SCH2(A)]	Turns Supp Ratio.	Turns Supplemental Channel 2 output on or off, and sets Power Ratio.		
[FCH(B)]	Turns the Fundamental Channel output on or off, and sets Power Ratio.			
[SCH1(C)]	Turns the Supplemental Channel 1 output on or off, and sets Power Ratio.			
	NOTE:			
	1. The out be turn	tput of the channel selected as the primary channel cannot ed off.		
	2. The out tal chai	tput of the channel selected as the output level supplemen- nnel cannot be turned off.		
	3. After th channe output current	ne output level supplemental channel has been selected, a l level setting cannot be changed if the sum total of all the channels exceeds 0 dB, and any channel whose output is ly turned off cannot be turned on.		
	4. If PICH output each ch els.	H, DCCH, SCH2(A), FCH(B) or SCH1(C) is selected as an level supplemental channel, the output setting value for bannel is a value relative to the sum total of all channel lev-		
	<i>If the o</i> the out	nutput level supplemental channel is not selected (or off), put setting value for each channel is a value relative to a		

specific channel. Example: If the output level supplemental channel is not selected (or off) All channels have the same output level for Cases "a" and "b" in

Table 6-1.

Table 6-1 Example 1 showing when the O	utput Level
Supplemental Channel is OFF	

Channel	Case a	Case b
Pilot Channel	-5dB	-10dB
Dedicated Control Channel	-5dB	-10dB
Supplemental Channel 2(A)	-5dB	-10dB

^{5.} If the output level supplemental channel is not selected (or off), any channel level that is 20 dB or more than the sum total channel power cannot be set. Example:

Table 6-2 shows the channel level limit values.

 Table 6-2 Example 2 showing when the Output Level

 Supplemental Channel is OFF

Channel	Setting level	Limit value
Pilot Channel	-1.9dB	Upper limit value
Dedicated Control Channel	-2.0dB	Upper limit value
Supplemental Channel 2(A)	-18.9dB	Lower limit value

<When Forward Is Set to RC1 or RC2>

#### **General Setup**

The General Parameter Setup <Forward: RC1/RC2> dialog box is displayed if Forward RC1 or RC2 is selected in the STD Parameter Setup dialog box shown in Figure 6-9.

General Parameter Setup <forward:rc1 rc2=""></forward:rc1>				
Equalizing:	ON OFF			
Generator Mode:	SIGNAL NOISE Eb/No			
Eb/No:	10.0 dB			
Primary Ch.(Eb):	FCH(A) FCH(B) FCH(C)			
Power Adj. Ch.∶	PICH SYNCH FCH(A) FCH(B) FCH(C)			
	OFF			
[PICH] Output	ON OFF Power Ratio: -7.0 dB			
[SYNCH] Output	ON OFF Power Ratio: -1.1 dB			
[FCH(A)] Output	ON OFF Power Ratio: -15.6 dB			
[FCH(B)] Output	: ON OFF Power Ratio: -20.0 dB			
[ FCH(C)] Output	: ON OFF Power Ratio: -20.0 dB			

Figure 6-7 General Parameter Setup Dialog Box <When Forward Is Set to RC 1 or RC 2>

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Equalizing	Turns Equalizing Filter on or off.		
Generator Mode	Selects a signal input to the IQ modulator.		
	SIGNAL:	Selects a CDMA signal.	
	NOISE:	Selects an AWGN signal with a bandpass of 2 MHz.	
	Eb/No:	Selects a CDMA signal combined with the AWGN output signal. A ratio of the primary channel signal level to the AWGN output level is set.	
	NOTE:	First perform an AWGN calibration before setting the generator mode to Eb/No.	
Eb/No	Sets an Eb/	No(Nt) value for the primary channel.	
Primary Ch.(Eb)	Selects the primary channel from the Traffic channels A, B and with the outputs turned on. The selected channel is used as the ta get channel of Eb/No(Nt).		
	FCH(A):	Selects Fundamental Channel(A) as the primary channel.	
	FCH(B):	Selects Fundamental Channel(B) as the primary channel.	
	FCH(C):	Selects Fundamental Channel(C) as the primary channel.	
Power Adjustmen	t Ch.		
·	Selects the outputs are matically as dB.	output supplemental channel from the channels whose turned on. The output of the selected channel is auto- djusted so that the sum total of all output channels is 0	
	PICH:	Selects Pilot Channel as the output supplemental channel.	
	SYNCH:	Selects Sync Channel as the output supplemental channel.	
	FCH(A):	Selects Fundamental Channel(A) as the output supplemental channel.	
	FCH(B):	Selects Fundamental Channel(B) as the output supplemental channel.	
	FCH(C):	Selects Fundamental Channel(C) as the output supplemental channel.	
	OFF	Turns the output level supplemental channel off.	
[PICH]	Turns the Pilot Channel output on or off, and sets Power Ratio.		

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[SYNCH]	Turns the Sync Channel output on or off, and sets Power Ratio.
[FCH(A)]	Turns the Fundamental Channel(A) output on or off, and sets Power Ratio.
[FCH(B)]	Turns the Fundamental Channel(B) output on or off, and sets Power Ratio.
[FCH(C)]	Turns the Fundamental Channel(C) output on or off, and sets Power Ratio.

#### NOTE:

- 1. The output of the channel selected as the primary channel cannot be turned off.
- 2. The output of the channel selected as the output level supplemental channel cannot be turned off.
- 3. After the output level supplemental channel has been selected, a channel level setting cannot be changed if the sum total of all the output channels exceeds 0 dB, and any channel whose output is currently turned off cannot be turned on.
- 4. If PICH, SYNCH, FCH(A), FCH(B) or FCH(C) is selected as an output level supplemental channel, the output setting value for each channel is a value relative to the sum total of all channel levels.

If the output level supplemental channel is not selected (or off), the output setting value for each channel is a value relative to a specific channel.

Example:

If the output level supplemental channel is not selected (or off) All channels have the same output level for Cases "a" and "b" in Table 6-3.

Channel	Case a	Case b
Pilot Channel	-5dB	-10dB
Sync Channel	-5dB	-10dB
Fundamental Channel(A)	-5dB	-10dB

# Table 6-3 Example 1 showing when the Output Level Supplemental Channel is OFF

5. If the output level supplemental channel is not selected (or off), any channel level that is 20 dB or more than the sum total channel power cannot be set. Example:

Table 6-4 shows the channel level limit values.

# Table 6-4 Example 2 showing when the Output LevelSupplemental Channel is OFF

Channel	Setting level	Limit value
Pilot Channel	-1.9dB	Upper limit value
Sync Channel	-2.0dB	Upper limit value
Fundamental Channel(A)	-18.9dB	Lower limit value

<When Forward Is Set to RC3, RC4 or RC5>

#### **General Setup**

The General Parameter Setup <Forward: RC3/RC4/RC5> dialog box is displayed if Forward RC3, RC4 or RC5 is selected in the STD Parameter Setup dialog box shown in Figure 6-9.

-					(n
6	<u>eneral Para</u>	ameter	<u>Setup <f< u=""></f<></u>	orward:RC3/RC4/	(RC5>
Equalizing		DN OF	F		
Generator I	lode:	SIGNAL	NOISE	Eb/No	
Eb/No:		10.0 d	В		
Primary Ch	.(Eb): S	CH(A)	FCH(B)	SCH(C)	
Power Adj.	Ch.:	PICH	SYNCH	SCH(A) FCH(B	) SCH(C)
		OFF			
[ PICH ]	Output:	ON	OFF	Power Ratio:	-7.0 dB
[ SYNCH ]	Output:	ON	OFF	Power Ratio:	-1.1 dB
[ SCH(A)]	Output:	ON	OFF	Power Ratio:	-20.0 dB
[ FCH(B)]	Output:	ON	OFF	Power Ratio:	-15.6 dB
[ SCH(C)]	Output:	ON	OFF	Power Ratio:	-20.0 dB

## Figure 6-8 General Parameter Setup Dialog Box <When Forward Is Set to RC 3, RC4 or RC5>

	NOTE:	First perform an AWGN calibration before setting the generator mode to Eb/No.	
	Eb/No:	Selects a CDMA signal combined with the AWGN output signal. A ratio of the primary channel signal level to the AWGN output level is set.	
	NOISE:	Selects an AWGN signal with a bandpass of 2 MHz.	
	SIGNAL:	Selects a CDMA signal.	
Generator Mode	Selects a si	gnal input to the IQ modulator.	
Equalizing	Turns Equalizing Filter on or off.		

Eb/No	Sets an Eb/No(Nt) value for the primary channel.	
Primary Ch.(Eb)	Selects the primary channel from the Traffic channels A, B and C with the outputs turned on. The selected channel is used as the tar get channel of Eb/No(Nt).	
	SCH(A):	Selects Supplemental Channel(A) as the primary channel.
	FCH(B):	Selects Fundamental Channel(B) as the primary channel.
	SCH(C):	Selects Supplemental Channel(C) as the primary channel.
Power Adjustmen	t Ch.	
	Selects the output supplemental channel from the channels whose outputs are turned on. The output of the selected channel is auto- matically adjusted so that the sum total of all output channels is 0 dB.	
	PICH:	Selects Pilot Channel as the output supplemental channel.
	SYNCH:	Selects Sync Channel as the output supplemental channel.
	SCH(A):	Selects Supplemental Channel(A) as the output supplemental channel.
	FCH(B):	Selects Fundamental Channel(B) as the output supplemental channel.
	SCH(C):	Selects Supplemental Channel(C) as the output supplemental channel.
	OFF	Turns the output level supplemental channel off.
[PICH]	Turns the Pilot Channel output on or off, and sets Power Ratio.	
[SYNCH]	Turns the Sync Channel output on or off, and sets Power Ratio.	
[SCH(A)]	Turns the Supplemental Channel(A) output on or off, and sets Power Ratio.	
[FCH(B)]	Turns the Fundamental Channel(B) output on or off, and sets Power Ratio.	
[SCH(C)]	Turns the Supplemental Channel(C) output on or off, and sets Power Ratio.	

## NOTE:

^{1.} The output of the channel selected as the primary channel cannot be turned off.
- 2. The output of the channel selected as the output level supplemental channel cannot be turned off.
- 3. After the output level supplemental channel has been selected, a channel level setting cannot be changed if the sum total of all the output channels exceeds 0 dB, and any channel whose output is currently turned off cannot be turned on.
- 4. If PICH, SYNCH, SCH(A), FCH(B) or SCH(C) is selected as an output level supplemental channel, the output setting value for each channel is a value relative to the sum total of all channel levels.

If the output level supplemental channel is not selected (or off), the output setting value for each channel is a value relative to a specific channel.

Example:

If the output level supplemental channel is not selected (or off) All channels have the same output level for Cases "a" and "b" in Table 6-5.

# Table 6-5 Example 1 showing when the Output Level Supplemental Channel is OFF

Channel	Case a	Case b
Pilot Channel	-5dB	-10dB
Sync Channel	-5dB	-10dB
Supplemental Channel(A)	-5dB	-10dB

5. If the output level supplemental channel is not selected (or off), any channel level that is 20 dB or more than the sum total channel power cannot be set.

Example:

Table 6-6 shows the channel level limit values.

# Table 6-6 Example 2 showing when the Output Level Supplemental Channel is OFF

Channel	Setting level	Limit value
Pilot Channel	-1.9dB	Upper limit value
Sync Channel	-2.0dB	Upper limit value
Supplemental Channel(A)	-18.9dB	Lower limit value

Displays the STD Parameter setup dialog box.	
out	
ıal	
to	

#### **Radio Configuration**

Specifies the Radio Configuration numbers prescribed by IS2000.

<When Reverse Is Set to RC1 or RC2>

Frame Setup

Refer to the STD Parameter Setup dialog box shown in Figure 6-9. If Reverse RC1 is selected the Frame Parameter Setup <Reverse: RC1> dialog box is displayed.

If Reverse RC2 is selected the Frame Parameter Setup <Reverse: RC2> dialog box is displayed.

	Frame Parameter Setup <reverse:rc1></reverse:rc1>		
Coding Channel: FCH(A) OFF			
[ FCH(A)]	Frame:	20mSec	
	Rate [kbps] :	9.6 4.8 2.4 1.2	
	FEC:	CONVO	

Figure 6-10 Frame Parameter Setup Dialog Box <When Reverse Is Set to RC 1>

Frame Parameter Setup <reverse:rc2></reverse:rc2>				
Coding Channel: FCH(A) OFF				
[ FCH(A)]	Frame:	20mSec		
	Rate[kbps]:	14.4 7.2 3.6 1.8		
	FEC:	CONVO		

Figure 6-11 Frame Parameter Setup Dialog Box <When Reverse Is Set to RC 2>

Coding Channel Selects whether realtime coding is performed on FCH or not.

6.2 Reference

[FCH(A)]				
Frame	The fram	The frame length is fixed at 20 msec for RC1 or RC2.		
Rate	Selects D	Selects Data Rate.		
FEC	Fixed at Convolutional for RC1 or RC2.			
	NOTE:	The selection range for each parameter complies with the associated standards. Refer to Section 2.3, "cdma Func- tion" and Section 3.2, "Channel Setup" of R3562 OPT65 OPERATION MANUAL.		

<When Reverse Is Set to RC3 or RC4>

Frame Setup

Refer to the STD Parameter Setup dialog box shown in Figure 6-9. If Reverse RC3 is selected the Frame Parameter Setup <Reverse: RC3> dialog box is displayed.

If Reverse RC4 is selected the Frame Parameter Setup <Reverse: RC4> dialog box is displayed.



Figure 6-12 Frame Parameter Setup Dialog Box <When Reverse Is Set to RC 3>

6.2 Reference



#### Figure 6-13 Frame Parameter Setup Dialog Box <When Reverse Is Set to RC 4>

*Coding Channel* Selects a channel on which realtime coding is performed.

NOTE:	Realtime coding is performed on one channel at a time. As a previously selected channel is removed from the tar- get, only the currently selected channel is targeted for realtime coding.
OFF:	Turns realtime coding function off for each chan- nel.
SCH1(C):	Performs realtime coding for Supplemental 1 Channel.
FCH(B):	Performs realtime coding for Fundamental Chan- nel.
SCH2(A):	Performs realtime coding for Supplemental 2 Channel.
DCCH:	Performs realtime coding for Dedicated Control Channel.

#### [DCCH], [SCH2(A)], [FCH(B)] and [SCH1(C)]

Frame	Selects Frame Length.
Rate	Selects Data Rate.
Walsh Len	Selects the Walsh length.
Walsh No.	Selects the Walsh number.

- *FEC* Selects either Turbo Coding or Convolutional Coding.
  - NOTE: The range for each parameter is prescribed by the standard. For more information, refer to Section 2.3, "cdma2000 Function" and Section 3.2, "Channel Setup" in "R3562 OPT65 OPERATING MANUAL."

<When Forward Is Set to RC1 or RC2>

#### Frame Setup

Refer to the STD Parameter Setup dialog box shown in Figure 6-9. If Forward RC1 is selected the Frame Parameter Setup <Forward: RC1> dialog box is displayed.

If Forward RC2 is selected the Frame Parameter Setup <Forward: RC2> dialog box is displayed.



#### Figure 6-14 Frame Parameter Setup Dialog Box <When Forward Is Set to RC 1>



Figure 6-15 Frame Parameter Setup Dialog Box <When Forward Is Set to RC2>

Coding Channel Selects a channel on which realtime coding is performed.

FCH(A):	Performs realtime coding for Fundamental Chan- nel(A).
FCH(B):	Performs realtime coding for Fundamental Chan- nel(B).
FCH(C):	Performs realtime coding for Fundamental Chan- nel(C).
OFF:	Turns realtime coding function off for each chan- nel.
NOTE:	Realtime coding is performed on one channel at a time. As a previously selected channel is removed from the tar- get, only the currently selected channel is targeted for realtime coding.

#### [FCH(A)], [FCH(B)], [FCH(C)]

	NOTE:	The selection range for each parameter complies with the associated standards. Refer to Section 2.3, "cdma Func- tion" and Section 3.2, "Channel Setup" of R3562 OPT65		
FEC	RC1 and RC2 are fixed at Convolutional.			
Walsh No.	Selects Walsh Number.			
Walsh Len	Selects Wals	Selects Walsh Length.		
Rate	Selects Data Rate.			
Frame	Selects Frame Length.			

**OPERATION MANUAL.** 

<When Forward Is Set to RC3, RC4 or RC5>

Frame Setup

Refer to the STD Parameter Setup dialog box shown in Figure 6-9. If Forward RC3 is selected the Frame Parameter Setup <Forward: RC3> dialog box is displayed. If Forward RC4 is selected the Frame Parameter Setup <Forward: RC4> dialog box is displayed. If Forward RC5 is selected the Frame Parameter Setup <Forward: RC5> dialog box is displayed.

6.2 Reference

[		
	Frame Parame	ter Setup <forward:rc3></forward:rc3>
Coding Char	nel: SCH(A)	FCH(B) SCH(C) OFF
[ SCH(A)]	Frame:	20mSec 40mSec 80mSec
38.4 ksps	Rate [kbps] :	153.6 76.8 38.4 19.2 9.6
		4.8 2.7 1.5
	Walsh Len.:	64 Walsh No.: 62
	FEC:	CONVO TURBO
	QOF :	0 1 2 3
[ FCH(B)]	Frame:	5mSec 20mSec
38.4 ksps	Rate [kbps] :	9.6 4.8 2.7 1.5
	Walsh Len.:	64 Walsh No.: 8
	FEC:	CONVO
	QOF :	0 1 2 3
[ SCH(C)]	Frame:	20mSec 40mSec 80mSec
38.4 ksps	Rate [kbps] :	153.6 76.8 38.4 19.2 9.6
		4.8 2.7 1.5
	Walsh Len.:	64 Walsh No.: 63
	FEC:	CONVO TURBO
	QOF :	0 1 2 3

Figure 6-16 Frame Parameter Setup Dialog Box <When Forward Is Set to RC3>

	Frame Parame	ter Setup <forward:rc4></forward:rc4>
Coding Chan	nel: SCH(A)	FCH(B) SCH(C) OFF
[ SCH(A)]	Frame:	20mSec 40mSec 80mSec
19.2 ksps	Rate [kbps] :	307.2 153.6 76.8 38.4 19.2
		9.6 4.8 2.7 1.5
	Walsh Len.∶	128 Walsh No.: 126
	FEC:	CONVO TURBO
	QOF:	0 1 2 3
[ FCH(B)]	Frame:	5mSec 20mSec
19.2 ksps	Rate [kbps] :	9.6 4.8 2.7 1.5
	Walsh Len.:	128 Walsh No.: 8
	FEC:	CONVO
	QOF :	0 1 2 3
[ SCH(C)]	Frame:	20mSec 40mSec 80mSec
19.2 ksps	Rate [kbps] :	307.2 153.6 76.8 38.4 19.2
		9.6 4.8 2.7 1.5
	₩alsh Len.:	128 Walsh No.: 127
	FEC:	CONVO TURBO
	QOF:	0 1 2 3

Figure 6-17 Frame Parameter Setup Dialog Box <When Forward Is Set to RC4>



#### Figure 6-18 Frame Parameter Setup Dialog Box <When Forward Is Set to RC5>

	NOTE:	Realtime coding is performed on one channel at a time. As a previously selected channel is removed from the tar- get, only the currently selected channel is targeted for realtime coding.		
	OFF:	Turns realtime coding function off for each chan- nel.		
	SCH(C):	Performs realtime coding for Supplemental Chan- nel(C).		
	FCH(B):	Performs realtime coding for Fundamental Chan- nel(B).		
	SCH(A):	Performs realtime coding for Supplemental Chan- nel(A).		
Coding Channel	Selects a channel on which realtime coding is performed.			

#### [SCH(A)], [FCH(B)], [SCH(C)]

Frame	Selects Frame Length.
Rate	Selects Data Rate.
Walsh Len	Selects Walsh Length.
Walsh No.	Selects Walsh Number.
FEC	Selects either Turbo or Convolutional Coding.

6.2 Reference

QOF	Quasi Orthogonal Spreading can be performed using Forward Link RC3, RC4 or RC5. Select Functions 0 thru 3 which conform to the associated standards.		
	NOTE:	The selection range for each parameter complies with the associated standards. Refer to Section 2.3, "cdma Func- tion" and Section 3.2, "Channel Setup" of R3562 OPT65 OPERATION MANUAL.	
Modulation ON/OFF	Turns the	RF output modulation function on or off.	
	ON:	Modulates the RF output.	
	OFF:	Does not modulate the RF output.	
Output ON/OFF	Turns the	e RF output on or off.	
	ON:	Turns the RF signal on.	
	OFF:	Turns the RF signal off.	
<i>more 2/2</i>	Displays The menu	Mod. (2/2) Menu. us for Link and Radio Configuration differ.	

<When Reverse Is Set to RC1 or RC2>

FCH(TRCH A) Setup

Displays the Traffic Channel A Parameter Setup dialog box.

Traffic Channel A Parameter Setup			
Data:	PN9 PN15 ALLO ALL1 REPEAT		
Repeat Pattern:	5 [Hex]		
CRC:	ON OFF ADD ERR		
Error Ratio:	2.0% 1.0% 0.5% 0.1%		
Block Interleaver:	ON OFF		
Add. Bit Error:	ON OFF		

### Figure 6-19 Traffic Channel A Parameter Setup Dialog Box

DATA	Selects the data pattern input to the realtime coder (Info data) or the data pattern input to the spreading section (I data).	
	PN9:	Selects a 9-stage PN code data pattern.
	PN15:	Selects a 15-stage PN code data pattern.
	ALL0:	Selects all zero data.
	ALL1:	Selects all one data.
REP.	REP.:	Selects a data pattern consisting of the arbitrarily set four bits.
Rep. Pattern	Specifies a value [in hexadecimal] for the arbitrarily set four bits.	
CRC	Selects a type of CRC to be added to the channel data.	

6.2 Reference

	ON:	Sets each CRC value correctly.
	OFF:	Sets each CRC value to 0.
	ADD ERR:	Adds an error to each CRC.
Error Ratio	Selects an er	ror ratio that is added to CRC.
Block Interleaver	Toggles the l	Block Interleaving function on or off.
Add. Bit Error	Selects whet or Physical d	her or not an error of 1% is added to the Information lata pattern.

<When Reverse Is Set to RC3 or RC4>

### PICH Setup

Displays the PICH Parameter Setup Dialog Box.

PICH Parameter Setup			
Gating:	ON OFF		
Gating Rate:	1 2 4		
Power Control F	Pattern: [Hex]		
(1-40):	AAAAAAAAA	( 41- 80):	AAAAAAAAAA
(81-120):	AAAAAAAAA	(121-160):	AAAAAAAAA
Entry Mode:	ALL EACH		

### Figure 6-20 PICH Parameter Setup Dialog Box

Gating	Toggles the gating function for Reserve Pilot Channel on or off. When it is turned on, Power Control Channel is enabled, and Pow- er Control Bit is inserted. When it is turned off, Power Control Channel is disabled, and Power Control Bit is always 0 (zero).		
Gating Rate	Sets the gating rate of Reverse Pilot Channel.		
	1:	Sets Gating Rate to 1.	
	2:	Sets Gating Rate to 1/2.	
	4:	Sets Gating Rate to 1/4.	
Power Control Pat	<i>tern</i> Specifies the Power Contro	bit pattern [in hexadecimal notation] of the Reverse of Subchannel for Radio Configuration 3 or 4.	
Entry Mode	<i>e</i> Selects the input mode for the power control pattern.		
	ALL:	Once you enter one character, all other characters are set to the same character.	
	EACH:	Up to 40 characters are entered.	
<when is="" or="" rc3="" rc4="" reverse="" set="" to=""></when>	,		

DCCH Setup

Displays the DCCH Parameter Dialog Box.

6.2 Reference

DCCH Parameter Setup			
Data:	PN9 PN15 ALLO ALL1 REPEAT		
Repeat Pattern:	5 [Hex]		
CRC:	ON OFF ADD ERR		
Error Ratio:	2.0% 1.0% 0.5% 0.1%		
Block Interleaver:	ON OFF		
Add. Bit Error:	ON OFF		

#### Figure 6-21 DCCH Parameter Setup Dialog Box

DATA	Selects the data) or the data).	data pattern input to the realtime coder (Information data pattern input to the spreading section (Physical	
	PN9:	Selects a 9-stage PN code data pattern.	
	PN15:	Selects a 15-stage PN code data pattern.	
	ALL0:	Selects all zero data.	
	ALL1:	Selects all one data.	
	REP.:	Selects a data pattern consisting of the arbitrarily set four bits.	
Rep. Pattern	Specifies a v	Specifies a value [in hexadecimal] for the arbitrarily set four bits.	
CRC	Se	elects a type of CRC to be added to the channel data.	
	ON:	Sets each CRC value correctly.	
	OFF:	Sets each CRC value to 0.	
	ADD ERR:	Adds an error to each CRC.	
Error Ratio	Selects an e	Selects an error ratio that is added to CRC.	
Block Interleaver	Toggles the	Toggles the Block Interleaving function on or off.	
Add. Bit Error	Selects whe or Physical	Selects whether or not an error of 1% is added to the Information or Physical data pattern.	

<When Reverse Is Set to RC3 or RC4>

SCH2(TRCH A) Setup

Displays the Traffic Channel A Parameter Setup dialog box.

Traffic Channel A Parameter Setup			
Data:	PN9 PN15 ALLO ALL1 REPEAT		
Repeat Pattern:	5 [Hex]		
CRC:	ON OFF ADD ERR		
Error Ratio:	2.0% 1.0% 0.5% 0.1%		
Block Interleaver:	ON OFF		
Add. Bit Error:	ON OFF		

Figure 6-22 Traffic Channel A Parameter Setup Dialog Box

DATA	Selects the data pattern input to the realtime coder (Information data) or the data pattern input to the spreading section (Physical data).		
	PN9:	Selects a 9-stage PN code data pattern.	
	PN15:	Selects a 15-stage PN code data pattern.	
	ALL0:	Selects all zero data.	
	ALL1:	Selects all one data.	
	REP.:	Selects a data pattern consisting of the arbitrarily set four bits.	
Rep. Pattern	Specifies a value [in hexadecimal] for the arbitrarily set four bits.		
CRC	Selects a type of CRC to be added to the channel data		
	ON:	Sets each CRC value correctly.	
	OFF: Sets each CRC value to 0.		
	ADD ERR:	Adds an error to each CRC.	
Error Ratio	Selects an error ratio that is added to CRC.		
Block Interleaver	Toggles the Block Interleaving function on or off.		
Add. Bit Error	Selects whether or not an error of 1% is added to the Information or Physical data pattern.		

<When Reverse Is Set to RC3 or RC4>

FCH(TRCH B) Setup

DATA

Displays the Traffic Channel B Parameter Setup dialog box.

Traffic Channel B Parameter Setup					
Data:	PN9 PN15 ALLO ALL1 REPEAT				
Repeat Pattern:	5 [Hex]				
CRC:	ON OFF ADD ERR				
Error Ratio:	2.0% 1.0% 0.5% 0.1%				
Block Interleaver:	ON OFF				
Add. Bit Error:	ON OFF				

#### Figure 6-23 Traffic Channel B Parameter Setup Dialog Box

Selects the data pattern input to the realtime coder (Information data) or the data pattern input to the spreading section (Physical data).

PN9: Selects a 9-stage PN code data pattern.

- PN15: Selects a 15-stage PN code data pattern.
- ALL0: Selects all zero data.
- ALL1: Selects all one data.
- REP.: Selects a data pattern consisting of the arbitrarily set four bits.

Rep. Pattern	Specifies a value [in hexadecimal] for the arbitrarily set four bits.			
CRC	Selects a type of CRC to be added to the channel data.			
	ON: Sets each CRC value correctly.			
	OFF:	Sets each CRC value to 0.		
	ADD ERR:	Adds an error to each CRC.		
Error Ratio	Selects an er	ror ratio that is added to CRC.		
Block Interleaver	Toggles the Block Interleaving function on or off.			
Add. Bit Error	Selects whether or not an error of 1% is added to the Information or Physical data pattern.			

<When Reverse Is Set to RC3 or RC4>

SCH1(TRCH C) Setup

DATA

Displays the Traffic Channel C Parameter Setup dialog box.

Traffic Channel C Parameter Setup					
Data:	PN9 PN15 ALLO ALL1 REPEAT				
Repeat Pattern:	5 [Hex]				
CRC:	ON OFF ADD ERR				
Error Ratio:	2.0% 1.0% 0.5% 0.1%				
Block Interleaver:	ON OFF				
Add. Bit Error:	ON OFF				

### Figure 6-24 Traffic Channel C Parameter Setup Dialog Box

Selects the data pattern input to the realtime coder (Information data) or the data pattern input to the spreading section (Physical data).

	PN9:	Selects a 9-stage PN code data pattern.		
	PN15:	Selects a 15-stage PN code data pattern.		
	ALL0:	Selects all zero data.		
	ALL1:	Selects all one data.		
	REP.:	Selects a data pattern consisting of the arbitrarily set four bits.		
Rep. Pattern	Specifies a v	value [in hexadecimal] for the arbitrarily set four bits		
CRC	Se	elects a type of CRC to be added to the channel data.		
	ON:	Sets each CRC value correctly.		
	OFF:	Sets each CRC value to 0.		
	ADD ERR:	Adds an error to each CRC.		
Error Ratio	Selects an er	rror ratio that is added to CRC.		
Block Interleaver	Toggles the	Toggles the Block Interleaving function on or off.		

Add. Bit Error

Selects whether or not an error of 1% is added to the Information or Physical data pattern.

<When Forward Is Set to RC1 or RC2>

FCH(TRCH A) Setup

Displays the Traffic Channel A Parameter Setup dialog box.

Traffic Channel A Parameter Setup					
Data:	PN9 PN15 ALLO ALL1 REPEAT				
Repeat Pattern:	5 [Hex]				
CRC:	ON OFF ADD ERR				
Error Ratio:	2.0% 1.0% 0.5% 0.1%				
Block Interleaver:	ON OFF				
Add. Bit Error:	ON OFF				

#### Figure 6-25 Traffic Channel A Parameter Setup Dialog Box

	Selects the data pattern input to the realtime coder (Information data) or the data pattern input to the spreading section (Physical data).				
	PN9:	Selects a 9-stage PN code data pattern.			
	PN15:	Selects a 15-stage PN code data pattern.			
	ALL0:	Selects all zero data.			
	ALL1:	Selects all one data.			
	REP.:	Selects a data pattern consisting of the arbitrarily set four bits.			
Rep. Pattern	Specifies a value [in hexadecimal] for the arbitrarily set four bits.				
CRC	Selects a typ	be of CRC to be added to the channel data.			
CRC	Selects a typ ON:	be of CRC to be added to the channel data. Sets each CRC value correctly.			
CRC	Selects a typ ON: OFF:	be of CRC to be added to the channel data. Sets each CRC value correctly. Sets each CRC value to 0.			
CRC	Selects a typ ON: OFF: ADD ERR:	be of CRC to be added to the channel data. Sets each CRC value correctly. Sets each CRC value to 0. Adds an error to each CRC.			
CRC Error Ratio	Selects a typ ON: OFF: ADD ERR: Selects an er	be of CRC to be added to the channel data. Sets each CRC value correctly. Sets each CRC value to 0. Adds an error to each CRC. rror ratio that is added to CRC.			
CRC Error Ratio Block Interleaver	Selects a typ ON: OFF: ADD ERR: Selects an en Toggles the	be of CRC to be added to the channel data. Sets each CRC value correctly. Sets each CRC value to 0. Adds an error to each CRC. rror ratio that is added to CRC. Block Interleaving function on or off.			

<When Forward Is Set to RC1 or RC2>

*FCH*(*TRCH B*) *Setup* Displays the Traffic Channel B Parameter Setup dialog box.

6.2 Reference

Traffic Channel B Parameter Setup					
Data:	PN9 PN15 ALLO ALL1 REPEAT				
Repeat Pattern:	5 [Hex]				
CRC :	ON OFF ADD ERR				
Error Ratio:	2.0% 1.0% 0.5% 0.1%				
Block Interleaver:	ON OFF				
Add. Bit Error:	ON OFF				

#### Figure 6-26 Traffic Channel B Parameter Setup Dialog Box

DATA	Selects the data pattern input to the realtime coder (Informa data) or the data pattern input to the spreading section (Phys data).			
	PN9:	Selects a 9-stage PN code data pattern.		
	PN15:	Selects a 15-stage PN code data pattern.		
	ALL0:	Selects all zero data.		
	ALL1:	Selects all one data.		
	REP.:	Selects a data pattern consisting of the arbitrarily set four bits.		
Rep. Pattern	Specifies a value [in hexadecimal] for the arbitrarily set four bit			
CRC	Selects a typ	be of CRC to be added to the channel data.		
	ON:	Sets each CRC value correctly.		
	OFF:	Sets each CRC value to 0.		
	ADD ERR:	Adds an error to each CRC.		
Error Ratio	Selects an error ratio that is added to CRC.			
Block Interleaver	Toggles the Block Interleaving function on or off.			
Add. Bit Error	Selects whether or not an error of 1% is added to the Information or Physical data pattern.			

<When Forward Is Set to RC1 or RC2>

FCH(TRCH C) Setup

Displays the Traffic Channel C Parameter Setup dialog box.

Traffic Channel C Parameter Setup							
Data: PN9 PN15 ALLO ALL1 REPEAT							
Repeat Pattern:	5 [Hex]						
CRC:	ON OFF ADD ERR						
Error Ratio:	2.0% 1.0% 0.5% 0.1%						
Block Interleaver:	ONOFF						
Add. Bit Error:	ON OFF						

Figure 6-27 Traffic Channel C Parameter Setup Dialog Box

DATA	Selects the data pattern input to the realtime coder (Information data) or the data pattern input to the spreading section (Physical data).				
	PN9: Selects a 9-stage PN code data pattern.				
	PN15:	Selects a 15-stage PN code data pattern.			
	ALL0:	Selects all zero data.			
	ALL1:	Selects all one data.			
	REP.:	Selects a data pattern consisting of the arbitrarily set four bits.			
Rep. Pattern	Specifies a value [in hexadecimal] for the arbitrarily set four bits.				
CRC	Selects a type of CRC to be added to the channel data.				
	ON: Sets each CRC value correctly.				
	OFF: Sets each CRC value to 0.				
	ADD ERR:	Adds an error to each CRC.			
Error Ratio	Selects an error ratio that is added to CRC.				
Block Interleaver	Toggles the Block Interleaving function on or off.				
Add. Bit Error	Selects whether or not an error of 1% is added to the Information or Physical data pattern.				

<When Forward Is Set to RC3, RC4 or RC5>

SCH(TRCH A) Setup

DATA

Displays the Traffic Channel A Parameter Setup dialog box.

Traffic Channel A Parameter Setup					
Data:	PN9 PN15 ALLO ALL1 REPEAT				
Repeat Pattern:	5 [Hex]				
CRC:	ON OFF ADD ERR				
Error Ratio:	2.0% 1.0% 0.5% 0.1%				
Block Interleaver:	ON OFF				
Add. Bit Error:	ON OFF				

#### Figure 6-28 Traffic Channel A Parameter Setup Dialog Box

Selects the data pattern input to the realtime coder (Information data) or the data pattern input to the spreading section (Physical data).

PN9:	Selects	a 9-stage	PN	code	data	pattern.
	~~~~~	a > stage	'			parterin

- PN15: Selects a 15-stage PN code data pattern.
- ALL0: Selects all zero data.
- ALL1: Selects all one data.
- REP.: Selects a data pattern consisting of the arbitrarily set four bits.

Rep. Pattern	Specifies a value [in hexadecimal] for the arbitrarily set four bits.		
CRC	Selects a type of CRC to be added to the channel data.		
	ON:	Sets each CRC value correctly.	
	OFF:	Sets each CRC value to 0.	
	ADD ERR:	Adds an error to each CRC.	
Error Ratio	Selects an error ratio that is added to CRC.		
Block Interleaver	Toggles the Block Interleaving function on or off.		
Add. Bit Error	Selects whether or not an error of 1% is added to the Information or Physical data pattern.		

<When Forward Is Set to RC3, RC4 or RC5>

FCH(TRCH B) Setup

DATA

Displays the Traffic Channel B Parameter Setup dialog box.

Traffic	Channel B Parameter Setup
Data:	PN9 PN15 ALLO ALL1 REPEAT
Repeat Pattern:	5 [Hex]
CRC:	ON OFF ADD ERR
Error Ratio:	2.0% 1.0% 0.5% 0.1%
Block Interleaver:	ON OFF
Add. Bit Error:	ON OFF

Figure 6-29 Traffic Channel B Parameter Setup Dialog Box

Selects the data pattern input to the realtime coder (Information data) or the data pattern input to the spreading section (Physical data).

	PN9:	Selects a 9-stage PN code data pattern.		
	PN15:	Selects a 15-stage PN code data pattern.		
	ALL0:	Selects all zero data.		
	ALL1:	Selects all one data.		
	REP.:	Selects a data pattern consisting of the arbitrarily set four bits.		
Rep. Pattern	Specifies a v	Specifies a value [in hexadecimal] for the arbitrarily set four bit		
CRC	Selects a typ	e of CRC to be added to the channel data.		
	ON:	Sets each CRC value correctly.		
	OFF:	Sets each CRC value to 0.		
	ADD ERR:	Adds an error to each CRC.		
Error Ratio	Selects an er	Selects an error ratio that is added to CRC.		
Block Interleaver	Toggles the	Toggles the Block Interleaving function on or off.		

Add. Bit Error

Selects whether or not an error of 1% is added to the Information or Physical data pattern.

<When Forward Is Set to RC3, RC4 or RC5>

SCH(TRCH C) Setup

Displays the Traffic Channel C Parameter Setup dialog box.

Traffic Channel C Parameter Setup				
Data:	PN9 PN15 ALLO ALL1 REPEAT			
Repeat Pattern:	5 [Hex]			
CRC:	ON OFF ADD ERR			
Error Ratio:	2.0% 1.0% 0.5% 0.1%			
Block Interleaver:	ONOFF			
Add. Bit Error:	ON OFF			

Figure 6-30 Traffic Channel C Parameter Setup Dialog Box

DATA	Selects the data pattern input to the realtime coder (Information data) or the data pattern input to the spreading section (Physica data).			
	PN9:	Selects a 9-stage PN code data pattern.		
	PN15:	Selects a 15-stage PN code data pattern.		
	ALL0:	Selects all zero data.		
	ALL1:	Selects all one data.		
	REP.:	Selects a data pattern consisting of the arbitrarily set four bits.		
Rep. Pattern	Specifies a value [in hexadecimal] for the arbitrarily set for			
CRC	Selects a type of CRC to be added to the channel data.			
	ON:	Sets each CRC value correctly.		
	OFF:	Sets each CRC value to 0.		
	ADD ERR:	Adds an error to each CRC.		
Error Ratio	Selects an er	rror ratio that is added to CRC.		
Block Interleaver	Toggles the Block Interleaving function on or off.			
Add. Bit Error	Selects whether or not an error of 1% is added to the Information or Physical data pattern.			
<i>more</i> 1/2	Displays Mod. (1/2) Menu.			
Frequency & Level	Displays the Frequency & Level menu.			
Frequency Setup	Displays the Frequency Parameter Setup dialog box.			

6.2 Reference

Frequency Parameter Setup				
Freq Input:	FREQUENCY	CHANNEL No		
CH Start Freq.:	800.0000 MHz]		
CH Step Freq.:	0.0300 MHz]		
CH Start No.:	1			
Step Size:				

Figure 6-31 Frequency Parameter Setup Dialog Box

Freq Input	Selects the frequency entry mode.	
	FREQUENCY: Directly enters a frequency value.	
	CHANNEL No: Enters a channel number.	
CH Start Freq.	Sets the channel start frequency.	
CH Step Freq.	Sets the channel spacing.	
CH Start No.	Sets the channel start number.	
Step Size	Sets the step value of the step keys and data knob.	

Level Setup

Displays the Level Parameter Setup dialog box.

Level	Parameter Setup
Unit:	dBm dBµVemf
Upper Limit:	0.0 dBm
Level Offset:	OFF
Offset Value:	
Step Size:	5.0 dB
ALC Mode:	AUTO S/H HOLD

Figure 6-32 Level Parameter Setup Dialog Box

Unit	Selects the unit to display or enter the data.		
	dBm:	Sets a level-related unit to dBm.	
	dBµVemf:	Sets a level-related unit to dBµVemf.	
Upper Limit	Sets the upper limit.		
Level Offset	Toggles the level offset function on or off.		
	ON: Turns the level offset function on.		
	OFF: Turns the level offset function off.		
Offset Value	Sets the level offset value.		
Step Size	Sets the step value of the step keys.		

ALC Mode	Selects t Automat the R350 manual.)	he ALC operating mode. ically selects the optimum operating mode depending on 62 settings. (For details, refer to the R3562 Operation
	AUTO:	Normal ALC
	S/H:	Sample and hold using the reference modulation pattern.
	HOLD:	ALC voltage hold when the reference modulation pat- tern is used.
	NOTE:	When not set to the optimum operation mode, the output from the RF OUT terminal may deviate from the target value.

Other

Clock & Timing Setup

Displays the Clock/Timing Signal Parameter Setup dialog box.

Clo	ck/Timing	Signal Pa	rame	ter S	etup		
Synth Ref In:	1	1.2288		2	2.457	6	4.9152
LMHZ	5	9.8304	1	0	15		19.6608
	INTERNAL						
10MHz Ref Adj.:	0						
MOD-TB In:	1	1.2288		2	2.457	6	4.9152
[MHz]	5	9.8304	1	0	15		19.6608
	INTERNAL						
Clock Out 1:	OFF	20mSe	ес	26.	6mSec		80mSec
	2Sec	5mSe	c	CHIP	CLOCK	E	XT EVEN
Clock Out 2:	OFF	20mSe	ec	26.	6mSec		80mSec
	2Sec	5mSe	c	CHIP	CLOCK	E	XT EVEN

Figure 6-33 Clock/Timing Signal Parameter Setup Dialog Box

Synthe Ref In Selects the reference signal from the synthesizer.

Displays the Other menu.

- 1 MHz: Uses an external signal of 1 MHz.
- 1.2288 MHz: Uses an external signal of 1.2288 MHz.
- 2 MHz: Uses an external signal of 2 MHz.
- 2.4576 MHz: Uses an external signal of 2.4576 MHz.
- 4.9152 MHz: Uses an external signal of 4.9152 MHz.
- 5 MHz: Uses an external signal of 5 MHz.
- 9.8304 MHz: Uses an external signal of 9.8304 MHz.
- 10 MHz: Uses an external signal of 10 MHz.
- 15 MHz: Uses an external signal of 15 MHz.

19.6608 MHz:

Uses an external signal of 19.6608 MHz.

	INTERNAL: Uses the internal reference signal.			
10MHz Ref Adj.	Sets internal reference signal's frequency difference to be correct- ed.			
MOD-TB In	Selects the re	ference signal used for the modulation.		
	1 MHz:	Uses an external signal of 1 MHz.		
	1.2288 MHz:	Uses an external signal of 1.2288 MHz.		
	2 MHz:	Uses an external signal of 2 MHz.		
	2.4576 MHz:	Uses an external signal of 2.4576 MHz.		
	4.9152 MHz:	Uses an external signal of 4.9152 MHz.		
	5 MHz:	Uses an external signal of 5 MHz.		
	9.8304 MHz:	Uses an external signal of 9.8304 MHz.		
	10 MHz:	Uses an external signal of 10 MHz.		
	15 MHz:	Uses an external signal of 15 MHz.		
	19.6608 MHz:			
	Uses an external signal of 19.6608 MHz.			
	INTERNAL:	Uses the internal reference signal.		
Clock Out 1/Clock	<i>Out 2</i> Outputs the n CLOCK OUT	nodulation timing signals to the CLOCK OUT1 and I connectors.		
	 OFF: Turns the output signal off. 20 msec: Outputs the signals for the Traffic Channel period. 26.6 msec: Outputs the signals for the Sync Channel framid. 			
	80 msec:	Outputs the signals for the Sync Channel super frame period.		
	2 sec: Outputs the even-second signal in the ba block.			
	5 msec:	Outputs the signals for both the FCH and DCCH Channel frame periods.		
	CHIP CLOC	K:		
		Outputs a chip clock of 1.2288 MHz.		
	EXT EVEN:	Outputs an even-second signal which is input to the		
	LATEVEN.	EXT TRIG terminal.		

External I/6) Parame	eter Set	tup
I/Q Direction:	OFF	INPUT	OUTPUT
[I/Q Input] I Gain:	2000]	
Q Gain:	2000]	
I∕Q Phase Adj.∶	2000]	
[I/Q Output] I Gain:	0]	
Q Gain:	0		

Figure 6-34 External I/Q Parameter Setup Dialog Box

	I/Q Direction	Exchanges and selects	the external IQ terminals between the input and output the IQ signal paths to the IQ modulator.
		OFF:	Turns off the IQ output, and inputs the internal baseband signal to the IQ modulator.
		INPUT:	Inputs the IQ signal from the outside to the IQ mod- ulator.
		OUTPUT:	Turns on the IQ output, and inputs the internal baseband signal to the IQ modulator.
		NOTE:	The level and modulation accuracy of the RF output can- not be guaranteed while in the OUTPUT mode.
	[I/Q Input]	Sets the par	rameter if I/Q Direction is set to Input.
	I Gain	Sets the gai	n of the amplifier that inputs the I signal.
	Q Gain	Sets the gai	n of the amplifier that inputs the Q signal.
	I/Q Phase A	<i>dj.</i> Sets the pha	ase difference to be corrected
	[I/Q Output]	Sets the par	rameter if I/Q Direction is set to Output.
	I Gain	Sets the gai	n of the amplifier that outputs the I signal.
	Q Gain	Sets the gai	n of the amplifier that outputs the Q signal.
Cal/Test		Displays th	e Cal/Test menu.
	AWCN	The calibra conducted have been c	tions for the AWGN level and CDMA signal level are and the correction can be used when the calibrations completed.
	AWGN Cal Corr	Toggles the	e AWGN calibration correction mode on or off.
		ON:	Allows the calibration correction to be performed using the acquired data.

		OFF:	Does not perform the calibration correction.
	Modulator	The IQ-n tion data the calibi	nodulator balance calibration is conducted. The correc- obtained from the calibration is ready to be used when ration has been completed.
	Modulator Cal Co	rr	
		Toggles (the modulator calibration correction mode on or off.
		ON:	Allows the calibration correction to be performed using the acquired data.
		OFF:	Does not perform the calibration correction.
	Self Test		Performs the self test.
Save		Displays when the	the Save Register List dialog box. Save is performed ENTER is pressed after the register has been selected.
		No. I/Q 1: OF 2: IN 3: em	Save Register List Dir. Link Frequency Level Output F FORWARD 800.000000HHz 33.0dBuVenf DN PUT REVERSE 1000.000000HHz 33.0dBuVenf DN pty
Recall		Figure 6 Displays	-35 Save Register List Dialog Box the Recall Register List dialog box. Recall is performed
		when the	ENTER is pressed after the register has been selected.
			Recall Register List
		No. I/Q	Dir. Link Frequency Level Output
		1: OF 2: IN 3: emp	F FORWARD 800.000000MHz 33.0dBuVenf ON PUT REVERSE 1000.000000MHz 33.0dBuVenf ON pty
		Figure 6	-36 Recall Register List Dialog Box
Preset		Initialize	s the settings.
Modulation ON/O	FF	Turns the	e RF output modulation function on or off.
		ON:	Modulates the RF output using transmission data.
		OFF:	Does not modulate the RF output.

Turns the RF output on or off.

Turns the RF signal on. ON:

OFF: Turns the RF signal off.

Exits from the Rx Control option.

Quit

Output ON/OFF

6.3 Setup Example

In this example, the output signals from the R3562, which are used for Reverse Link channel's FER measurements, are set.

Measurement conditions:

The items to be measured are shown below. Set appropriate values for each measurement.

Output signal

Frequency:	800 MHz
Output level:	-80 dBm
Link:	REVERSE
Radio Configuration:	RC1
Rate:	9.6kbps

Setup



1. Connect the instrument as shown below.

Figure 6-37 Connecting the DUT

Initialization

2. Press ADVANCE, Rx Control[R3562], Other and Preset.

Setting the output signal

- 3. Press **FREQ**, **8**, **0**, **0** and **MHz**.
- 4. Press Level, -, 8, 0 and GHz(dBm).

5. Press *Modulation* and *STD Setup*. The STD Parameter Setup dialog box is displayed.

Rx Control [R3562 cdma2000] E00/B00]
Freq.: 823.9700 MHz CH : 800 ch	Mod. (1/2)
Level: -80.0 dBm Offset: 0.0 dB	¹ Clock & Timing
<<< Base Band >>>	Setup
I/Q Direction : OFF Link : REVERSE Radio Config. : RC1 Generator Mode : SIGNAL Eb/No : 10.0 dB	² General Setup
Primary Ch.(Eb) : FCH(A) Power Adj. Ch. : External Trigger: DISABLE	³ STD
Codin <u>g Channel : FCH(A) PN Offset : 0.00</u>	Setup
I/Q Direction: OFF INPUT Ush FCH(A Link: REVERSE FORWARD /	⁴ Frame Setup
Radio Config.: RC1 RC2 RC3 RC4 RC5	Modulation
<<< Clock/Timing Signal >>> Synth Ref In : INTERNAL MOD-TB In : INTERNAL Clock Out1 : OFF Clock Out2 : OFF	⁶ Output ON OFF 7 more 2/2



6. Set the following items.

I/Q direction:OFF

Link:REVERSE Radio Config:RC1

 Press *Clock & Timing Setup*. The Clock/Timing Signal Parameter Setup dialog box is displayed.

	Rx Control [R3562 cdma2000] E00/	B00
Freq.: Level:	823.9700 MHz CH : 800 -80.0 dBm Offset: 0.0	ch (B) ¹ Clock & Timing
<<< Base Band >> I/Q Direction Link Generator Mode	> : OFF : REVERSE Radio Config. : RC1 : SIGNAL Eb/No : 10.0 dB	Setup General Setup
Clo Synth Ref In: IMHz1	ck/Timing Signal Parameter Setup 1 1.2288 2 2.4576 4.91	3 STD 152 Setup
10MHz Ref Adj.:	5 9.8304 10 15 19.6 INTERNAL 0	608 Frame Setup
MOD-TB In: [MHz]	1 1.2288 2 2.4576 4.91 5 9.8304 10 15 19.6 INTERNAL 10 15 19.6	52 508 508 508 508 500 500 500 500
Clock Out 1:	OFF 20mSec 26.6mSec 80mSec 2Sec 5mSec CHIP CLOCK EXT EVI	c Gutput
Clock Dut 2:	25 20mSec 25.6mSec 80mSec 25.6mSec 80mSec 25ec 5mSec CHIP CLOCK EXT EV	C 7 EN more 2/2

Figure 6-39 Clock/Timing Signal Parameter Setup Dialog Box

8. Set the following items.

Synthe Ref In:INTERNAL

MOD-TB In [MHz]: 19.6608

9. Press General Setup.

The General Parameter Setup dialog box is displayed.

Rx Control [R3562 cdma2000] E00/B00	
Freq.: 823.9700 MHz CH : 800 ch Level: -80.0 dBm Offset: 0.0 dB	Mod.(1/2) ¹ Clock
General Parameter Setup <reverse:rc1 rc2=""></reverse:rc1>	Setup
Burst: ON OFF Ext Trigger: ENABLE DISABLE PN Offset: 0.00	² General Setup
Generator Mode: SIGNAL NOISE Eb/No Eb/No: 10.0 dB Daimanu Ch. (Eb.): CD(A)	³ STD Setup
[Level] [Frame] [Rate] [Walsh] FCH(A) 0.0 dB 20.0 mSec 9.6 kbps	⁴ Frame Setup
	Modulation
<	⁶ Output ON OFF ⁷ more 2/2
	J

Figure 6-40 General Parameter Setup Dialog Box

10. Set the following items.

Burst:OFF EXT Trigger:ENABLE PN Offset:0 Generator Mode:SIGNAL

 Press *Frame Setup*. The Frame Parameter Setup dialog box is displayed.

6.3 Setup Example

Rx Control [R3562 cdma2000] E00/B00	
Freq.: 823.9700 MHz CH 800 ch Level: -80.0 dBm Offset: 0.0 dB	Mod. (1/2) ¹ Clock
Frame Parameter Setup <reverse:rc1></reverse:rc1>	Setup
Coding Channel: FCH(A) OFF [FCH(A)] Frame: 20mSec Rate Rate Rate Rate Rate Rate Rate Rate	² General Setup
	³ STD Setup
[Frame] [Rate] [Walsh] FCH(A) : 0.0 dB 20.0 mSec 9.6 kbps /	⁴ Frame Setup
	5 Modulation ON OFF
<<< Clock/Timing Signal >>> Synth Ref In : INTERNAL MOD-TB In : 19.6608 MHz Clock Out1 : OFF Clock Out2 : OFF	⁶ Output ON OFF 7 more 2/2



12. Set the following items.

Coding Channel:FCH(A) [FCH(A)]: Frame: 20msec Rate [kbps]: 9.6 FEC: CONVO

 Press *more 2/2* and *FCH(TRCH A)* The Traffic Channel A Parameter Setup dialog box is displayed.





14. Set the following items.

Data:PN9 CRC:ON Block Inter lever:ON Add. Bit Error:OFF

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 - (b) any improper or inadequate handling, carriage or storage of the Product by the Purchaser or any third party (other than ADVANTEST or its agents);
 - (c) use of the Product under operating conditions or environments different than those specified in the Operation Manual or recommended by ADVANTEST, including, without limitation, (i) instances where the Product has been subjected to physical stress or electrical voltage exceeding the permissible range and (ii) instances where the corrosion of electrical circuits or other deterioration was accelerated by exposure to corrosive gases or dusty environments;
 - (d) use of the Product in connection with software, interfaces, products or parts other than software, interfaces, products or parts supplied or recommended by ADVANTEST;
 - (e) the occurrence of an event of force majeure, including, without limitation, fire, explosion, geological change, storm, flood, earthquake, tidal wave, lightning or act of war; or
 - (f) any negligent act or omission of the Purchaser or any third party other than ADVANTEST.
- 5. EXCEPT TO THE EXTENT EXPRESSLY PROVIDED HEREIN, ADVANTEST HEREBY EXPRESSLY DISCLAIMS, AND THE PURCHASER HEREBY WAIVES, ALL WARRANTIES, WHETHER EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, (A) ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND (B) ANY WARRANTY OR REPRESENTATION AS TO THE VALIDITY, SCOPE, EFFECTIVENESS OR USEFULNESS OF ANY TECHNOLOGY OR ANY INVENTION.
- 6. THE REMEDY SET FORTH HEREIN SHALL BE THE SOLE AND EXCLUSIVE REMEDY OF THE PURCHASER FOR BREACH OF WARRANTY WITH RESPECT TO THE PRODUCT.
- 7. ADVANTEST WILL NOT HAVE ANY LIABILITY TO THE PURCHASER FOR ANY INDIRECT, INCIDENTAL, SPECIAL, CONSEQUENTIAL OR PUNITIVE DAMAGES, INCLUDING, WITHOUT LIMITATION, LOSS OF ANTICIPATED PROFITS OR REVENUES, IN ANY AND ALL CIRCUMSTANCES, EVEN IF ADVANTEST HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES AND WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING, WITHOUT LIMITATION, NEGLIGENCE), STRICT LIABILITY, INDEMNITY, CONTRIBUTION OR OTHERWISE.

CUSTOMER SERVICE DESCRIPTION

In order to maintain safe and trouble-free operation of the Product and to prevent the incurrence of unnecessary costs and expenses, ADVANTEST recommends a regular preventive maintenance program under its maintenance agreement.

ADVANTEST's maintenance agreement provides the Purchaser on-site and off-site maintenance, parts, maintenance machinery, regular inspections, and telephone support and will last a maximum of ten years from the date the delivery of the Product. For specific details of the services provided under the maintenance agreement, please contact the nearest ADVANTEST office listed at the end of this Operation Manual or ADVANTEST's sales representatives.

Some of the components and parts of this Product have a limited operating life (such as, electrical and mechanical parts, fan motors, unit power supply, etc.). Accordingly, these components and parts will have to be replaced on a periodic basis. If the operating life of a component or part has expired and such component or part has not been replaced, there is a possibility that the Product will not perform properly. Additionally, if the operating life of a component or part has expired and continued use of such component or part damages the Product, the Product may not be repairable. Please contact the nearest ADVANTEST office listed at the end of this Operation Manual or ADVANTEST's sales representatives to determine the operating life of a specific component or part, as the operating life may vary depending on various factors such as operating condition and usage environment.

CLAIM FOR DAMAGE IN SHIPMENT TO ORIGINAL BUYER

The product should be thoroughly inspected immediately upon original delivery to buyer. All material in the container should be checked against the enclosed packing list or the instruction manual alternatively. ADVANTEST will not be responsible for shortage unless notified immediately.

If the product is damaged in any way, a claim should be filed by the buyer with carrier immediately. (To obtain a quotation to repair shipment damage, contact ADVANTEST or the local supplier.) Final claim and negotiations with the carrier must be completed by buyer.
SALES & SUPPORT OFFICES

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