ADVANTEST®

ADVANTEST CORPORATION

R3562 OPT65

cdma2000 Option

Operation Manual

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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.
  - Connect the power cable to a power outlet that is connected to a protected ground terminal. Grounding will be defeated if you use an extension cord which does not include a protected 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 anything on the product and do not apply excessive pressure to the 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.

 : ATTENTION - Refer to manual.

 : Protective ground (earth) terminal.

 : DANGER - High voltage.

 : 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 before their expected lifespan has expired to maintain the performance and function of the instrument.
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.

Each product may use parts with limited life.
For more information, refer to the section in this document where the parts with limited life are described.

Main Parts with Limited Life

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
Memory backup battery	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 solder).

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
- Altitude of up to 2000 m

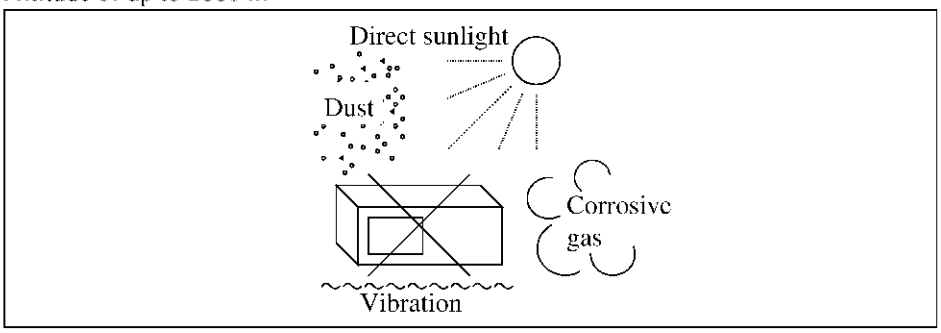


Figure-1 Environmental Conditions

- Operating position

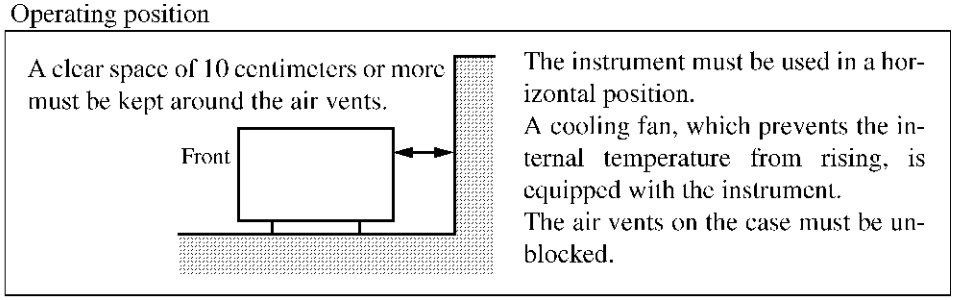


Figure-2 Operating Position

- Storage position

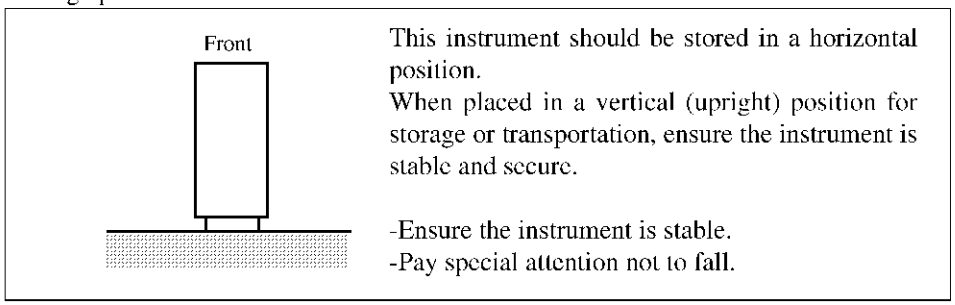


Figure-3 Storage Position

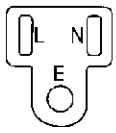
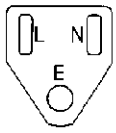
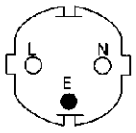
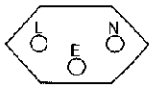
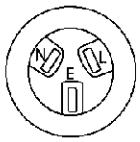
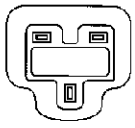
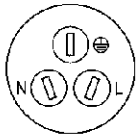
- The classification of the transient over-voltage, which exists typically in the main power supply, and the pollution degree is defined by IEC61010-1 and described below.

  Impulse withstand voltage (over-voltage) category II defined by IEC60364-4-443

  Pollution Degree 2

Types of Power Cable

Replace any references to the power cable type, according to the following table, with the appropriate power cable type for your country.

Plug configuration	Standards	Rating, color and length	Model number (Option number)
	PSE: Japan Electrical Appliance and Material Safety Law	125 V at 7 A Black 2 m (6 ft)	Straight: A01402 Angled: A01412
	UL: United States of America CSA: Canada	125 V at 7 A Black 2 m (6 ft)	Straight: A01403 (Option 95) Angled: A01413
	CEE: Europe DEMKO: Denmark NEMKO: Norway VDE: Germany KEMA: The Netherlands CEBEC: Belgium OVE: Austria FIMKO: Finland SEMKO: Sweden	250 V at 6 A Gray 2 m (6 ft)	Straight: A01404 (Option 96) Angled: A01414
	SEV: Switzerland	250 V at 6 A Gray 2 m (6 ft)	Straight: A01405 (Option 97) Angled: A01415
	SAA: Australia, New Zealand	250 V at 6 A Gray 2 m (6 ft)	Straight: A01406 (Option 98) Angled: ---------
	BS: United Kingdom	250 V at 6 A Black 2 m (6 ft)	Straight: A01407 (Option 99) Angled: A01417
	CCC:China	250 V at 10 A Black 2 m (6 ft)	Straight: A114009 (Option 94) Angled: A114109

PREFACE

This manual provides the information required to operate and perform remote programming using the R3562 Option 65, and explains its functions. For information on the basic operations and functions of the R3562, refer to the "R3562 Receiver Test Source Operation Manual."

Outline

1. Introduction • General description • Standard accessories • Self-test • Calibration • Connectors	Describes the R3562 option and explains the Self-Test operation.
2. Description of functions • Common settings • Reverse Link • Forward Link	Describes the R3562.
3. Technical reference	Provides technical information about the R3562 option.
4. GPIB	Describes the GPIB commands used for remote programming.
5. Performance verification	Explains how to verify the cdma2000 option performance.
6. Specifications	Lists the specifications of this option.
A.1 Examples of connection for the receiver test	

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1. INTRODUCTION

1.1 Product Description

R3562 OPT65 cdma2000 option provides a modulation signal generation function compliant with IS2000, and can be used as a signal source for testing base station and mobile station receivers. This option is installed in the R3562 receiver test source at the ADVANTEST factory.

- Generates channels corresponding to SR1 (Spreading Rates 1).
- Supports both reverse and forward links.
- Equipped with AWGN source and BER counter.

NOTE: ***R3562 cdma2000 is not equipped with a front panel. To operate this operation from a panel, a R3267 series spectrum analyzer (with Option 08 installed) is required.***

1.2 Accessories

Table 1-1 lists the standard accessories shipped with this instrument. If any of the accessories are damaged or missing, contact the nearest Advantest Sales Office or representative. Order replacement accessories by model name.

Table 1-1 List of Standard Accessories

Accessory name	Model #	Qty.	Remarks
Operation Manual	ER3562OPT65	1	English manual

1.3 Selftest

Selftest is executed when the 3562 is turned on to confirm that it is operating correctly. When Selftest begins, all indicators on the front panel are lit. When Selftest is completed, an alarm sounds and all indicators except POWER, REMOTE and RF OUT turn off. In addition, the fan starts rotating and the POWER indicator on the POWER switch is lit.

NOTE:

1. ***Power is supplied only after both the* POWER *and* MAIN POWER *switches are turned on.***
2. ***If an error is detected during the selftest, an alarm sounds and all indicators remain lit. (For more information, refer to Section 2.3.5, "Selftest/Calibration" in this manual.)***
3. ***When Selftest is complete, the instrument enters its normal operating state, although the SYNTHE UNLOCK indicator may light up, or start to flash depending on the current settings of the instrument. If this occurs, ensure that all settings are correct. (For more information refer to Section, "2.3.6 Clock/Timing Signals" of this manual and (1) SYNTHE REF IN and (3) MOD TIMEBASE IN in Section 3.8 of the R3562 Test Sourse Operation Manual.)***

CAUTION: ***If the fan stops rotating for any reason while the instrument is operating, an alarm sounds to indicate that the fan has stopped. When this occurs, turn both the* POWER *and* MAIN POWER *switches off and disconnect the power cable from the outlet. If the instrument is used while the fan is not rotating, the instrument may not operate correctly.***

1.4 Calibration

If you want to calibrate the R3562, please contact ADVANTEST or an ADVANTEST sales representative.

Recommended period for calibration	Once per year.

1.5 Connectors

When this option is installed in the R3562, the connectors on the front panel have the following function:

1. EXT TRIG: This connector is used to input or output Even Second from the base station.

2. DESCRIPTION OF FUNCTIONS

This chapter describes the functions that can be set for the instrument.

2.1 Switching Between Communication Systems

This section explains how to switch between the standard specification (3GPP FDD) and the cdma2000 option.

The standard specification (3GPP) and Option 65 (cdma2000) can be switched by rebooting the system after one of the GPIB commands described below has been sent.

Because this setting is backed up in the system, you do not have to resend the command until you want to switch the communication systems again.

<GPIB command>

3GPP: COMSYS 3GPP

cdma2000: COMSYS CDMA2000

2.2 Basic Functions

Basic functions such as the output frequency and output level shown in Table 2-1 are the same as for the standard R3562. For information on these functions and each operation, refer to the "R3562 Receiver Test Source Operation Manual." The optimum Automatic Level Control (ALC) mode is automatically selected from the modes shown in Table 2-2.

Table 2-1 Basic Functions of the R3562

Section	Setting item	Relevant section in R3562 Receiver Test Source Operation Manual
System	Same except for setting values after execution of preset	3.1
Output frequency	Same except for setting values after execution of preset	3.2
Output level	Same except for setting values after execution of preset ALC Mode Selection: *See Table 2-2.	3.3
IQ IN/OUT	All the same	3.5
BER counter	All the same	3.6
Selftest/Calibration	Same except that AWGN CAL is added *Refer to 2.3.5	3.7
Clock & Timing	Only 10 MHz reference source adjustment is the same. *Refer to 2.3.6	3.8
Save/Recall	All the same	3.9

Table 2-2 ALC Mode corresponding to Selection Criteria

Selection criteria			ALC mode
IQ connector direction	Modulation	Generator mode	
OFF	ON	SIGNAL (Burst OFF / Gating OFF) SIGNAL (Burst ON / Gating ON)	SH (Sample & Hold) HOLD (ALC Hold)
		NOISE	AUTO
		Eb/No(Nt)	HOLD (ALC Hold)
	OFF	-	AUTO
INPUT	-	-	AUTO
OUTPUT	-	-	AUTO

NOTE:

1. ***If the optimum operation mode is not selected for the ALC operation mode shown in Table 2-2, the output level of the RF OUT connector may occasionally fluctuate.***
2. ***When the output level or frequency setting is changed under Sample & Hold or ALC Hold mode, the output level is automatically recalibrated by generating the reference signal.***

2.3 cdma2000 Functions

This section describes the functions specific to the cdma2000 option.

Table 2-3 through Table 2-5 list the settings related to modulation. Table 2-6 lists the supplemental settings related to cdma2000.

n: Indicates the Radio Configuration number.
When performing Reverse Link, select a number from 1 to 4.
When performing Forward Link, select a number from 1 to 5.

#: Indicates the Channel name.
Choose one letter from among A, B, and C.
R3562 supports three Traffic Channels (A, B, and C) in addition to the Pilot Channel, Dedicated Control Channel (Reverse Link), and Sync Channel (Forward Link). The Traffic Channel is assigned to the Fundamental Channel and Supplemental Channel.

NOTE: ***Since restrictions apply to the assignment of channel A, B, and C, refer to the following sections:***
Reverse Link: ***Section 2.3.3***
Forward Link: ***Section 2.3.4***

Table 2-3 Common Settings in Modulation Section

Section	Setting item	Related GPIB command	Reference
Modulation STD	Modulation ON/OFF	MOD	2.3.2
	IQ IN/OUT connector direction	IQDIR	
	LINK	LINK	

Table 2-4 Setting Items for Reverse Link in Modulation Section (1 of 2)

Section	Setting item	Related GPIB command	Reference
Common	Radio Configuration	C2RRC	2.3.3.1
	Generator mode	C2RGEN	
	Eb/No(Nt) value	C2REBNO	
	Primary channel		
	RC 1, 2	Traffic Channel A	
	RC 3, 4	C2R*n*PR	
	Coding target channel	C2R*n*RT	
	Output level adjustment channel		
	RC 1, 2	Not applicable	
	RC 3, 4	C2R*n*PAC	
	External trigger (Even Second) Sync.	C2ETRG	
	PN offset value (EXT TRIG Delay)	C2PNOFF	
	Burst ON/OFF (*RC1, 2)		
	RC 1, 2	C2BUR	
	RC 3, 4	Not applicable	
Reverse Pilot Channel *RC 3, 4	Output ON/OFF	C2R*n*PICH:CSW	2.3.3.2
	Output level	C2R*n*PICH:CLV	
	Gating ON/OFF	C2RPICH:GATI	
	Gating rate	C2RPICH:GRATE	
	Power control bit pattern	C2RPCNT	
Dedicated Control Channel *RC 3, 4	Output ON/OFF	C2R*n*DCCH:CSW	2.3.3.3
	Output level setting	C2R*n*DCCH:CLV	
	Information/Physical data	C2R*n*DCCH:DATA	
	4-bit Repeating data pattern	C2R*n*DCCH:REPD	
	Bit error addition ON/OFF	C2R*n*DCCH:BERR	
	CRC control	C2R*n*DCCH:CRC	
	CRC error addition value	C2R*n*DCCH:CERR	
	Block Interleaving ON/OFF	C2R*n*DCCH:BINT	
	Frame length	C2R*n*DCCH:FLEN	

Table 2-4 Setting Items for Reverse Link in Modulation Section (2 of 2)

Section		Setting item	Related GPIB command	Reference
Traffic Channel A, B and C	Common	Output ON/OFF		2.3.3.4
		RC 1, 2	Not applicable	
		RC 3, 4	C2R*n*TRCH#:CSW	
		Output level		
		RC 1, 2	Not applicable	
		RC 3, 4	C2R*n*TRCH#:CLV	
		Channel configuration	*Fixed to assignment of A/B/C	
		RC 1, 2	Not applicable	
		RC 3, 4	C2R*n*TRCHA:CCONF SCH2 C2R*n*TRCHB:CCONF FCH C2R*n*TRCHC:CCONF SCH1	
		Information/Physical data	C2R*n*TRCH#:DATA	
		4-bit Repeating data pattern	C2R*n*TRCH#:REPD	
		Bit error addition ON/OFF	C2R*n*TRCH#:BERR	
		CRC control	C2R*n*TRCH#:CRC	
		CRC error additional value	C2R*n*TRCH#:CERR	
		Block Interleaving ON/OFF	C2R*n*TRCH#:BINT	
	Fundamental Channel	Data rate	C2R*n*TRCH#:FCH:RATE RC1, 2: # →A RC3, 4: # →B	
		Frame length *RC1, 2: 20 msec only	C2R*n*TRCH#:FCH:FLEN RC1, 2: # →A RC3, 4: # →B	
	Supplemental Channel 1 *RC3, 4	FEC method	C2R*n*TRCHC:SCH1:FEC	
		Data rate	C2R*n*TRCHC:SCH1:RATE	
		Frame length	C2R*n*TRCHC:SCH1:FLEN	
		Walsh length	C2R*n*TRCHC:SCH1:WLEN	
		Walsh number	C2R*n*TRCHC:SCH1:WNO	
	Supplemental Channel 2 *RC3, 4	FEC method	C2R*n*TRCHA:SCH2:FEC	
		Data rate	C2R*n*TRCHA:SCH2:RATE	
		Frame length	C2R*n*TRCHA:SCH2:FLEN	
		Walsh length	C2R*n*TRCHA:SCH2:WLEN	
		Walsh number	C2R*n*TRCHA:SCH2:WNO	

Table 2-5 List of Modulation Section Forward Link Setting Items

Section		Setting item	Related GPIB command	Reference
Common		Radio Configuration	C2FRC	2.3.4.1
		Generator mode	C2FGEN	
		Equalizing filter ON/OFF	C2FEQFLT	
		Eb/No(Nt) value	C2FEBNO	
		Primary channel	C2F*n*PR	
		Coding target channel	C2F*n*RT	
		Output level adjustment channel	C2F*n*PAC	
Pilot Channel		Output ON/OFF	C2F*n*PICH:CSW	2.3.4.2
		Output level setting	C2F*n*PICH:CLV	
Sync Channel		Output ON/OFF	C2F*n*SYNCH:CSW	2.3.4.3
		Output level	C2F*n*SYNCH:CLV	
Traffic Channel A, B and C	Common	Output ON/OFF	C2F*n*TRCH#:CSW	2.3.4.4
		Output level	C2F*n*TRCH#:CLV	
		Channel configuration RC 1, 2 RC 3 to 5	 Not applicable C2F*n*TRCH#:CCONF	
		Information/Physical data	C2F*n*TRCH#:DATA	
		4-bit Repeating data pattern	C2F*n*TRCH#:REPD	
		Bit error addition ON/OFF	C2F*n*TRCH#:BERR	
		CRC control	C2F*n*TRCH#:CRC	
		CRC error additional value	C2F*n*TRCH#:CERR	
		Block Interleaving ON/OFF	C2F*n*TRCH#:BINT	
	Fundamental Channel	Data rate	C2F*n*TRCH#:FCH:RATE	
		Frame length *RC1, 2: 20 msec only	 C2F*n*TRCH#:FCH:FLEN	
		Walsh number *RC1, 2: Not applicable	 C2F*n*TRCH#:FCH:WNO	
		QOF number	C2F*n*TRCH#:FCH:QUASI	
	Supplemental Channel *RC3 to 5 *#: A, C	FEC method	C2F*n*TRCH#:SCH:FEC	
		Data rate	C2F*n*TRCH#:SCH:RATE	
		Frame length	C2F*n*TRCH#:SCH:FLEN	
		Walsh number	C2F*n*TRCH#:SCH:WNO	
		QOF number	C2F*n*TRCH#:SCH:QUASI	

Table 2-6 List of cdma2000 Supplemental Setting Items

Section	Setting item	Related GPIB command	Reference
Calibration	AWGN calibration performance	CWGN	2.3.5
	AWGN calibration ON/OFF	CAC	
Clock &Timing	SYNTHE REF IN	RSYN	2.3.6
	MOD TIME BASE IN	MODTB	
	CLOCK OUT 1	REAROUT1	
	CLOCK OUT 2	REAROUT2	

2.3.1 Initialization

To initialize settings for this instrument, use the PRESET command. Table 2-7 through Table 2-10 shows initial values for each setting of a section.

NOTE: The PRESET command initializes only the items listed in Table 2-7 to Table 2-10.

Related GPIB command IP

Table 2-7 Initial Values after PRESET: General items

Section	Setting item	Initial value
Output frequency	Output frequency	800 MHz
	Output channel	1
	Start frequency	800 MHz
	Channel spacing	30 kHz
	Channel start number	1
Output level	Output ON/OFF	ON
	Output level	-80 dBm
	Query data unit	dBm
	Output level upper limit value	0.0 dBm
	Output level offset ON/OFF	OFF
	Output level offset value	0.0 dB
	ALC mode	Sample & Hold
Modulation STD	Modulation ON/OFF	ON
	IQ IN/OUT connector direction	OFF
	LINK	Reverse Link

Table 2-8 Initial Values in Modulation Section after PRESET: Reverse Link (1 of 3)

Section	Setting item	Initial value
Common	Radio Configuration	RC1
	Generator mode	Signal Only
	Eb/No(Nt) value	10.0 dB
	Primary channel	
	RC 1, 2	Traffic Channel A (only)
	RC 3, 4	Traffic Channel B
	Coding target channel	
	RC 1, 2	Traffic Channel A
	RC 3, 4	Traffic Channel B
	Output level adjustment channel	
	RC 1, 2	Not applicable
	RC 3, 4	Dedicated Control Channel
	External trigger (EVEN SECOND) Sync.	DISABLE
	PN offset (EXT TRIG Delay)value	0
	Burst ON/OFF	OFF
Reverse Pilot Channel *RC 3, 4	Output ON/OFF	ON
	Output level	-7 dB
	Gating ON/OFF	OFF
	Gating rate	1
	Power control bit pattern	ALL "A"
Dedicated Control Channel *RC 3, 4	Output ON/OFF	ON
	Output level	-1.1 dB
	Information/Physical data	PN9
	4-bit repeating data pattern	5 [in hexadecimal notation]
	Bit error addition ON/OFF	OFF
	CRC control	ON
	CRC error additional value	2%
	Block Interleaving ON/OFF	ON
	Frame length	20.0 ms

Table 2-8 Initial Values in Modulation Section after PRESET: Reverse Link (2 of 3)

Section		Setting item		Initial value	
Traffic Channel A/B/C	Common	Output ON/OFF		RC 1, 2	RC3, 4
			Traffic Channel A	ON	OFF
			Traffic Channel B	---	ON
			Traffic Channel C	---	OFF
		Output level		RC 1, 2	RC 3, 4
			Traffic Channel A	---	-20.0 dBm
			Traffic Channel B	---	-15.6 dBm
			Traffic Channel C	---	-20.0 dBm
		Channel configuration (*RC3, 4)		Data rate: 9600 bps (RC3) 14400 bps (RC4) Frame Length: 20.0 ms	
			Traffic Channel A	Supplemental Channel 2	
			Traffic Channel B	Fundamental Channel	
			Traffic Channel C	Supplemental Channel 1	
		Information/Physical data		PN9	
		4-bit repeating data pattern		5 [in hexadecimal notation]	
		Bit error addition ON/OFF		OFF	
		CRC control		ON	
		CRC error additional value		2%	
		Block Interleaving ON/OFF		ON	
	Fundamental Channel	Data rate	RC 1, 3	9600 bps	
			RC 2, 4	14400 bps	
		Frame length		20 ms	
	Supplemental Channel 1 *RC 3, 4	FEC method		Convolution	
		Data rate	RC 3	9600 bps	
			RC 4	14400 bps	
		Frame length		20 ms	
		Walsh length		2	
		Walsh number		1	

Table 2-8 Initial Values in Modulation Section after PRESET: Reverse Link (3 of 3)

Section		Setting item	Initial value
Traffic Channel A/B/C	Supplemental Channel 2 *RC 3, 4	FEC method	Convolution
		Data rate RC 3	9600 bps
		RC 4	14400 bps
		Frame length	20 ms
		Walsh length	4
		Walsh number	2

Table 2-9 Initial Values in Modulation Section after PRESET: Forward Link (1 of 3)

Section	Setting item	Initial value
Common	Radio Configuration	RC1
	Generator mode	Signal Only
	Equalizing filter ON/OFF	ON
	Eb/No(Nt) value	10.0 dB
	Primary channel	
	RC 1, 2	Traffic Channel A
	RC 3 to 5	Traffic Channel B
	Coding target channel	
	RC 1, 2	Traffic Channel A
	RC 3 to 5	Traffic Channel B
	Output level adjustment channel	Sync Channel
Pilot Channel	Output ON/OFF	ON
	Output level	-7.0 dB
Sync Channel	Output ON/OFF	ON
	Output level	-1.1 dB

Table 2-9 Initial Values in Modulation Section after PRESET: Forward Link (2 of 3)

Section		Setting item		Initial value	
Traffic Channel A/B/C	Common	Output ON/OFF		RC 1, 2	RC 3 to 5
			Traffic Channel A	ON	OFF
			Traffic Channel B	OFF	ON
			Traffic Channel C	OFF	OFF
		Output level		RC 1, 2	RC 3 to 5
			Traffic Channel A	-15.6 dBm	-20.0 dBm
			Traffic Channel B	-20.0 dBm	-15.6 dBm
			Traffic Channel C	-20.0 dBm	-20.0 dBm
		Channel configuration (*RC 3 to 5)		Data rate: 9600 bps (RC 3, 4) 14400 bps (RC 5) Frame Length: 20.0 ms	
			Traffic Channel A	Supplemental Channel	
			Traffic Channel B	Fundamental Channel	
			Traffic Channel C	Supplemental Channel	
		Information/Physical data		PN9	
		4-bit repeating data pattern		5 [in hexadecimal notation]	
		Bit error addition ON/OFF		OFF	
		CRC control		ON	
		CRC error additional value		2%	
		Block Interleaving ON/OFF		ON	
	Fundamental Channel	Data rate	RC 1, 3, 4	9600 bps	
			RC 2, 5	14400 bps	
		Frame length		20.0 ms	
		Walsh number		RC1, 2	RC3 to 5
			Traffic Channel A	8	-
			Traffic Channel B	62	8
			Traffic Channel C	63	-
		QOF number	RC 3 to 5	0	

Table 2-9 Initial Values in Modulation Section after PRESET: Forward Link (3 of 3)

Section		Setting item		Initial value	
Traffic Channel A/B/C	Supplemental *RC 3 to 5	FEC method		Convolution	
		Data rate	RC 3, 4	9600 bps	
			RC 5	14400 bps	
		Frame length		20.0 ms	
		Walsh length	RC 3, 5	64	
			RC 4	128	
		Walsh number		RC3, 5	RC4
			Traffic Channel A	62	126
			Traffic Channel C	63	127
		QOF number		0	

Table 2-10 Initial Value after PRESET: Other cases

Section	Setting items	Initial value
External IQ In/Out	IQ signal input gain	2000
	IQ phase adjustment	2000
	IQ signal output gain	0
BER Counter	Measurement data pattern	PN9
	Measurement bit length	10000
	Clock polarity	POS (Leading edge)
	Data polarity	POS (Non-inverse)
Clock & Timing	SYNTHE REF	Internal
	MOD TIME BASE	Internal
	CLOCK OUT 1	OFF
	CLOCK OUT 2	OFF

2.3.2 Common Settings for Reverse and Forward Links

This section describes the common settings or selections for Reverse Link and Forward Link.

1. Modulation ON/OFF

   Selects either a modulation signal or no modulation signal (CW) for the output signal.

   Initial value: ON

   Related GPIB command MOD

2. IQ IN/OUT connector direction

   Selects the connector direction of the external IQ connectors on the rear panel and the IQ signal connection paths to the internal IQ modulator (see Table 2-11). Figure 2-1 shows each IQ signal path.

   Initial value: OFF

   Related GPIB command IQDIR

Table 2-11 IQ IN/OUT Connector Direction

Selection	Description		SW	
	IQ IN/OUT connector	IQ modulator	SW1	SW2
OFF	-	Inputs the baseband signal	b	a
INPUT	Inputs the external IQ signal	Inputs the external IQ signal	b	b
OUTPUT	Outputs the baseband IQ signal	-	a	a

NOTE: If output mode is selected, the RF OUT signal may not be output properly

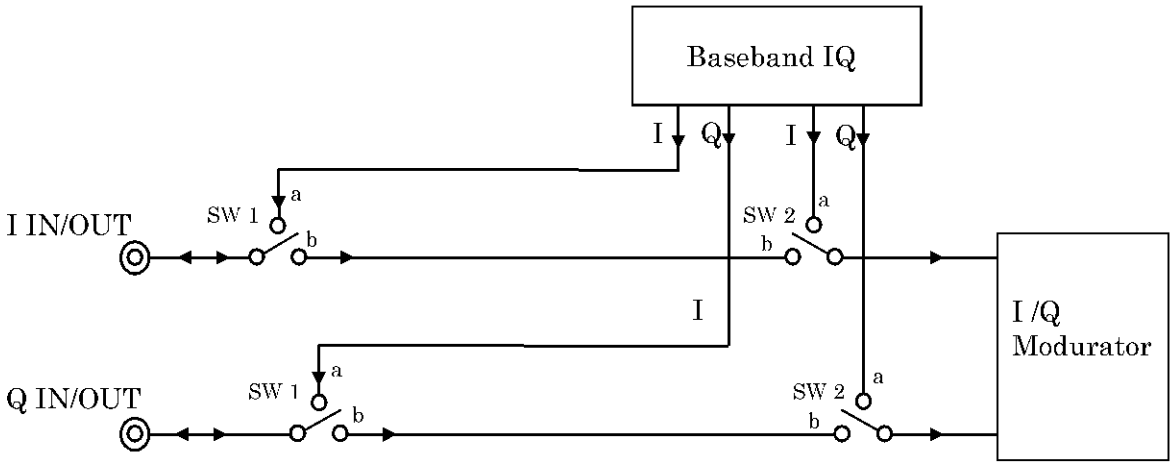


Figure 2-1 IQ Source Signal Paths

WARNING: If a level higher than the specified input level is input to the IQ IN/OUT connectors, the instrument may be damaged. Be sure to use the instrument within the specified input level.

3. LINK

Selects the link direction of the instrument (see Table 2-12).

Initial value: REV

Related GPIB command LINK

Table 2-12 LINK Settings

Selection	Description
REV	Reverse Link: Output signal direction is from MS to BS.
FOR	Forward Link: Output signal direction is from BS to MS.

BS: Base Station
MS: Mobile Station

2.3.3 Reverse Link

This section describes the settings for the Reverse Link signal (from MS to BS).

The R3562 supports Reverse Pilot Channel, Dedicated Control Channel, and three Traffic Channels (A, B, and C), as shown in Figure 2-2 and Figure 2-5.

NOTE: ***For RC1 and RC2, only Traffic Channel A is assigned. Traffic Channel B and Traffic Channel C cannot be assigned for the RCs. For the RC3 and RC4, Fundamental Channel, Supplemental Channel 1 and Supplemental Channel 2 are assigned.***

Table 2-13 Channel Assignment for Reverse Link

Radio Configuration	Traffic Channel	Channel Assignment
1, 2	A	FCH: Fundamental Channel
	B	Unused
	C	Unused
3, 4	A	SCH2: Supplemental Channel 2
	B	FCH: Fundamental Channel
	C	SCH1: Supplemental Channel 1

RC 1, 2

Traffic Channel A (Fundamental Channel)

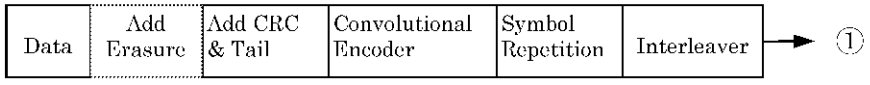


Figure 2-2 Reverse Link Channel Structure (RC 1, 2)

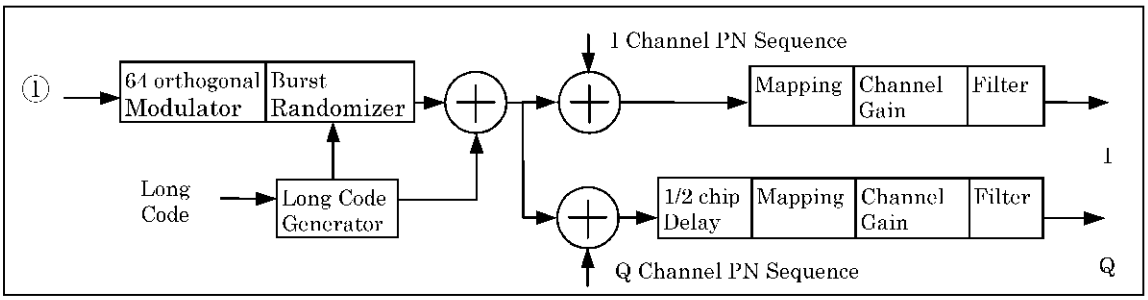
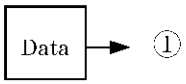


Figure 2-3 Reverse Link I and Q Mapping (RC 1, 2)

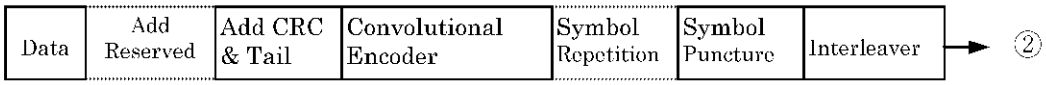
NOTE: ***For the R3562, Long Code Mask is fixed to 0.***

RC 3, 4

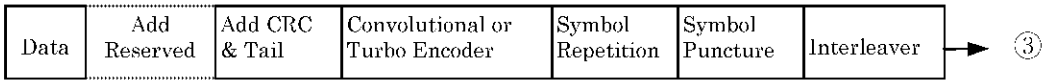
Reverse Pilot Channel



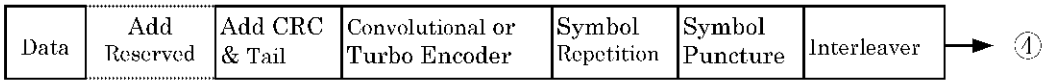
Dedicated Control Channel



Traffic Channel A (Supplemental Channel 2)



Traffic Channel B (Fundamental Channel)



Traffic Channel C (Supplemental Channel 1)

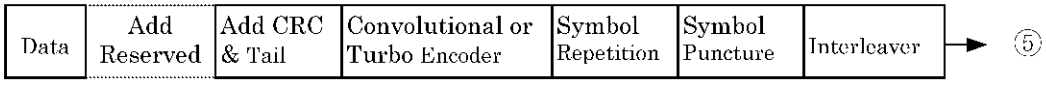


Figure 2-4 Reverse Link Channel Structure (RC 3, 4)

2.3.3 Reverse Link

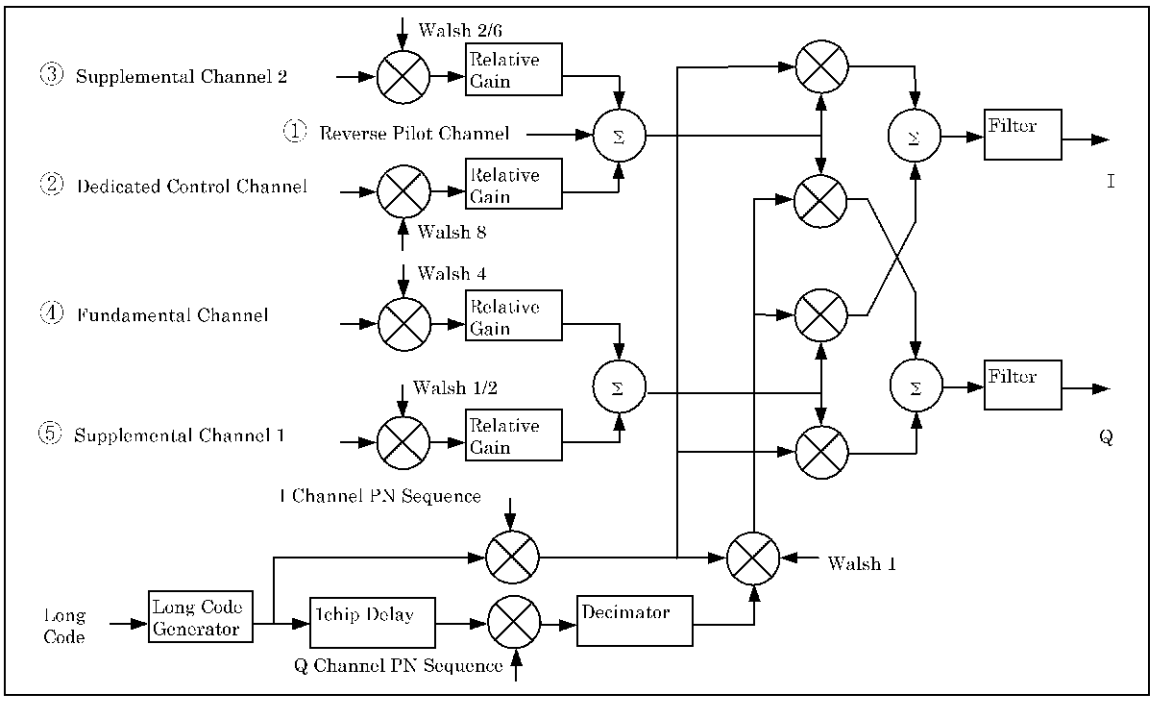


Figure 2-5 Reverse Link I and Q Mapping (RC3, 4)

NOTE: For the R3562, Long Code Mask is fixed to 0.

2.3.3.1 Common Settings for Reverse Link

This section describes the common settings for each Reverse Link Channel.

1. Radio Configuration
   Choose a Radio Configuration number from 1 to 4 which complies with IS2000.
   Initial value: 1
   Related GPIB command C2RRC
2. Generator mode
   Selects the type of signal into the internal IQ modulator.
   Initial value: SIGO
   Related GPIB command C2RGEN

Table 2-14 Generator Mode Selection

Selection	Description	
SIGO	Signal Only:	Selects the CDMA signal.
NOIO	Noise Only:	Selects AWGN with a bandwidth of 2 MHz.
EBNO *	Eb/No(Nt):	Selects the CDMA signal with the AWGN output added. The power ratio of AWGN to the primary channel signal can be adjusted.

*: Eb/No(Nt) for primary channel (see "4. Primary channel").

NOTE: If EBNO is selected in generator mode, AWGN calibration must be performed in advance.

3. Eb/No(Nt) value
   Sets the Eb/No(Nt) value for the primary channel (See "5. Coding target channel").
   Initial value: 10.0 [dB]
   Related GPIB command C2REBNO

4. Primary channel

   Selects the primary channel from among Dedicated Control Channel and Traffic Channel A, B, and C, which are activated. The selected channel becomes the target Channel for Eb/No(Nt).

   Initial value: Radio Configuration 1, 2: TRCHA
   Radio Configuration 3, 4: TRCHB

   Related GPIB command C2R*n*PR

Table 2-15 Primary Channel Selection

Selection	Description
DCCH	Selects Dedicated Control channel as the primary channel.
TRCHA	Selects Traffic Channel A as the primary channel.
TRCHB	Selects Traffic Channel B as the primary channel.
TRCHC	Selects Traffic Channel C as the primary channel.

NOTE:

1. **n:** ***Specify a Radio Configuration number for the value "n" in the GPIB command. Only Traffic Channel A can be selected for Radio Configuration 1, 2.***
2. ***A channel output selected as primary channel cannot be disabled.***

5. Coding target channel

   Selects the channel for real-time coding. The input data (Information data) on the selected channel is coded as shown in Figure 2-2 to Figure 2-4, "Reverse Link Channel Structure (RC 3, 4)."

   Initial value: Radio Configuration 1, 2: TRCHA
   Radio Configuration 3, 4: TRCHB

   Related GPIB command C2R*n*RT

Table 2-16 Coding Target Channel Selection

Selection	Description
DCCH	Real-time coding for Dedicated Control Channel.
TRCHA	Real-time coding for Traffic Channel A.
TRCHB	Real-time coding for Traffic Channel B.
TRCHC	Real-time coding for Traffic Channel C.
OFF	Real-time coding OFF for all channels.

NOTE:

1. **n:** ***Specify a Radio Configuration number for the value "n" in the GPIB command. Radio Configuration 1, 2 can be assigned only Traffic Channel A or OFF.***
2. ***Data (physical data) that is not on the coding target channel is inserted directly into the spread spectrum block (I and Q Mapping)***
3. ***Real-time coding for two or more channels at the same time is not allowed. If the selected channel is changed, a new channel is coded and the previously selected channel will no longer be coded.***

6. Output level adjustment channel

Selects output level adjustment channel from among the activated channels. The output level of the selected channel is automatically adjusted so that the sum of the output power of each channel is 0 dB.

Initial value: DCCH

Related GPIB command C2R*n*PAC

Table 2-17 Output Level Adjustment Channel Selection

Selection	Description
PICH	Sets the Reverse Pilot Channel as output level adjustment channel.
DCCH	Sets the Dedicated Control Channel as output level adjustment channel.
TRCHA	Sets Traffic Channel A as output level adjustment channel.
TRCHB	Sets Traffic Channel B as output level adjustment channel.
TRCHC	Sets Traffic Channel C as output level adjustment channel.
OFF	Disables the output level adjustment channel.

Example If DCCH is selected as output level adjustment channel
Reverse Pilot Channel = -15.6 dB (Level setting for each channel)
Dedicated Control Channel = -1.1 dB (Automatic level setting)
Traffic Channel A = -7.0 dB (Level setting for each channel)

NOTE:

1. **n:** ***Specify a Radio Configuration number for the value "n" in the GPIB command. Radio Configuration 1, 2 do not have this feature.***
2. ***A channel output selected as output level adjustment channel cannot be disabled.***
3. ***When an output level adjustment channel is selected, neither channel level settings which cause the sum of the output levels to exceed 0 dB, nor the changing of the channel setting from OFF to ON are allowed.***
4. ***When PICH, DCCH, TRCH A, TRCH B or TRCH C is selected as an output level adjustment channel, the output level setting for each channel is relative to the sum of the output levels of all channels. When an output level adjustment channel is disabled, the level setting for each channel is the relative level between channels. (See Example 1.)***
5. ***When an output level adjustment channel is disabled, channel level settings which cause one of channel levels to exceed the sum of the output levels by more than 20 dB cannot be used. (See Example 2.)***

Example 1: When the output level adjustment channel is disabled
The actual output levels are the same for case A and case B in Table 2-18.

Table 2-18 Example of the Level Settings Used When Output Level Adjustment Channel is Disabled-1

Channel	Case a.	Case b.
Reverse Pilot Channel	-5 dB	-10 dB
Dedicated Control Channel	-5 dB	-10 dB
Traffic Channel A	-5 dB	-10 dB

Example 2: When the channel level range is limited
See the Table 2-19 below.

Table 2-19 Example of the Level Settings Used When Output Level Adjustment Channel is Disabled-2

Channel	Level setting	Limitation
Pilot Channel	-1.9 dB	An upper limit value is limited to this value.
Dedicated Control Channel	-2.0 dB	An upper limit value is limited to this value.
Traffic Channel A	-18.9 dB	A lower limit value is limited to this value.

7. External trigger (Even Second) synchronization

Selects whether or not to synchronize the R3562 baseband block with Even Second signal input from the EXT TRIG IN connector on the front panel.

Initial value: DISABLE

Related GPIB command C2ETRG

Table 2-20 Setting of External Trigger (Even Second) Synchronization

Setting	Description
ENABLE	Synchronize the baseband block with the Even Second signal from the EXT TRIG IN connector.
DISABLE	Do not synchronize the baseband block with the Even Second signal from EXT TRIG IN connector.

NOTE: ***If ENABLE is selected without inputting Even Second signal into EXT TRIG IN, the signal from the RF OUT connector will not be output. Also, if the reference clock into MOD TIME BASE IN or SYNTHE REF IN of the R3562 is not synchronized with the base station, synchronization will be lost.***

---

8. PN offset value (EXT TRIG delay)

Sets the PN offset value from the Even Second signal when external trigger synchronization is set to ENABLE and the R3562 is synchronized with the Even Second signal. Since 1PN offset equals 64 chips, the number of chips corresponding to the PN offset value is as follows.

OFFSET[chip] = RoundOff (64 × PN OFFSET)

OFFSET[chip]: The number of chips set for the R3562

PN OFFSET: PN offset value

RoundOff: Round off the decimal

Initial value: 0.00

Related GPIB command C2PNOFF

NOTE: ***When the R3562 is synchronized with the external Even Second clock, a delay corresponding to typically 8.5 chips is caused from the external Even Second clock due to the hardware configuration. Therefore, the actual value is OFFSET [chip] + 8.5 chips.***

---

9. Burst ON/OFF

Selects Fundamental Channel burst to be ON or OFF for Radio Configuration 1, 2. When the Fundamental Channel burst is ON, the burst positions according to the data rate are as shown in Figure 2-6.

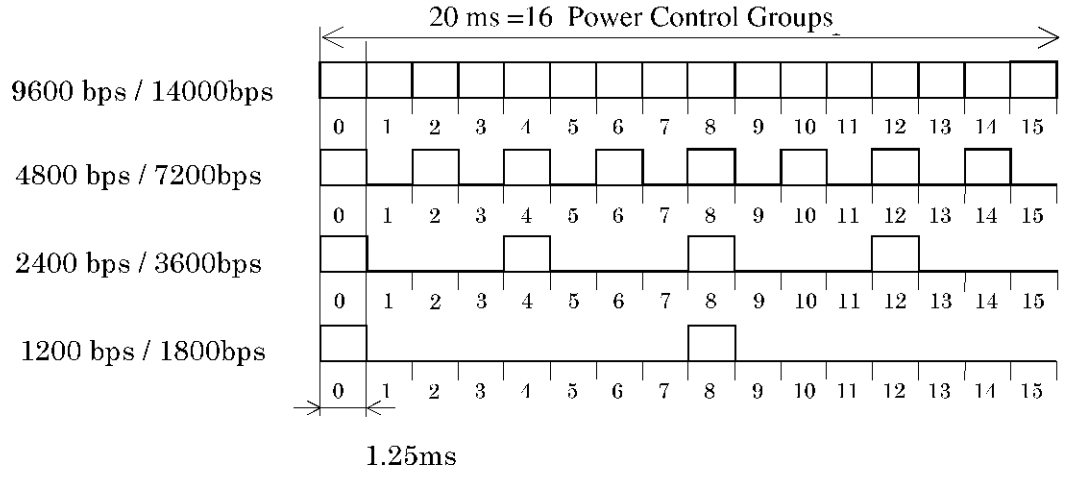


Figure 2-6 Burst ON Positions of Radio Configuration 1, 2

Initial value: OFF

Related GPIB command C2BUR

NOTE: ***When the following settings are selected, Fundamental Channel burst is automatically set to OFF. Radio Configuration 3, 4***

2.3.3.2 Reverse Pilot Channel

This section describes functions related to Reverse Pilot Channel when Radio Configuration 3 and 4 are set.

NOTE: **n** ***in the related GPIB command is the Radio Configuration number. However, Gating ON/OFF and Gating rate are common for Radio Configuration. A Radio Configuration number cannot be assigned.***

---

1. Output ON/OFF

   Selects whether or not to use Reverse Pilot Channel output.

   Initial value: ON

   Related GPIB command C2R*n*PICH: CSW

   NOTE:

   1. ***If Reverse Pilot Channel is selected as output level adjustment channel, channel output cannot be disabled.***
   2. ***When an output adjustment channel is selected, you cannot change the channel settings from OFF to ON so that the sum of the output levels exceeds 0 dB.***
   3. ***When an output level adjustment channel is disabled, you cannot change the channel settings from OFF to ON so that one of channel levels exceeds the sum of the output levels by more than 20 dB.***

   ---

2. Output level

   Sets the output level of the Reverse Pilot Channel.

   Initial value: -7 [dB]

   Related GPIB command C2R*n*PICH: CLV

   NOTE:

   1. ***If Reverse Pilot Channel is selected as output level adjustment channel, the output level is set automatically. (This means that the output level cannot be set arbitrarily.) When the output level adjustment channel selection is set to OFF, the level setting for each channel is the relative level between channels. (Refer to 2.3.3.1 "6".)***
   2. ***When an output adjustment channel is selected, channel level settings which cause the sum of the output levels to exceed 0 dB cannot be used.***
   3. ***When an output level adjustment channel is disabled, channel level settings which cause one of channel levels to exceed the sum of the output levels by more than 20 dB cannot be used. (Refer to 2.3.3.1 "6".)***

   ---

3. Gating ON/OFF

   Selects whether to turn Gating of the Reverse Pilot Channel ON or OFF.

   In the ON state, the Power Control Subchannel is active and Power Control Bit is inserted. In the OFF state, the Power Control Subchannel is inactive and Power Control Bit is always 0.

   Initial value: OFF

   Related GPIB command C2RPICH: GATI

4. Gating rate
   Sets the Gating rate of the Reverse Pilot Channel.
   Initial value: 1
   Related GPIB command C2RPICH: GRATE

Table 2-21 Settings of Reverse Pilot Channel Gating Rate

GPIB command setting	Description
1	Outputs signal of Gating rate =1.
2	Outputs signal of Gating rate =1/2.
4	Outputs signal of Gating rate =1/4.

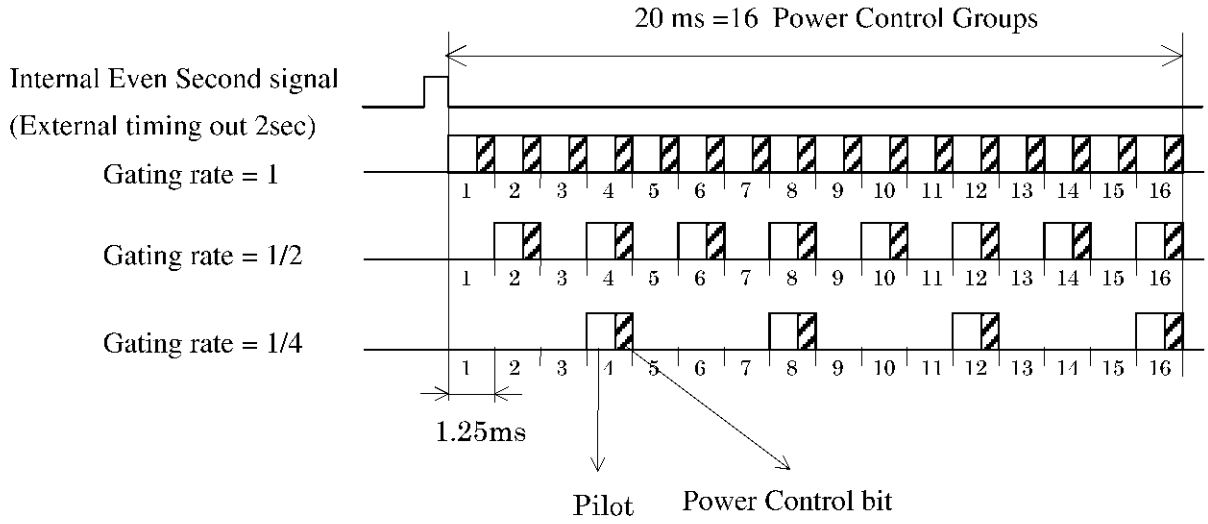


Figure 2-7 Reverse Pilot Channel Gating Timing

5. Power Control bit pattern
   For Radio Configuration 3 and 4, sets the bit pattern of Reverse Power Control Subchannel.
   Initial value: all A's [in hexadecimal notation]
   Related GPIB command C2RPCNT

2.3.3.3 Dedicated Control Channel

This section describes the Dedicated Control Channel for Radio Configuration 3 and 4.

NOTE: Specify a Radio Configuration number for the value "n" in the GPIB command.

1. Output ON/OFF

   Selects whether or not to use Dedicated Control Channel output.

   Initial value: ON

   Related GPIB command C2R*n*DCCH: CSW

   NOTE:

   1. ***If Dedicated Control Channel is selected as primary channel or output level adjustment channel, channel output cannot be disabled.***
   2. ***When an output adjustment channel is selected, you cannot change the channel settings from OFF to ON so that the sum of the output levels exceeds 0 dB.***
   3. ***When an output level adjustment channel is disabled, you cannot change the channel settings from OFF to ON so that one of channel levels exceeds the sum of the output levels by more than 20 dB.***

2. Output level

   Sets the output level of the Dedicated Control Channel.

   Initial value: 0.0 [dB]

   Related GPIB command C2R*n*DCCH: CLV

   NOTE:

   1. ***If Dedicated Control Channel is selected for output level adjustment channel, the level is set automatically. (This means that the output level cannot be set arbitrarily.) When the output level adjustment channel selection is set to OFF, the level setting for each channel is the relative level between channels. (Refer to 2.3.3.1 "6".)***
   2. ***When an output adjustment channel is selected, channel level settings which cause the sum of the output levels to exceed 0 dB cannot be used.***
   3. ***When an output level adjustment channel is disabled, channel level settings which cause one of channel levels to exceed the sum of the output levels by more than 20 dB cannot be used. (Refer to 2.3.3.1 "6".)***

3. Information/Physical data

   Selects the data pattern for the input data (Information data) input to the real-time coder or for the direct input data (Physical data) input to the spread spectrum block. If Dedicated Control Channel is selected as coding target channel (Refer to 2.3.3.1 "5"), this data pattern is used as Information data. If it is not selected as coding target channel, the data pattern is used as Physical data.

   Initial value: PN9

   Related GPIB command C2R*n*DCCH: DATA

Table 2-22 Information/Physical Data Selection

Information/Physical data	Description
PN9	Selects a 9-stage PN code data pattern
PN15	Selects a 15-stage PN code data pattern
ALL0	Selects all 0s.
ALL1	Selects all 1s.
REP	Selects an arbitrary 4-bit repeating data pattern.

4. 4-bit repeating data Pattern

   Sets an arbitrary 4-bit pattern for the REP.

   Initial value: 5 [in hexadecimal notation]

   Related GPIB command C2R*n*DCCH: REPD

5. Bit error addition ON/OFF

   Selects whether or not to add a 1% error to the Information/Physical data pattern.

   Initial value: OFF

   Related GPIB command C2R*n*DCCH: BERR

6. CRC control

   Selects a CRC to be added to Channel data from Table 2-23.

   Initial value: OFF

   Related GPIB command C2R*n*DCCH: CRC

Table 2-23 Selection of CRC Control

Selection	Description
ON	Uses the proper CRC.
OFF	CRC is all 0s.
ADDERR	Adds errors to the CRC.

7. CRC error
   Sets the error value that is added to the CRC. Table 2-24 shows the values that can be set.
   The CRC error is added by inverting the correct CRC bit.
   Initial value: 0.02
   Related GPIB command C2R*n*DCCH: CERR

Table 2-24 CRC Error Setting

Setting	Description
0.001	Adds 0.1% CRC errors.
0.005	Adds 0.5% CRC errors.
0.01	Adds 1% CRC errors.
0.02	Adds 2% CRC errors.

8. Block Interleaving ON/OFF
   Selects whether or not to perform Block Interleaving.
   Initial value: OFF
   Related GPIB command C2R*n*DCCH: BINT
9. Frame length
   Selects the frame length. Table 2-25 shows the frame lengths and data rates that can be selected.
   Initial value: 0.02 [S]
   Related GPIB command C2R*n*DCCH: FLEN

Table 2-25 Selection of Frame Length

Radio Configuration	Data rate	
Frame length	20 msec	5 msec
RC 3	9600 bps	9600 bps
RC 4	14400 bps	9600 bps

2.3.3.4 Reverse Traffic Channel A, B, and C

This section describes settings for Traffic Channel A, B, and C.

For Reverse Link, Traffic Channel A, B, and C are assigned to Fundamental Channel, Supplemental Channel 1 and Supplemental Channel 2 as shown in Table 2-26.

Table 2-26 Traffic Channel Assignment for Reverse Link

Traffic Channel	Radio Configuration 1, 2	Radio Configuration 3, 4
A	FCH: Fundamental Channel	SCH2: Supplemental Channel 2
B	-	FCH: Fundamental Channel
C	-	SCH1: Supplemental Channel 1

NOTE: ***The values "n" and "#" in the related GPIB command indicate as follows:***
n: Indicates the Radio Configuration number in the related GPIB command.
#: Indicates the channel name in the related GPIB command. Select A, B, or C, as shown in Table 2-26.

1. Output ON/OFF

   Selects whether or not to use Traffic Channel output for Radio Configuration 3 and 4.

   Initial value: Traffic Channel A: OFF
   Traffic Channel B: ON
   Traffic Channel C: OFF

   Related GPIB command C2R*n*TRCH#: CSW

   NOTE:

   1. ***If the Traffic Channel is selected as primary channel or output level adjustment channel, channel output cannot be disabled.***
   2. ***When an output adjustment channel is selected, you cannot change the channel settings from OFF to ON so that the sum of the output levels exceeds 0 dB.***
   3. ***When an output level adjustment channel is disabled, you cannot change the channel settings from OFF to ON so that one of channel levels exceeds the sum of the output levels by more than 20 dB.***
   4. ***This function is not available for Radio Configuration 1 and 2.***

2. Output level

Sets the output level of the Traffic Channel for Radio Configuration 3 and 4. The Initial value is as follows:

Table 2-27 Initial value

Traffic Channel	Radio Configuration 1, 2	Radio Configuration 3, 4
Traffic Channel A	-	-20.0 dB
Traffic Channel B	-	-15.6 dB
Traffic Channel C	-	-20.0 dB

Related GPIB command C2R*n*TRCH#: CLV

NOTE:

1. ***When Traffic Channel A, B, or C is selected as output level adjustment channel, the output level of the selected Traffic Channel is set automatically. (This means that the output level cannot be set arbitrarily.) When the output level adjustment channel selection is set to OFF, the level setting for each channel is the relative level between channels. (Refer to 2.3.3.1 "6".)***
2. ***When an output adjustment channel is selected, channel level settings which cause the sum of the output levels to exceed 0 dB cannot be used.***
3. ***When an output level adjustment channel is disabled, channel level settings which cause one of channel levels to exceed the sum of the output levels by more than 20 dB cannot be used. (Refer to 2.3.3.1 "6".)***
4. ***This function is not available for Radio Configuration 1, 2.***

3. Channel configuration

Selects the Traffic Channel from the combinations of channel type, data rate, and frame length for Radio Configuration 3 and 4. The allowed combinations depend on Radio Configuration and channel type, as shown in Table 2-28. (See Technical Reference Table 3-1)

Table 2-28 Channel Configuration Initial Value

Traffic Channel	Radio Configuration 3			Radio Configuration 4		
	Channel type	Data rate	Frame length	Channel type	Data rate	Frame length
Traffic Channel A	SCH2	9600 bps	20 msec	SCH2	14400 bps	20 msec
Traffic Channel B	FCH	9600 bps	20 msec	FCH	14400 bps	20 msec
Traffic Channel C	SCH1	9600 bps	20 msec	SCH1	14400 bps	20 msec

Related GPIB command C2R*n*TRCH#: CCONF

4. Information/Physical data

   Selects the data pattern of Information data input to the real-time coder or Physical data directly input to the spread spectrum block. If Traffic Channel A, B, or C is selected as coding target channel (refer to 2.3.3.1 "5"), the data pattern is used as Information data for the selected channel. If the channel is not selected as coding target channel, the data pattern is used as Physical data for the channel.

   Initial value: PN9

   Related GPIB command C2R*n*TRCH#: DATA

Table 2-29 Information/Physical Data Selection

Selection	Description
PN9	Selects a 9-stage PN code data pattern.
PN15	Selects a 15-stage PN code data pattern.
ALL0	Selects all 0s.
ALL1	Selects all 1s.
REP	Selects repetition of the arbitrary 4-bit data pattern.

5. 4 bits repeating data pattern

   Sets the arbitrary 4-bit data pattern for the REP.

   Initial value: 5 [in hexadecimal notation]

   Related GPIB command C2R*n* TRCH#: REPD

6. Bit error addition ON/OFF

   Selects whether or not to add 1% error to Information/Physical data pattern.

   Initial value: OFF

   Related GPIB command C2R*n* TRCH#: BERR

7. CRC control

   Selects a CRC to be added to channel data from Table 2-30.

   Initial value: OFF

   Related GPIB command C2R*n* TRCH#: CRC

Table 2-30 Selection of CRC Control

CRC control	Description
ON	Use the correct CRC.
OFF	CRC is set to all 0s.
ADDERR	Adds errors to the CRC.

8. CRC Error

   Sets the error value that is added to the CRC. Table 2-31 shows the values that can be set. The CRC error is added by inverting the correct CRC bit.

   Initial value: 0.02

   Related GPIB command C2R*n* TRCH#: CERR

Table 2-31 CRC Error Setting

Setting	Description
0.001	Adds 0.1% CRC errors.
0.005	Adds 0.5% CRC errors.
0.01	Adds 1% CRC errors.
0.02	Adds 2% CRC errors.

9. Block Interleaving ON/OFF

   Selects whether or not to perform Block Interleaving.

   Initial value: OFF

   Related GPIB command C2R*n* TRCH#: BINT

10. Fundamental Channel

    a. Data rate

       Sets the data rate. The data rates that can be selected depend on the Radio Configuration, channel type, and frame length (see Technical Reference Table 3-1).

       Initial value: RC 1, 3: 9600 [bps]
       RC 2, 4: 14400 [bps]

       Related GPIB command C2R*n* TRCH#: FCH: RATE

    b. Frame length

       Selects the frame length. The frame lengths that can be selected depends on the Radio Configuration (see Technical Reference Table 3-1).

       If the data rate exceeds the range because the frame length is changed, the value is automatically changed to the value which is closest to the set range.

       e.g.) RC 4: 5 msec, 9600 bps → 20 msec, 14400 bps

       Initial value: 20 [msec]

       Related GPIB command C2R*n* TRCH#: FCH: FLEN

11. Supplemental Channel 1

a. FEC Setting

Selects either Convolutional Encoder or Turbo Encoder for coding.

CONV: Convolutional Encoder

TURB: Turbo Encoder

Initial value: CONV

Related GPIB command C2R*n* TRCHC: SCH1: FEC

NOTE: ***The data rate limits the selection (see Technical Reference Table 3-10). The FEC setting is automatically changed as a result of this limitation when the data rate is altered. When both Convolutional Encoder and Turbo Encoder can be selected, Convolutional Encoder has precedence over Convolutional Encoder as the default.***

---

b. Data rate

Selects the data rate. The data rate that can be selected depends on the combination of Radio Configuration, channel type, and frame length (see Technical Reference Table 3-1).

Initial value: RC 1, 3: 9600 [bps]
RC 2, 4: 14400 [bps]

Related GPIB command C2R*n* TRCHC: SCH1: RATE

c. Frame length

Selects the frame length. The frame lengths that can be selected depend on the Radio Configuration (see Technical Reference Table 3-1).

Initial value: 20 [msec]

Related GPIB command C2R*n* TRCHC: SCH1: FLEN

NOTE:

1. ***If the data rate exceeds the range because the frame length is changed, the value is automatically changed to the value which is closest to the set range.***

   Example: RC3, 20 msec, 1500 bps → 40 msec, 2700 bps. (Actual rate: 1350 bps)

2. ***If a frame length of 40 msec or 80 msec is selected, the actual data rate for the setting is as follows:***

   [Actual data rate]=[Data rate setting] /n
   Frame length 40 msec → n = 2
   Frame length 80 msec → n = 4

---

d. Walsh length

Selects the Walsh length. The Walsh length that can be selected depends on the combination of Radio Configuration, frame length, and data rate (see Technical Reference Table 3-3 and Table 3-4).

Initial value: 2

Related GPIB command C2R*n* TRCHC: SCH1: WLEN

NOTE: ***If the Walsh length exceeds the range because the data rate is changed, the value is automatically changed to a settable Walsh length.***

---

e. Walsh number

Selects the Walsh number. The Walsh number that can be selected depends on the combination of Radio Configuration, frame length, data rate, and Walsh length (see Technical Reference Table 3-3 and Table 3-4).

Initial value: 1

Related GPIB command C2R*n* TRCHC: SCH1: WNO

NOTE: ***When the Walsh length is changed, the Walsh number is automatically changed.***

---

12. Supplemental Channel 2

a. FEC setting

Selects Convolutional Encoder or Turbo Encoder for coding.

CONV: Convolutional Encoder

TURB: Turbo Encoder

Initial value: CONV

Related GPIB command C2R*n* TRCHA: SCH2: FEC

NOTE: ***The data rate limits the selection (see Technical Reference Table 3-10). The FEC setting is automatically changed as a result of this limitation when the data rate is altered. When both Convolutional Encoder and Turbo Encoder can be selected, Convolutional Encoder has precedence over Convolutional Encoder as the default.***

---

b. Data rate

Select the data rate. The data rates that can be selected depend on the Radio Configuration, channel type, and frame length (see Technical Reference Table 3-1).

Initial value: RC 1, 3: 9600 [bps]
RC 2, 4: 14400 [bps]

Related GPIB command C2R*n* TRCHA: SCH2: RATE

c. Frame length

Selects the frame length. The frame lengths that can be selected differ from those for Radio Configuration (see Technical Reference Table 3-1).

Initial value: 20 [msec]

Related GPIB command C2R*n* TRCHA: SCH2: FLEN

NOTE:

1. ***If the data rate exceeds the range because the frame length is changed, the value is automatically changed to the value which is closest to the set range.***

   Example: RC3, 20 msec, 1500 bps → 40 msec, 2700 bps. (Actual rate: 1350 bps)

2. ***If a frame length of 40 msec or 80 msec, the actual data rate for the setting is as follows:***

   [Actual data rate]=[Data rate setting]/n
   Frame Length 40 msec → n = 2
   Frame Length 80 msec → n = 4

---

d. Walsh length

Selects the Walsh length. The Walsh length that can be selected depends on the combination of Radio Configuration, frame length, and data rate (see Technical Reference Table 3-3 and Table 3-4).

Initial value: 4

Related GPIB command C2R*n* TRCHA: SCH2: WLEN

NOTE: ***If the selected Walsh length exceeds the range because the data rate is changed, the value is automatically changed to a allowable Walsh length.***

e. Walsh number

Selects the Walsh number. The Walsh number that can be selected depends on Radio Configuration, frame length, data rate and Walsh length (see Technical Reference Table 3-3 and Table 3-4).

Initial value: 2

Related GPIB command C2R*n* TRCHA: SCH2: WNO

NOTE: ***When the Walsh length is changed, the Walsh number is automatically changed.***

2.3.4 Forward Link

This section describes settings for the Forward Link signal (from BS to MS).

The 3562 supports Pilot Channel, Sync Channel and three Traffic Channels (A, B and C), as shown in Figure 2-8 and Figure 2-10.

NOTE: ***For the RC1 or RC2, Fundamental Channel is assigned. For the RC3 through RC5, Fundamental Channel or Supplemental Channel is assigned.***

Table 2-32 Channel Assignment for Forward Link

Radio Configuration	Traffic Channel	Channel Assignment
1, 2	A, B, C	FCH: Fundamental Channel
3, 4, 5	A	SCH: Supplemental Channel
	B	FCH: Fundamental Channel
	C	SCH: Supplemental Channel

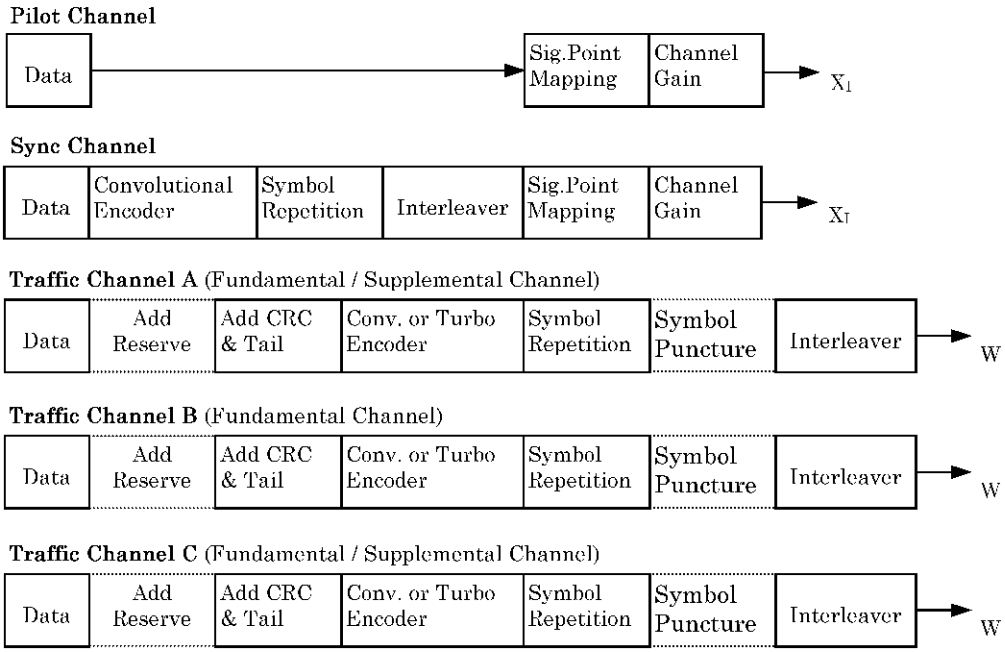


Figure 2-8 Forward Link Channel Structure

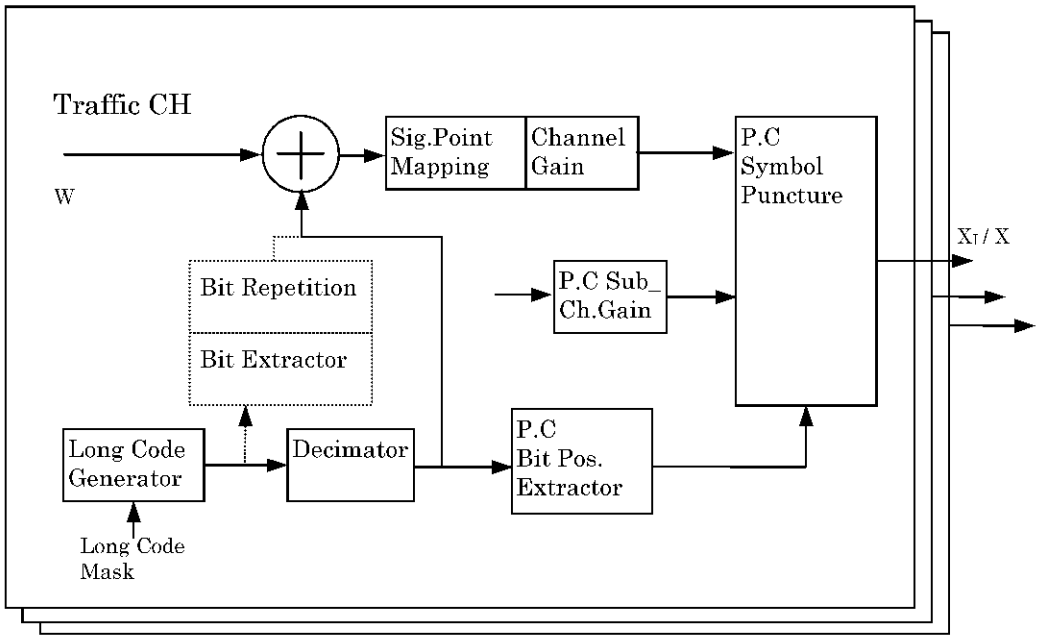


Figure 2-9 Forward Link Signal Point Mapping

NOTE: ***For the R3562, Long Code Mask is fixed to 0 and Power Control bit cannot be used.***

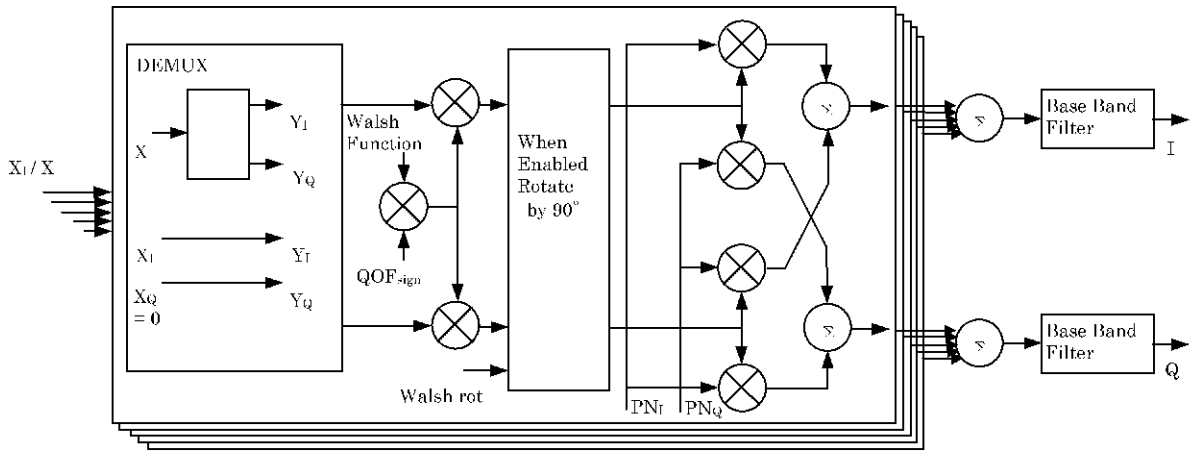


Figure 2-10 Forward Link Demultiplexer & IQ Mapping

2.3.4.1 Common Settings for Forward Link

This section describes common settings for each Forward Link Channel.

1. Radio Configuration
   Select a Radio Configuration number from 1 to 5 which complies with IS2000.
   Initial value: 1
   Related GPIB command C2FRC
2. Generator mode
   Selects the type of signal which is input to the internal IQ modulator.
   Initial value: SIGO
   Related GPIB command C2FGEN

Table 2-33 Generator Mode Selection

Selection	Description	
SIGO	Signal Only:	Selects the CDMA signal.
NOIO	Noise Only:	Selects AWGN with a bandwidth of 2 MHz.
EBNO *	Eb/No(Nt):	Selects the CDMA signal with the AWGN output added. The power ratio of AWGN to the primary channel signal can be adjusted as desired.

*: Eb/No(Nt) for primary channel (Refer to "5").

NOTE: ***Before selecting EBNO for the generator mode, perform an AWGN calibration.***

3. Equalizing Filter ON/OFF
   Switches the Equalizing Filter ON/OFF.
   Initial value: ON
   Related GPIB command C2FEQFLT
4. Eb/No(Nt) value
   Sets the Eb/No(Nt) value for the primary channel. (Refer to "5".)
   Initial value: 10.0 dB
   Related GPIB command C2FEBNO

5. Primary channel

Selects a primary channel from Sync Channel Traffic Channel A, Traffic Channel B and Traffic Channel C, which are set to ON. The Eb/No(Nt) value is set for the selected channel.

Initial value: Radio Configuration 1, 2: TRCHA
Radio Configuration 3, 4, 5: TRCHB

Related GPIB command C2F*n*PR

Table 2-34 Primary Channel Selection

Selection	Description
TRCHA	Selects Traffic Channel A as the primary channel.
TRCHB	Selects Traffic Channel B as the primary channel.
TRCHC	Selects Traffic Channel C as the primary channel.

NOTE:

1. ***Specify a Radio Configuration number for the value "n" in the GPIB command.***
2. ***The output of the channel selected as the primary channel cannot be set to OFF.***

6. Coding target channel

   Selects the channel for real-time coding. The selected channels data is coded as shown in Figure 2-8, "Forward Link Channel Structure."

   Initial value: Radio Configuration 1, 2: TRCHA
   Radio Configuration 3, 4, 5: TRCHB

   Related GPIB command C2F*n*RT

Table 2-35 Coding Target Channel Selection

Selection	Description
TRCHA	Real-time coding for Traffic Channel A
TRCHB	Real-time coding for Traffic Channel B
TRCHC	Real-time coding for Traffic Channel C
OFF	Real-time coding OFF for all channels.

NOTE:

1. ***Specify a Radio Configuration number for the value "n" in the command.***
2. ***Data excluded from the coding target is inserted directly in to the spread spectrum block (Signal Point Mapping).***
3. ***Real-time coding for two or more channels at the same time is not allowed. When the selected channel is changed, data for a new channel is coded and the previously selected channel is no longer used.***

7. Output level adjustment channel

   Selects an output level adjustment channel from the activated channels. The output level of the selected channel is automatically adjusted so that the sum of the output power of each channel is 0 dB.

   Initial value: SYNCH

   Related GPIB command C2F*n*PAC

Table 2-36 Output Level Adjustment Channel Selection

Selection	Description
PICH	Sets the Pilot Channel as an output level adjustment channel.
SYNCH	Sets the Sync Channel as an output level adjustment channel.
TRCHA	Sets Traffic Channel A as an output level adjustment channel.
TRCHB	Sets Traffic Channel B as an output level adjustment channel.
TRCHC	Sets Traffic Channel C as an output level adjustment channel.
OFF	Disables the output level adjustment channel.

Example: If SYNC is selected as an output level adjustment channel
Pilot Channel = -15.6 dB (Level setting for each channel)
Sync Channel = -1.1 dB (Automatic level setting)
Traffic Channel A = -7.0 dB (Level setting for each channel)

NOTE:

1. ***Specify a Radio Configuration number for the value "n" in the command.***
2. ***The output of the channel selected as the output level adjustment channel cannot be set to OFF.***
3. ***When an output adjustment channel is selected, channel level settings which cause the sum of the output levels to exceed 0 dB cannot be used.***
4. ***When PICH, SYNCH or TRCH A, B or C is selected for the output level adjustment channel, the output level value set for each channel is relative to the sum of the output levels for all channels. However, if the output level adjustment channel selection is set to OFF, the level setting for each channel is the relative level between channels. (See Example 1.)***
5. ***When an output level adjustment channel is disabled, channel level settings which cause one of channel levels to exceed the sum of the output levels by more than 20 dB cannot be used. (See Example 2.)***

Example 1: When the output level adjustment channel is disabled
The actual output levels are the same for case A and case B in Table 2-37.

Table 2-37 Example of the Level Settings Used When Output Level Adjustment Channel is Disabled-1

Channel	Case a.	Case b.
Pilot Channel	-5 dB	-10 dB
Sync Channel	-5 dB	-10 dB
Traffic Channel A	-5 dB	-10 dB

Example 2: When the channel level range is limited
See the Table 2-38 below.

Table 2-38 Example of the Level Settings Used When Output Level Adjustment Channel is Disabled-2

Channel	Level setting	Limitation
Pilot Channel	-1.9 dB	An upper limit value is limited to this value.
Sync Channel	-2.0 dB	An upper limit value is limited to this value.
Traffic Channel A	-18.9 dB	A lower limit value is limited to this value.

2.3.4.2 Pilot Channel

This section describes setting for the Pilot Channel.

NOTE: ***For the n in contained in the related GPIB command, specify the Radio Configuration number.***

1. Output ON/OFF

   Selects whether or not to enable the Pilot Channel output.

   Initial value: ON

   Related GPIB command C2F*n*PICH:CSW

   NOTE:

   1. ***When the Pilot Channel is selected as a primary channel or an output level adjustment channel, the channel output cannot be set to OFF.***
   2. ***When an output adjustment channel is selected, you cannot change the channel settings from OFF to ON so that the sum of the output levels exceeds 0 dB.***
   3. ***When an output level adjustment channel is disabled, you cannot change the channel settings from OFF to ON so that one of channel levels exceeds the sum of the output levels by more than 20 dB.***

2. Output level

   Sets the output level of the Pilot Channel.

   Initial value: -7 [dB]

   Related GPIB command C2F*n*PICH:CLV

   NOTE:

   1. ***If the Pilot Channel is selected as an output level adjustment channel, the output level is automatically set. (This means that the output level cannot be set arbitrarily.) When the output level adjustment channel selection is set to OFF, the level setting for each channel is the relative level between channels. (Refer to 2.3.4.1 "7".)***
   2. ***When an output adjustment channel is selected, channel level settings which cause the sum of the output levels to exceed 0 dB cannot be used.***
   3. ***When an output level adjustment channel is disabled, channel level settings which cause one of channel levels to exceed the sum of the output levels by more than 20 dB cannot be used. (Refer to 2.3.4.1 "7".)***

2.3.4.3 Sync Channel

This section describes the settings for the Sync Channel.

NOTE: Specify a Radio Configuration number for the value "n" in the related GPIB command.

---

1. Output ON/OFF

   Selects whether or not enable the Sync Channel output.

   Initial value: ON

   Related GPIB command C2F*n*SYNCH:CSW

   NOTE:

   1. ***If a Sync Channel is selected as a primary channel or an output level adjustment channel, the channel output cannot be set to OFF.***
   2. ***When an output adjustment channel is selected, you cannot change the channel settings from OFF to ON so that the sum of the output levels exceeds 0 dB.***
   3. ***When an output level adjustment channel is disabled, you cannot change the channel settings from OFF to ON so that one of channel levels exceeds the sum of the output levels by more than 20 dB.***

   ---

2. Output Level

   Sets the output level of the Sync Channel.

   Initial value: -1.1[dB]

   Related GPIB command C2F*n*SYNCH:CLV

   NOTE:

   1. ***If the Sync Channel is selected as an output level adjustment channel, the level is automatically set. (This means that the output level cannot be set arbitrarily.) When the output level adjustment channel selection is set to OFF, the level setting for each channel is the relative level between channels. (Refer to 2.3.4.1 "7".)***
   2. ***When an output adjustment channel is selected, channel level settings which cause the sum of the output levels to exceed 0 dB cannot be used.***
   3. ***When an output level adjustment channel is disabled, channel level settings which cause one of channel levels to exceed the sum of the output levels by more than 20 dB cannot be used. (Refer to 2.3.4.1 "7".)***

2.3.4.4 Forward Traffic Channel A, B and C

This section describes settings for Traffic Channel A, B and C.

Fundamental Channel and Supplemental Channel assignments to Traffic Channels A, B and C are fixed for Forward Link as shown in Table 2-39.

Table 2-39 Forward Link Traffic Channel Assignments

Traffic Channel	Radio Configuration 1, 2	Radio Configuration 3, 4, 5
Traffic Channel A	FCH: Fundamental Channel	SCH: Supplemental Channel
Traffic Channel B	FCH: Fundamental Channel	FCH: Fundamental Channel
Traffic Channel C	FCH: Fundamental Channel	SCH: Supplemental Channel

NOTE: ***In the related GPIB command, specify the Radio Configuration number for the value "n" and the channel name (A, B or C) for the value "#".***

1. Output ON/OFF

   Selects whether or not Traffic Channel output is enabled.

   Initial value: See the following table.

Table 2-40 Output ON/OFF Initial Value

Traffic Channel	Radio Configuration 1, 2	Radio Configuration 3, 4, 5
Traffic Channel A	ON	OFF
Traffic Channel B	OFF	ON
Traffic Channel C	OFF	OFF

Related GPIB command C2F*n*TRCH#:CSW

NOTE:

1. ***When Traffic Channel A, B or C is selected as a primary channel or an output level adjustment channel, the channel output cannot be set to OFF.***
2. ***When an output adjustment channel is selected, you cannot change the channel settings from OFF to ON so that the sum of the output levels exceeds 0 dB.***
3. ***When an output level adjustment channel is disabled, you cannot change the channel settings from OFF to ON so that one of channel levels exceeds the sum of the output levels by more than 20 dB.***

2. Output level

   Sets the output level of the Traffic Channel.

   Initial value: See the following table.

Table 2-41 Output Level Initial Value

Traffic Channel	Radio Configuration 1, 2	Radio Configuration 3, 4, 5
Traffic Channel A	-15.6 dB	-20.0 dB
Traffic Channel B	-20.0 dB	-15.6 dB
Traffic Channel C	-20.0 dB	-20.0 dB

Related GPIB command C2F*n*TRCH#:CLV

NOTE:

1. ***When Traffic Channel A, B or C is selected as an output level adjustment channel, the output level of the selected Traffic Channel is automatically set. (This means that the output level cannot be set arbitrarily.) When the output level adjustment channel selection is set to OFF, the level setting for each channel is the relative level between channels. (Refer to 2.3.4.1 "7".)***
2. ***When an output adjustment channel is selected, channel level settings which cause the sum of the output levels to exceed 0 dB cannot be used.***
3. ***When an output level adjustment channel is disabled, channel level settings which cause one of channel levels to exceed the sum of the output levels by more than 20 dB cannot be used. (Refer to 2.3.4.1 "7".)***

---

3. Channel configuration

   Selects the Traffic Channel from the combination of channel type, data rate and frame length for Radio Configuration 3, 2 and 5. Available combinations depend on the Radio Configuration and channel type. (See Table 3-2 in "Technical Reference.")

   Initial value: FCH, 9600 bps, 20 msec

   Related GPIB command C2F*n*TRCH#:CCONF

4. Information/Physical data

   Selects the data pattern of Information data input to the real-time coder or Physical data directly input to the spread spectrum block. If Traffic Channel A, B or C is selected as the coding target channel (refer to 2.3.4.1 "6"), the data pattern is used as Information data for the selected channel. If the channel is not selected as a coding target channel, the data pattern is used as Physical data for the channel.

   Initial value: PN9

   Related GPIB command C2F*n*TRCH#:DATA

Table 2-42 Information /Physical Data Selection

Selection	Description
PN9	Selects a 9-stage PN code data pattern.
PN15	Selects a 15-stage PN code data pattern.
ALL0	Selects all 0s.
ALL1	Selects all 1s.
REP	Selects an arbitrary 4-bit repeating pattern.

5. 4-bit repeating data pattern

   Sets an arbitrary 4-bit data pattern when REP is selected.

   Initial value: 5 [in hexadecimal notation]

   Related GPIB command C2F*n* TRCH#:REPD

6. Bit error addition ON/OFF

   Selects whether or not to add 1% error to the Information/Physical data pattern.

   Initial value: OFF

   Related GPIB command C2F*n* TRCH#:BERR

7. CRC Control

   Selects a CRC to be added to channel data from Table 2-43.

   Initial value: OFF

   Related GPIB command C2F*n* TRCH#:CRC

Table 2-43 CRC Error Setting

Selection	Description
ON	Correct CRC is used.
OFF	CRC is set to all 0s.
ADDERR	Errors are added to the CRC.

8. CRC Error

   Sets the error value that is added to the CRC. Table 2-44 lists the values that can be selected.

   The CRC error is added by inverting the correct CRC bit.

   Initial value: 0.02

   Related GPIB command C2F*n* TRCH#:CERR

Table 2-44 CRC Error Setting

Setting	Description
0.001	Adds 0.1% CRC errors.
0.005	Adds 0.5% CRC errors.
0.01	Adds 1% CRC errors.
0.02	Adds 2% CRC errors.

9. Block Interleaving ON/OFF

   Selects whether or not to perform Block Interleaving.

   Initial value: OFF

   Related GPIB command C2F*n* TRCH#:BINT

10. Fundamental Channel

    a. Data rate

       Selects the data rate. The data rate that can be selected depends on the Radio Configuration, channel type and frame length. (See Table 3-2 in "Technical Reference.")

       Initial value: RC1, 3, 4: 9600 [bps]
       RC2, 5: 14400 [bps]

       Related GPIB command C2F*n* TRCH#:FCH:RATE

    b. Frame length

       Selects the frame length. The frame length that can be selected depends on the Radio Configuration. (See Table 3-2 in "Technical Reference.")

       If the data rate exceeds the set range because the frame length has been changed, the data rate is automatically changed to the value which is closest to the set range.

       Example: RC5: 5 msec, 9600 bps → 20 msec, 14400 bps

       Initial value: 20 [msec]

       Related GPIB command C2R*n* TRCH#:FCH:FLEN

c. Walsh number

Sets the Walsh number. The Walsh number that can be selected depends on the Radio Configuration. (See Table 3-5 in "Technical Reference.")

Initial value: See the following table.

Table 2-45 Fundamental Channel Walsh Number Initial Value

Traffic Channel	Radio Configuration 1, 2	Radio Configuration 3, 5	Radio Configuration 4
Traffic Channel A	8	62	126
Traffic Channel B	62	8	8
Traffic Channel C	63	63	127

Related GPIB command C2R*n* TRCH#:FCH:WNO

d. QOF

For Forward Link RC3, RC4 and RC5, Quasi Orthogonal Spreading is available. Select Function 0 to 3 which complies with the Standard.

Initial value: 0

Related GPIB command C2R*n* TRCH#:FCH:QUASI

11. Supplemental Channel

a. FEC setting

Selects Convolutional Encoder or Turbo Encoder for coding.

CONV: Convolutional Encoder

TURB: Turbo Encoder

Initial value: CONV

Related GPIB command C2F*n* TRCH#:SCH:FEC

NOTE: ***The data rate limits the FEC setting. (See Table 3-10 in "Technical Reference.")***
When the data rate is changed, the FEC setting is automatically changed according to the limitation. When both Convolutional Encoder and Turbo Encoder can be selected, Turbo Encoder is selected as the initial value set when the FEC setting is changed.

---

b. Data rate

Selects the data rate. The data rate that can be selected depends on the Radio Configuration, channel type and frame length. (See Table 3-2 in "Technical Reference.")

Initial value: RC1, 3, 4: 9600 [bps]
RC2, 5: 14400 [bps]

Related GPIB command C2R*n* TRCH#:SCH:RATE

c. Frame length

Selects the frame length. The frame length that can be selected depends on the Radio Configuration. (See Table 3-2 in "Technical Reference.")

Initial value: 20 [msec]

Related GPIB command C2R*n* TRCH#:SCH:FLEN

NOTE:

1. ***If the data rate exceeds the set range because the changing of the frame length has been changed, the data rate is automatically changed to the value which is closest to the set range.***

   Example: RC3, 20 msec, 1500 bps → 40 msec, 2700 bps. (Actual rate: 1350 bps)

2. ***If the frame length is 40 ms or 80 ms, the actual data rate for the setting is as follows:***

   [Actual data rate] = [Data rate set value] / n
   Frame length 40 msec → n = 2
   Frame length 80 msec → n = 4

---

d. Walsh number

Selects the Walsh number. The Walsh number that can be selected depends on the frame length and data rate settings. (See Table 3-6 and Table 3-8 in "Technical Reference.")

Initial value:

Table 2-46 Supplemental Channel Initial value of Walsh Number

Traffic Channel	RC3, 5	RC4
Traffic Channel A	62	126
Traffic Channel C	63	127

Related GPIB command C2R*n* TRCH#:SCH:WNO

NOTE: ***If the Walsh number exceeds the set range because the frame length, the data rate or the Walsh length has been changed, the Walsh length is automatically changed to the value which is closest to the set range.***

---

e. QOF

For Forward Link RC3, RC4 and RC5, Quasi Orthogonal Spreading is available. Select Function 0 to 3 which complies with the Standards.

Initial value: 0

Related GPIB command C2R*n* TRCH#:SCH:QUASI

2.3.5 Selftest/Calibration

This section describes how to set or select each of the functions related to the selftest and calibration of the instrument. An explanation for each function is presented below.

1. Modulator Calibration

   Calibrates the balance of the IQ modulator.

   Related GPIB command CMOD

CAUTION: ***It takes approximately 10 to 30 seconds to perform the modulator calibration.***

2. Modulator Calibration Correction ON/OFF

   Selects whether or not to reflect the correction data obtained by the modulator calibration.

   Related GPIB command CMC

Table 2-47 Modulator Calibration Correction Data ON/OFF

Selection	Description
ON	Reflects the correction data obtained by the modulator calibration.
OFF	Does not reflect the correction data obtained by the modulator calibration.

CAUTION: ***ON of the above selection is automatically set when the modulator calibration is performed.***

3. AWGN Calibration

   Calibrates the level of AWGN relative to the level of the cdma signal. Before a Generator mode is selected for Eb/No (Nt), calibration must be performed.

   Related GPIB command CWGN

CAUTION: ***Calibration requires about 10 to 30 seconds to complete.***

4. AWGN Calibration Correction ON/OFF

   Selects whether or not correction data is referenced after AWGN calibration is performed.

   Related GPIB command CAC

CAUTION: ***ON of the above selection is automatically set when the AWGN calibration is performed.***

5. Selftest

Performs a selftest for each block of the instrument. All indicator lamps on the front panel are lit while the selftest is running. On completion of the selftest, an alarm is sounded once. If an error is detected as a result of the selftest, all indicator lamps remain lit. When the selftest has been completed normally, the status immediately before the selftest is restored.
The results of the selftest can be read through GPIB and are stored into the 16-bit register. The results of the selftest are notified by outputting the value contained in the register. If an error has been detected, the corresponding bit is set to "1"; otherwise, the corresponding bit is reset to "0."
The highest three bits (d15 through d13) are always set to "0." See Figure 2-11.

Related GPIB command *TST

Figure 2-11 shows the allocation of the selftest result storage register used when the cdma 2000 option is added.

			Block Name												
			OPT 65	ATT	RF-AMP		MOD		SYNTHE		BASE BAND		CPU		
d15	d14	d13	d12	d11	d10	d9	d8	d7	d6	d5	d4	d3	d2	d1	d0

d15 to d13: 0
d12: Option 65
d11: Adjustment ROM
d10: ALC Circuit
d9: Adjustment ROM
d8: -
d7: Adjustment ROM
d6: -
d5: Adjustment ROM
d4: Peripheral Device
d3: Coder Block
d2: Peripheral Device
d1: Communicaton RAM
d0: Back-up RAM

Figure 2-11 Bit Assignment of the Selftest Result Storing Register

2.3.6 Clock/Timing Signals

This section describes the functions and settings related to clock/timing signals for this instrument.

*NOTE: **The adjustment of the 10 MHz reference source is identical to the adjustment for the standard R3562. (Refer to 3.8(2) in the R3562 Receiver Test Source Operational Manual.)***

1. SYNTHE REFIN IN

   Selects the Reference Frequency that is supplied from SYNTHE REF IN on the rear panel and used as the reference for the RF synthesizer. When INTERNAL is selected, the signal from the internal reference oscillator is supplied to the RF synthesizer. Table 2-48 shows the selectable reference frequencies.

   Initial value: INTERNAL

   Related GPIB command RSYN

Table 2-48 Selectable Reference Frequencies (Synthe Reference)

Selection	Reference frequency
INTERNAL	INTERNAL (10 MHz)
C0	1 MHz
C1	1.2288 MHz
C2	2 MHz
C3	2.4576 MHz
C4	4.9152 MHz
C5	5 MHz
C6	9.8304 MHz
C7	10 MHz
C8	15 MHz
C9	19.6608 MHz

2. MOD TIME BASE IN

Selects the Reference Frequency that is supplied from MOD TIME BASE IN on the front panel and used as reference for modulation block. When INTERNAL is selected, the signal from the internal reference oscillator is supplied to the modulation block. Table 2-49 shows the selectable reference frequencies.

Initial value: INTERNAL

Related GPIB command MODTB

Table 2-49 Selectable Reference Frequencies (Synthe Reference)

Selection	Reference frequency
INTERNAL	INTERNAL (10 MHz)
C0	1 MHz
C1	1.2288 MHz
C2	2 MHz
C3	2.4576 MHz
C4	4.9152 MHz
C5	5 MHz
C6	9.8304 MHz
C7	10 MHz
C8	15 MHz
C9	19.6608 MHz

3. CLOCK OUT 1, 2

Selects the type of output signal from CLOCK OUT 1 and 2 on the rear panel. Table 2-50 shows the signals that can be selected.

Value after the execution of preset: OFF

Related GPIB commands: REAROUT1 , REAROUT2

Table 2-50 CLOCK OUT 1, 2

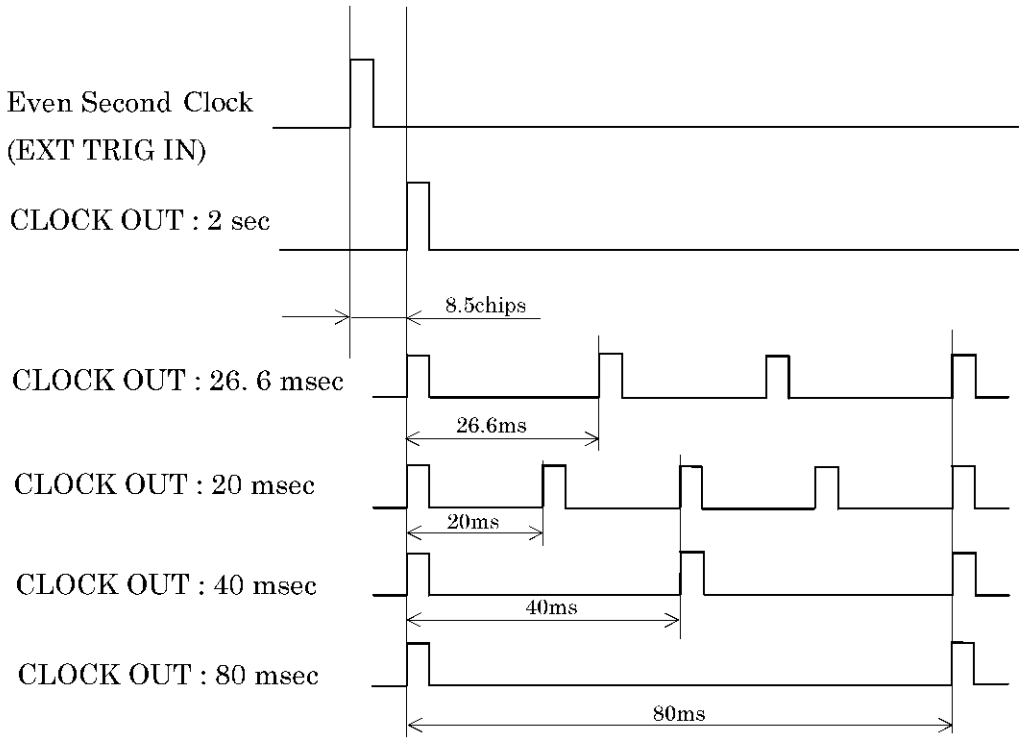
Selection	Description
OFF	Turns the output OFF.
T0	20 msec: Outputs Traffic Channel frame timing.
T1	26.6 msec: Outputs Sync Channel frame timing.
T2	80 msec: Outputs Sync Channel Super frame timing.
T3	2 sec: Outputs Even Second Signal from the internal baseband block.
T4	5 msec: Outputs FCH and DCCH Channel frame timing.
T5	Outputs a chip clock at 1.2288 MHz.
EXTERNAL	Outputs Even Second Signal from EXT TRIG IN.

3. TECHNICAL REFERENCES

This chapter provides technical and supplemental information for the instrument.

3.1 Even Second SYNC/CLOCK OUT

Figure 3-1 shows the timing chart of Even Second Clock and CLOCK OUT 1 or 2.



PNoffset (EXT TRIG Delay): 0

Figure 3-1 Timing chart of CLOCK OUT

NOTE: ***For Forward Link, there is no function that synchronizes CLOCK OUT with the Even Second (EXT TRIG IN) clock.***

3.2 Channel Settings

This section describes combinations of frame length data rate and Walsh code that can be selected for this instrument.

3.2.1 Settings for frame length and data rate

Table 3-1 and Table 3-2 shows selectable data rates corresponding to the frame length for Fundamental Channel and Supplemental Channel.

Table 3-1 Frame Length and Data Rate for Reverse Link (1 of 2)

Radio Configuration / Frame Length	Data rate [bps]			
	5 [msec]	20 [msec]	40 [msec]	80 [msec]
Reverse RC1		9600		
		4800		
		2400		
		1200		
Reverse RC2		14400		
		7200		
		3600		
		1800		
Reverse RC3		307200	153600	76800
		153600	76800	38400
		76800	38400	19200
		38400	19200	9600
		19200	9600	4800
	9600	9600	4800	2400
		4800	2400	1200
		2700	1350	
		1500		

Table 3-1 Frame Length and Data Rate for Reverse Link (2 of 2)

Radio Configuration	Data rate [bps]			
Frame Length	5 [msec]	20 [msec]	40 [msec]	80 [msec]
Reverse RC4		230400	115200	57600
		115200	57600	28800
		57600	28800	14400
		28800	14400	7200
		14400	7200	3600
	9600			
		7200	3600	1800
		3600	1800	
		1800		

Fundamental, Supplemental 1, Supplemental 2

Supplemental 1, Supplemental 2

Fundamental

Supplemental 1

NOTE: ***Use the values corresponding to the frame length settings of 5 ms and 20 ms for the data rate setting. When the frame length is changed to 40 ms or 80 ms, the actual data rate is also changed to the value shown in Table 3-1.***

Table 3-2 Frame Length and Data Rate for Forward Link (1 of 2)

Radio Configuration / Frame Length	5 [msec]	20 [msec]	40 [msec]	80 [msec]
Forward RC1		9600		
		4800		
		2400		
		1200		
Forward RC2		14400		
		7200		
		3600		
		1800		
Forward RC3				
		153600	76800	38400
		76800	38400	19200
		38400	19200	9600
		19200	9600	4800
	9600	9600	4800	2400
		4800	2400	1200
		2700	1350	
		1500		
Forward RC4		307200	153600	76800
		153600	76800	38400
		76800	38400	19200
		38400	19200	9600
		19200	9600	4800
	9600	9600	4800	2400
		4800	2400	1200
		2700	1350	
		1500		

Table 3-2 Frame Length and Data Rate for Forward Link (2 of 2)

Radio Configuration	Data rate [bps]			
Frame Length	5 [msec]	20 [msec]	40 [msec]	80 [msec]
Forward RC5		230400	115200	57600
		115200	57600	28800
		57600	28800	14400
		28800	14400	7200
		14400	7200	3600
	9600			
		7200	3600	1800
		3600	1800	
		1800		

Fundamental, Supplemental

Supplemental

Fundamental

NOTE: ***Use the values corresponding to the frame length settings of 5 ms and 20 ms for the data rate setting. When the frame length is changed to 40 ms or 80 ms, the actual data rate is changed to the value shown in Table 3-2.***

3.2.2 Settings for Walsh Code

Tables 3-3 through 3-8 show the Walsh codes which can be selected for the data rate setting of Supplemental Channel.

Table 3-3 Data Rate and Walsh Code for Reverse Link RC3

<table>
<tr><th rowspan="3">Frame Length</th><th rowspan="3">Data Rate
*R3562 Setting
[bps]</th><th rowspan="3">Symbol Rate
[sps]</th><th colspan="4">Walsh Code</th></tr>
<tr><th colspan="2">Supplemental 1</th><th colspan="2">Supplemental 2</th></tr>
<tr><th>Length</th><th>No.</th><th>Length</th><th>No.</th></tr>
<tr><td rowspan="10">20 [msec]</td><td>307200</td><td>614400</td><td>2</td><td>1</td><td>-</td><td>-</td></tr>
<tr><td>153600</td><td>614400</td><td>2</td><td>1</td><td>-</td><td>-</td></tr>
<tr><td>76800</td><td>307200</td><td rowspan="8" colspan="2">Length =2, No=1
or
Length =4, No=2</td><td>4</td><td>2</td></tr>
<tr><td>38400</td><td>153600</td><td rowspan="8" colspan="2">Length =4, No=2
or
Length =8, No=6</td></tr>
<tr><td>19200</td><td>76800</td></tr>
<tr><td>9600</td><td>76800</td></tr>
<tr><td>4800</td><td>76800</td></tr>
<tr><td>2700</td><td>76800</td></tr>
<tr><td>1500</td><td>76800</td></tr>
<tr><td rowspan="10">40 [msec]</td><td>307200 (153600)</td><td>307200</td><td rowspan="10" colspan="2">Length =2, No=1
or
Length =4, No=2</td><td>4</td><td>2</td></tr>
<tr><td>153600 (76800)</td><td>307200</td><td>4</td><td>2</td></tr>
<tr><td>76800 (38400)</td><td>153600</td><td rowspan="9" colspan="2">Length =4, No=2
or
Length =8, No=6</td></tr>
<tr><td>38400 (19200)</td><td>76800</td></tr>
<tr><td>19200 (9600)</td><td>76800</td></tr>
<tr><td>9600 (4800)</td><td>76800</td></tr>
<tr><td>4800 (2700)</td><td>76800</td></tr>
<tr><td>2700 (1500)</td><td>76800</td></tr>
<tr><td rowspan="9">80 [msec]</td><td>307200 (38400)</td><td>153600</td><td rowspan="9" colspan="2">Length =2, No=1
or
Length =4, No=2</td><td rowspan="9" colspan="2">Length =4, No=2
or
Length =8, No=6</td></tr>
<tr><td>153600 (19200)</td><td>153600</td></tr>
<tr><td>76800 (19200)</td><td>76800</td></tr>
<tr><td>38400 (9600)</td><td>76800</td></tr>
<tr><td>19200 (4800)</td><td>76800</td></tr>
<tr><td>9600 (2700)</td><td>76800</td></tr>
<tr><td>4800 (1500)</td><td>76800</td></tr>
</table>

NOTE:

1. *Use the values corresponding to the frame length settings of 5 ms and 20 ms for the data rate setting. When the frame length is changed to 40 ms or 80 ms, the actual data rate is changed to the value shown in ().*
2. *When the Walsh length is changed, Walsh No. is changed automatically.*

Table 3-4 Data Rate and Walsh Code for Reverse Link RC4

Frame Length	Data Rate *R3562 Setting [bps]	Symbol Rate [sps]	Walsh Code			
			Supplemental 1		Supplemental 2	
			Length	No.	Length	No.
20 [msec]	230400	614400	2	1	-	-
	115200	307200	Length =2, No=1 or Length =4, No=2		4	2
	57600	153600			Length =4, No=2 or Length =8, No=6	
	28800	76800				
	14400	76800				
	7200	76800				
	3600	76800				
	1800	76800				
40 [msec]	230400 (115200)	307200	Length =2, No=1 or Length =4, No=2		4	2
	115200 (57600)	153600			Length =4, No=2 or Length =8, No=6	
	57600 (28800)	76800				
	28800 (14400)	76800				
	14400 (7200)	76800				
	7200 (3600)	76800				
	3600 (1800)	76800				
80 [msec]	230400 (115200)	153600	Length =2, No=1 or Length =4, No=2		Length =4, No=2 or Length =8, No=6	
	115200 (57600)	76800				
	57600 (28800)	76800				
	28800 (14400)	76800				
	14400 (7200)	76800				
	7200 (3600)	76800				

NOTE:

1. ***Use the values corresponding to the frame length settings of 5 ms and 20 ms for the data rate setting. When the frame length is changed to 40 ms or 80 ms, the actual data rate is changed to the value shown in ().***
2. ***When the Walsh length is changed, Walsh No. is changed automatically.***

Table 3-5 Data Rate and Walsh Code for Forward Fundamental Channel

Radio Configuration	Data Rate *R3562 Setting [bps]	Symbol Rate [sps]	Walsh Code	
			Length	No.
RC 1	9600	19200	64	8 to 31 33 to 63
	4800			
	2400			
	1200			
RC 2	14400	19200	64	8 to 31 33 to 63
	7200			
	3600			
	1800			
RC 3	9600	38400	64	8 to 31 33 to 63
	4800			
	2700			
	1500			
RC 4	9600	19200	128	8 to 31 33 to 63
	4800			
	2700			
	1500			
RC 5	14400	38400	64	8 to 31 33 to 63
	9600			
	7200			
	3600			
	1800			

NOTE: ***The Walsh length is selected automatically based on the RC (Radio Configuration).***

Table 3-6 Data Rate and Walsh Code for Forward RC3 Supplemental Channel

Frame Length	Data Rate [bps]	Symbol Rate [sps]	Walsh Code	
			Length	No.
20 [msec]	153600	614400	4	0 to 3
	76800	307200	8	0 to 7
	38400	153600	16	0 to 15
	19200	76800	32	0 to 31
	9600	38400	64	0 to 63
	4800			
	2700			
	1500			
40 [msec]	153600 (76800)	307200	8	0 to 7
	76800 (38400)	153600	16	0 to 15
	38400 (19200)	76800	32	0 to 31
	19200 (9600)	38400	64	0 to 63
	9600 (4800)	19200		
	4800 (2400)			
	2700 (1350)			
80 [msec]	153600 (38400)	153600	16	0 to 15
	76800 (19200)	76800	32	0 to 31
	38400 (9600)	38400	64	0 to 63
	19200 (4800)	19200		
	9600 (2400)	9600		
	4800 (1200)			

NOTE:

1. ***Use the values corresponding to the frame length settings of 5 ms and 20 ms for the data rate setting. When the frame length is changed to 40 ms or 80 ms, the actual data rate is changed to the value shown in ().***
2. ***When the frame length and data rate are changed, the Walsh length is automatically changed as shown in Table 3-6. When the selected Walsh No. exceeds the selectable range, the nearest selectable value is selected automatically.***

Table 3-7 Data Rate and Walsh Code for Forward RC4 Supplemental Channel

Frame Length	Data Rate [bps]	Symbol Rate [sps]	Walsh Code	
			Length	No.
20 [msec]	307200	614400	4	0 to 3
	153600	307200	8	0 to 7
	76800	153600	16	0 to 15
	38400	76800	32	0 to 31
	19200	38400	64	0 to 63
	9600	19200	128	0 to 127
	4800			
	2700			
	1500			
40 [msec]	307200 (153600)	307200	8	0 to 7
	153600 (76800)	153600	16	0 to 15
	76800 (38400)	76800	32	0 to 31
	38400 (19200)	38400	64	0 to 63
	19200 (9600)	19200	128	0 to 127
	9600 (4800)	9600		
	4800 (2400)			
	2700 (1350)			
80 [msec]	307200 (76800)	153600	16	0 to 15
	153600 (38400)	76800	32	0 to 31
	76800 (19200)	38400	64	0 to 63
	38400 (9600)	19200	128	0 to 127
	19200 (4800)	9600		
	9600 (2400)	4800		
	4800 (1200)			

NOTE:

1. ***Use the values corresponding to the frame length settings of 5 ms and 20 ms for the data rate setting. When the frame length is changed to 40 ms or 80 ms, the actual data rate is changed to the value shown in ().***
2. ***When the frame length and data rate are changed, the Walsh length is automatically changed as shown in Table 3-7. When the selected Walsh No. exceeds the selectable range, the nearest selectable value is selected automatically***

Table 3-8 Data Rate and Walsh Code for Forward RC5 Supplemental Channel

Frame Length	Data Rate [bps]		Symbol Rate [sps]	Walsh Code	
				Length	No.
20 [msec]	230400		614400	4	0 to 3
	115200		307200	8	0 to 7
	57600		153600	16	0 to 15
	28800		76800	32	0 to 31
	14400		38400	64	0 to 63
	7200				
	3600				
	1800				
40 [msec]	230400	(115200)	307200	8	0 to 7
	115200	(57600)	153600	16	0 to 15
	57600	(28800)	76800	32	0 to 31
	28800	(14400)	38400	64	0 to 63
	14400	(7200)	19200		
	7200	(3600)			
	3600	(1800)			
80 [msec]	230400	(57600)	153600	16	0 to 15
	115200	(28800)	76800	32	0 to 31
	57600	(14400)	38400	64	0 to 63
	28800	(7200)	19200		
	14400	(3600)	9600		
	7200	(1800)			

NOTE:

1. ***Use the values corresponding to the frame length settings of 5 ms and 20 ms for the data rate setting. When the frame length is changed to 40 ms or 80 ms, the actual data rate is changed to the value shown in ().***
2. ***When the frame length and data rate are changed, the Walsh length is automatically changed as shown in Table 3-8. When the selected Walsh No. exceeds the selectable range, the nearest selectable value is selected automatically.***

3.3 Real-time Coding

Figure 3-2 shows the real-time coding specification for this instrument.

3.3.1 Fundamental Channel

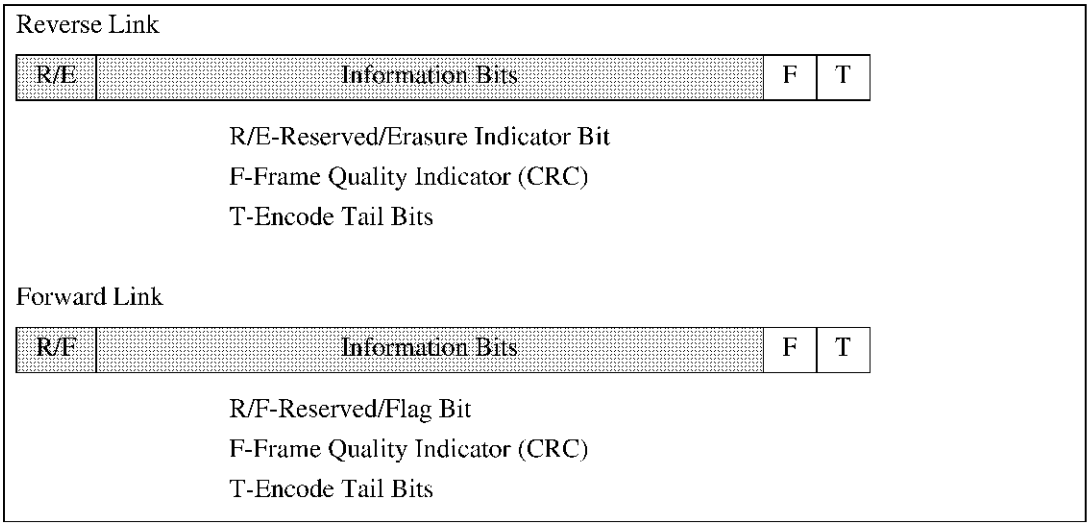


Figure 3-2 Fundamental Channel Frame Structure

Table 3-9 Fundamental Channel Frame Structure & Error Correction Summary

LINK-RC	Data Rate [bps]	Number of bits per frame					Error Correction
		Total	R/F R/E	Informa-tion	Frame Quality Indicator	T	
F-1 R-1	9600	192	0	172	12	8	Convolutional
	4800	96	0	80	8	8	Convolutional
	2400	48	0	40	0	8	Convolutional
	1200	24	0	16	0	8	Convolutional
F-2 R-2	14400	288	1	267	12	8	Convolutional
	7200	144	1	125	10	8	Convolutional
	3600	72	1	55	8	8	Convolutional
	1800	36	1	21	6	8	Convolutional
F-3 F-4 R-3	9600 (5 ms)	48	0	24	16	8	Convolutional
	9600 (20 ms)	192	0	172	12	8	Convolutional
	4800	96	0	80	8	8	Convolutional
	2700	54	0	40	6	8	Convolutional
	1500	30	0	16	6	8	Convolutional
F-5 R-4	9600 (5 ms)	48	0	24	16	8	Convolutional
	14400	288	1	267	12	8	Convolutional
	7200	144	1	125	10	8	Convolutional
	3600	72	1	55	8	8	Convolutional
	1800	36	1	21	6	8	Convolutional

Note: F: Forward Link, R: Reverse Link

3.3.2 Supplemental Channel

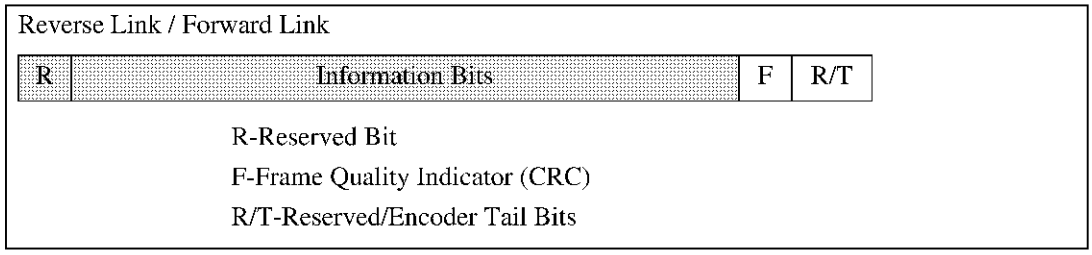


Figure 3-3 Supplemental Channel Frame Structure

Table 3-10 Supplemental Channel Frame Structure & Error Correction Summary

LINK-RC	Data Rate [bps]			Number of Bits per Frame					Error Correction
	Frame Length [ms]			Total	R	Information	Frame Quality Indicator	R/T	
	20	40	80						
F-4 R-3	307200	153600	76800	6144	0	6120	16	8	Turbo
F-3 F-4 R-3	153600	76800	38400	3072	0	3048	16	8	Turbo or Conv.
	76800	38400	19200	1536	0	1512	16	8	Turbo or Conv.
	38400	19200	9600	7680	0	744	16	8	Turbo or Conv.
	19200	9600	4800	384	0	360	16	8	Turbo or Conv.
	9600	4800	2700	192	0	172	12	8	Convolutional
	4800	2400	1200	96	0	80	8	8	Convolutional
	2700	1350	-	54	0	40	6	8	Convolutional
	1500	-	-	30	0	16	6	8	Convolutional
F-5 R-4	230400	115200	57600	4608	0	4584	16	8	Turbo
	115200	57600	28800	2304	0	2280	16	8	Turbo or Conv.
	57600	28800	14400	1152	0	1128	16	8	Turbo or Conv.
	28800	14400	7200	576	0	552	16	8	Turbo or Conv.
	14400	7200	3600	288	1	267	12	8	Convolutional
	7200	3600	1800	144	1	125	10	8	Convolutional
	3600	1800	-	72	1	55	8	8	Convolutional
	1800	-	-	36	1	21	6	8	Convolutional

Note: F: Forward Link, R: Reverse Link

NOTE: ***Use the values corresponding to a frame length of 20 ms for the data rate setting.***

3.3.3 Reverse Dedicated Control Channel

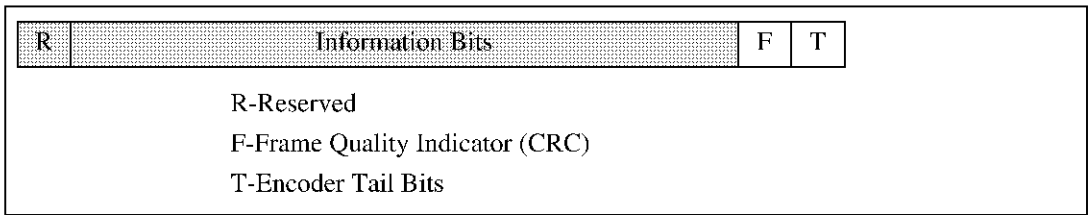


Figure 3-4 Dedicated Control Channel Frame Structure

Table 3-11 Dedicated Control Channel Frame Structure & Error Correction Summary

Frame Length [ms]	Data Rate [bps]	Number of bits per frame					Error Correction
		Total	R	Information	Frame Quality Indicator	T	
20	9600	192	0	172	12	8	Convolutional
20	14400	288	1	267	12	8	Convolutional
5	9600	48	0	24	16	8	Convolutional

4. GPIB

This chapter explains the GPIB command syntax and provides a sample GPIB program.

4.1 Command Syntax

The following three formats are used, depending on the type of command.

1. Consists of a header followed by a space and a parameter

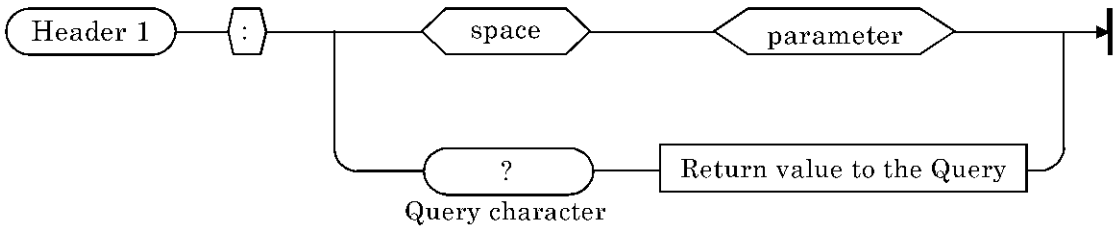


Figure 4-1 Command Syntax 1

2. Consists of a header with two elements separated with a colon, followed by a space and a parameter

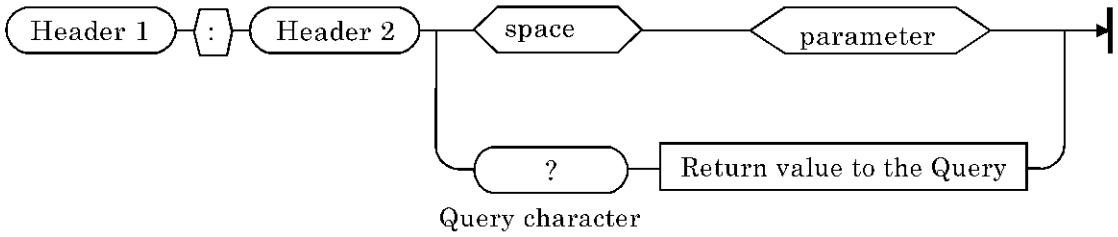


Figure 4-2 Command Syntax 2

3. Consists of a header with three elements separated with colons, followed by a space and a parameter

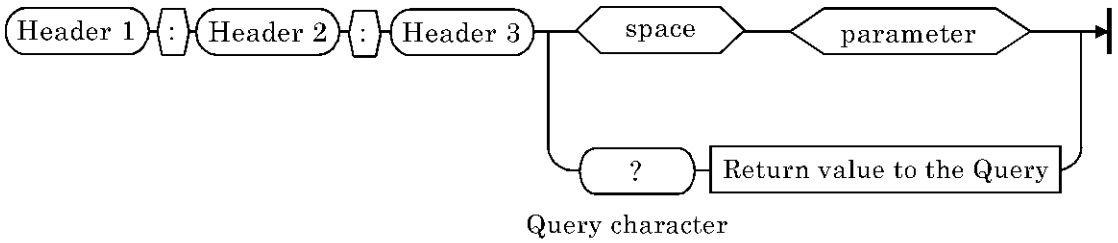


Figure 4-3 Command Syntax 3

4.2 Status Byte

This section explains each bit in the status byte and the set and reset conditions.

b7	b6	b5	b4	b3	b2	b1	b0
X	X	X	X	X	X	X	X

b0: Measure end
"1" is set when a BER measurement has been completed.
"0" is set when the status byte is cleared using the CSB command or the status byte is output using the *STB? command.

b1: Syntax error
"1" is set when the syntax or setting of a received program code is incorrect.
"0" is set when the subsequent program code is received.

b2: Measurement error
"1" is set when an error occurs during a BER measurement.
"0" is set when the status byte is cleared using the CSB command or a status register is output using the MST? command.

b3: Calibration end
"1" is set when a calibration has been completed.
"0" is set when the CSB, *STB?, CWGN or CMOD command is used.

b4: Calibration error
"1" is set when a calibration error occurs.
"0" is set when the CSB, *STB?, CWGN, or CMOD command is used, or when a calibration has been completed normally.

b6: Service request enable
"1" is set when b1, b3 or b4 is set to 1.
"0" is set when both b1 and b3 are set to 0. This bit cannot be disabled by the status byte enable command *SRE. Therefore this bit is always enabled.

4.3 Measurement Status Register

This section explains each bit of the measurement status register and the set and reset conditions.

b7	b6	b5	b4	b3	b2	b1	b0
X	X	X	X	X	X	X	X

b0: Sync error
"1" is set when synchronization with the data from the DATA connector used for BER measurements cannot be completed during BER measurement.
"0" is set when the measurement status register is cleared using the CSB command or the measurement status register data is output using the MST? command.

b1: Clock error
"1" is set when the CLOCK signal is not detected at the CLOCK connector used for the BER measurement during BER measurements.
"0" is set when the measurement status register is cleared using the CSB command or the measurement status register data is output using the MST? command.

4.4 Sample Program

CAUTION: ***This sample program is written in Visual Basic 4.0, and. assumes that a National Instruments GPIB control board and control driver are being used.***

<Sample program> After making the settings, reads and displays the BER measurement results.

```
'*******************************************************************************
'  --- Sample program ---
'  OUTPUT CONDITION >>> FREQUENCY              : 800MHz
'                       OUTPUT LEVEL           : -80dBm
'                       LINK                   : Forward Link , RC3
'*******************************************************************************
Dim R3562 As Integer
Dim Resp As Integer

Dim Board_D As Integer
Dim read_buf As String

Call  ibdev(0, 8, 0, T20s, 1, 0, R3562)         'GPIB device oper
Call ibclr(R3562)                               'Device Clear
Call ibwrt(R3562, "DEL 3")                      'Delimiter CR+LF+EOI
Call ibwrt(R3562, "IP")                         'Preset
Call  ibwrt(R3562, "FR 800MZ")                  'Frequency    800MHz
Call ibwrt(R3562, "AP -80DM")                   'Output level -80dBm

Call ibwrt(R3562, "C2F3GEN SIGO")               'Generator mode  Signal Only
Call  ibwrt(R3562, "LINK FOR")                  'Forward  ink
Call  ibwrt(R3562, "C2FRC 3")                   'Radio Configuration 3
Call ibwrt(R3562, "C2FEQFLT ON")                'Equalizing filter  ON
Call ibwrt(R3562, "C2F3PICH:CSW ON")            'Pilot channel  ON
Call ibwrt(R3562, "C2F3SYNCH:CSW ON")           'Sync channel   ON
Call  ibwrt(R3562, "C2F3TRCHA:CSW OFF")         'Traffic channe  A  OFF
Call ibwrt(R3562, "C2F3TRCHB:CSW ON")           'Traffic channel B  ON
Call ibwrt(R3562, "C2F3TRCHC:CSW OFF")          'Traffic channel C  OFF
Call ibwrt(R3562, "C2F3PR TRCHB")               'Primary channel  TRCHB
Call  ibwrt(R3562, "C2F3SE TRCHA")              'Coding channel   TRCHA
Call  ibwrt(R3562, "C2F3PAC SYNCH")             'Power Supplementa  channel  SYNCH

Call ibwrt(R3562, "C2F3TRCHB:DATA PN9")         'TRCHB(FCH) Information data     PN9
Call ibwrt(R3562, "C2F3TRCHB:BERR OFF")         'TRCHB(FCH) Bit error            OFF
Call  ibwrt(R3562, "C2F3TRCHB:CRC ON")          'TRCHB(FCH) CRC                  ON
Call  ibwrt(R3562, "C2F3TRCHB:BINT ON")         'TRCHB(FCH) Block Interleaving   ON
Call ibwrt(R3562, "C2F3TRCHB:FCH:FLEN 0.02S")   'TRCHB(FCH) Frame length         20 msec
Call ibwrt(R3562, "C2F3TRCHB:FCH:RATE 9600")    'TRCHB(FCH) Data rate            9600 bps
Call ibwrt(R3562, "C2F3TRCHB:FCH:WNO 8")        'TRCHB(FCH) Walsh No.            8
Call  ibwrt(R3562, "C2F3TRCHB:FCH:QUAS 0")      'TRCHB(FCH) QOF                  0

Call ibwrt(R3562, "C2F3P_CH:CLV -7DB")          'Pilot channel level           -7 dB
Call ibwrt(R3562, "C2F3TRCHB:CLV  15.6DB"       'TECHB(FCH) channel level    15.6 dB
Call  ibwrt(R3562, "C2FTBNO -10DB")             'Eb/No(Nt)                  -10.0 dB


'               Set Up The MS (Test Mode)


Call ibwrt(R3562, "BMDAT PN9")                  'Measure Data  PN9
Call ibwrt(R3562, "BLEN 2556")                  'Bit length  2556 bits
```

4.4 Sample Program

```
Call ibwrt(R3562, "BCLK NEG")                    'Clock polarity negative edge
Call ibwrt(R3562, "BDAT POS")                    'Data polarity positive

Call ibfind("GPIB0", BoardID)
Call ibwrt(R3562, "*SRE 1")                      'Measure END Status enable
Call ibwrt(R3562, "CSB")                         'Status Byte clear
Call ibwrt(R3562, "SRQ 1")                       'SRQ ON mode
Call ibgts(BoardID, 0)

Call ibwrt(R3562, "BER")                         'BER Measure start

    DoEvents
    Do
        Call WaitSRQ(BoardID, Resp)              'wait Measure end
        If Resp = 1 Then Exit Do
    Loop

Call ibwrt(R3562, "BER?")                        'Read BER value
read_buf = Space(20)
Call ibrd(R3562, read_buf)
Text1.Text = read_buf                            'Display BER value
```

4.5 Command List

NOTE: Since some commands require time to be processed, set the GPIB I/O timeout period to at least 20 seconds.

Table 4-1 Commands Related to the System

Function	Command Header	Parameter		Query Command	Query Data
Preset (initialization)	IP	---		---	---
SRQ signal control	SRQ	0	Does not transmit SRQ.	SRQ?	0 to 1
		1	Transmits SRQ.		
Status byte clearing	CSB	---		---	---
Status byte output	---	---		*STB?	0 to 255
Status byte enabling	*SRE	0 to 255	(1:Enable)	*SRE?	0 to 255
Measurement status output	---	---		MST?	0 to 255
Terminator specification	DEL	0	LF <EOI>	DEL?	0 to 3
		1	LF		
		2	EOI		
		3	CR LF <EOI>		
System revision reading	---	---		*IDN?	See to Table 4-21

Table 4-2 Commands Related to the Output Frequency

Function	Command Header	Parameter		Query Command	Query Data
<Direct Input>					
Output frequency setting	FR	Real number HZ	Hz	FR?	See to Table 4-22
		KZ	kHz		
		MZ	MHz		
		GZ	GHz		
<Channel Number Input>					
Channel number setting	CH	Integer		CH?	Integer
Start frequency setting	CSF	Real number HZ	Hz	CSF?	See to Table 4-22
		KZ	kHz		
		MZ	MHz		
		GZ	GHz		
Channel spacing setting	CSP	Real number HZ	Hz	CSP?	See to Table 4-22
		KZ	kHz		
		MZ	MHz		
		GZ	GHz		
Channel start number setting	CSN	Integer		CSN?	Integer

Table 4-3 Commands Related to the Output Level

Function	Command Header	Parameter		Query Command	Query Data
Output ON/OFF setting	OUT	ON/OFF		OUT?	ON/OFF
Output level setting	AP	Real number DM	dBm	AP?	See to Table 4-22
		Real number DU	dBμVemf		
Query data unit specification	UNL	0	dBm	UNL?	0 to 1
		1	dBμVemf		
Output level upper limit setting	OLM	Real number DM	dBm	OLM?	See to Table 4-22
		Real number DU	dBμVemf		
Output level offset ON/ OFF setting	OOF	ON/OFF		OOF?	ON/OFF
Output level offset value setting	OOS	Real number DB	dB	OOS?	See to Table 4-22
ALC mode setting	ALCM	AUTO	Auto	ALCM?	AUTO/SH/ HOLD
		SH	Sample & Hold		
		HOLD	Hold		

Table 4-4 Common Settings for Links

Function	Command Header	Parameter	Query Command	Query Data
Communication System	COMSYS	CDMA2000 3GPP	COMSYS?	CDMA2000 3GPP
Modulation ON/OFF	MOD	**ON** OFF	MOD?	ON OFF
IQ IN/OUT connector direction	IQDIR	**OFF** INPUT OUTPUT	IQDIR?	OFF INPUT OUTPUT
LINK	LINK	**REV** FOR	LINK?	REV FOR

Note: Parameters listed in bold type are preset values.

Table 4-5 Common Settings for Reverse Link

Function	Command Header	Parameter	Query Command	Query Data
Radio Configuration	C2RRC	**1** 2 3 4	C2RRC?	1 2 3 4
Generator mode	C2RGEN	**SIGO** NOIO EBNO	C2RGEN?	SIGO NOIO EBNO
Eb/No(Nt)	C2REBNO	Real number DB **(10)**	C2REBNO?	See to Table 4-22
External trigger (Even Second) Sync.	C2ETRG	**DISABLE** ENABLE	C2ETRG?	ENABLE DISABLE
PN offset value (EXT TRIG Delay)	C2PNOFF	Real number **(0)**	C2PNOFF?	See to Table 4-22

Note: Parameters listed in bold type are preset values.

Table 4-6 Reverse Link Radio Configuration 1 Settings

Function		Command Header	Parameter	Query Command	Query Data
Primary channel (Fixed)		C2R1PR	**TRCHA**	C2R1PR?	TRCHA
Coding target channel		C2R1RT	**TRCHA** OFF	C2R1RT?	TRCHA OFF
Burst ON/OFF (Common setting for RC1 and RC2)		C2BUR	ON **OFF**	C2BUR?	ON OFF
Fundamental Channel (Reverse Traffic Channel A)	Information/Physical data	C2R1TRCHA:DATA	**PN9** PN15 ALL0 ALL1 REP	C2R1TRCHA:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeating data pattern	C2R1TRCHA:REPD	Hexadecimal digit (0 to F) **(5)**	C2R1TRCHA:REPD?	Hexadecimal digit (0 to F)
	Bit error addition ON/OFF	C2R1TRCHA:BERR	ON **OFF**	C2R1TRCHA:BERR?	ON OFF
	CRC control	C2R1TRCHA:CRC	**ON** OFF ADDERR	C2R1TRCHA:CRC?	ON OFF ADDERR
	CRC error addition value	C2R1TRCHA:CERR	0.001 0.005 0.01 **0.02**	C2R1TRCHA:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2
	Block Interleaving ON/OFF	C2R1TRCHA:BINT	**ON** OFF	C2R1TRCHA:BINT?	ON OFF
	Data Rate	C2R1TRCHA:FCH:RATE	**9600** 4800 2400 1200	C2R1TRCHA:FCH:RATE?	9600 4800 2400 1200
	Frame length (Fixed)	C2R1TRCHA:FCH:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2R1TRCHA:FCH:FLEN?	See to Table 4-22

Note: Parameters listed in bold type are preset values.

Table 4-7 Reverse Link Radio Configuration 2 Settings

Function		Command Header	Parameter	Query Command	Query Data
Primary channel (Fixed)		C2R2PR	**TRCHA**	C2R2PR?	TRCHA
Coding target channel		C2R2RT	**TRCHA** OFF	C2R2RT?	TRCHA OFF
Burst ON/OFF (Common setting for RC1 and RC2)		C2BUR	ON **OFF**	C2BUR?	ON OFF
Fundamental Channel (Reverse Traffic Channel A)	Information/Physical data	C2R2TRCHA:DATA	**PN9** PN15 ALL0 ALL1 REP	C2R2TRCHA:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeating data pattern	C2R2TRCHA:REPD	Hexadecimal digit (0 to F) **(5)**	C2R2TRCHA:REPD?	Hexadecimal digit (0 to F)
	Bit error addition ON/OFF	C2R2TRCHA:BERR	ON **OFF**	C2R2TRCHA:BERR?	ON OFF
	CRC control	C2R2TRCHA:CRC	**ON** OFF ADDERR	C2R2TRCHA:CRC?	ON OFF ADDERR
	CRC error addition value	C2R2TRCHA:CERR	0.001 0.005 0.01 **0.02**	C2R2TRCHA:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2
	Block Interleaving ON/OFF	C2R2TRCHA:BINT	**ON** OFF	C2R2TRCHA:BINT?	ON OFF
	Data Rate	C2R2TRCHA:FCH:RATE	**14400** 7200 3600 1800	C2R2TRCHA:FCH:RATE?	14400 7200 3600 1800
	Frame length (Fixed)	C2R2TRCHA:FCH:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2R2TRCHA:FCH:FLEN?	See to Table 4-22

Note: Parameters listed in bold type are preset values.

Table 4-8 Reverse Link Radio Configuration 3 Settings (1 of 6)

Function		Command Header	Parameter	Query Command	Query Data
Primary channel		C2R3PR	DCCH TRCHA **TRCHB** TRCHC	C2R3PR?	DCCH TRCHA TRCHB TRCHC
Coding target channel		C2R3RT	DCCH TRCHA **TRCHB** TRCHC OFF	C2R3RT?	DCCH TRCHA TRCHB TRCHC OFF
Level adjustment channel		C2R3PAC	PICH **DCCH** TRCHA TRCHB TRCHC OFF	C2R3PAC?	PICH DCCH TRCHA TRCHB TRCHC OFF
Reverse Pilot Channel	Output ON/ OFF	C2R3PICH:CSW	**ON** OFF	C2R3PICH:CSW?	ON OFF
	Output level	C2R3PICH:CLV	Real number DB **(-7.0)**	C2R3PICH:CLV?	See to Table 4-22
	Gating ON/ OFF (Common setting for RC3 and RC4)	C2RPICH:GATI	ON **OFF**	C2RPICH:GATI?	ON OFF
	Gating rate (Common setting for RC3 and RC4)	C2RPICH:GRATE	**1** 2 4	C2RPICH:GRATE?	1 2 4
	Power Control bit pattern (Common setting for RC3 and RC4)	C2RPCNT	Hexadecimal digit (Up to 40 characters) **ALL "A"**	C2RPCNT?	Hexadecimal digit (Up to 40 characters)

Note: Parameters listed in bold type are preset values.

Table 4-8 Reverse Link Radio Configuration 3 Settings (2 of 6)

Function		Command Header	Parameter	Query Command	Query Data
Dedicated Control Channel	Output ON/ OFF	C2R3DCCH:CSW	**ON** OFF	C2R3DCCH:CSW?	ON OFF
	Output level	C2R3DCCH:CLV	Real number DB **(-1.1)**	C2R3DCCH:CLV?	See to Table 4-22
	Information/ Physical data	C2R3DCCH:DATA	**PN9** PN15 ALL0 ALL1 REP	C2R3DCCH:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeating data pattern	C2R3DCCH:REPD	Hexadecimal digit (0 to F) **(5)**	C2R3DCCH:REPD?	Hexadecimal digit (0 to F)
	Bit error addition ON/ OFF	C2R3DCCH:BERR	ON **OFF**	C2R3DCCH:BERR?	ON OFF
	CRC control	C2R3DCCH:CRC	**ON** OFF ADDERR	C2R3DCCH:CRC?	ON OFF ADDERR
	CRC error addition value	C2R3DCCH:CERR	0.001 0.005 0.01 **0.02**	C2R3DCCH:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2
	Block Interleaving ON/ OFF	C2R3DCCH:BINT	**ON** OFF	C2R3DCCH:BINT?	ON OFF
	Frame length	C2R3DCCH:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2R3DCCH:FLEN?	See to Table 4-22

Note: Parameters listed in bold type are preset values.

Table 4-8 Reverse Link Radio Configuration 3 Settings (3 of 6)

Function		Command Header	Parameter	Query Command	Query Data
Supplemental 2 Channel (Traffic Channel A)	Output ON/OFF	C2R3TRCHA:CSW	ON **OFF**	C2R3TRCHA:CSW?	ON OFF
	Output level	C2R3TRCHA:CLV	Real number DB **(-20.0)**	C2R3TRCHA:CLV?	See to Table 4-22
	Channel configuration	C2R3TRCHA:CCONF	**SCH2**:76800:Real number S 38400 MS 19200 US **9600 (0.02S)** 4800 2700 1500	---	---
	Information/ Physical data	C2R3TRCHA:DATA	**PN9** PN15 ALL0 ALL1 REP	C2R3TRCHA:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeating data pattern	C2R3TRCHA:REPD	Hexadecimal digit (0 to F) **(5)**	C2R3TRCHA:REPD?	Hexadecimal digit (0 to F)
	Bit error addition ON/ OFF	C2R3TRCHA:BERR	ON **OFF**	C2R3TRCHA:BERR?	ON OFF
	CRC control	C2R3TRCHA:CRC	**ON** OFF ADDERR	C2R3TRCHA:CRC?	ON OFF ADDERR
	CRC error addition value	C2R3TRCHA:CERR	0.001 0.005 0.01 **0.02**	C2R3TRCHA:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2
	Block Interleaving ON/ OFF	C2R3TRCHA:BINT	**ON** OFF	C2R3TRCHA:BINT?	ON OFF
	FEC method	C2R3TRCHA:SCH2:FEC	**CONV** TURB	C2R3TRCHA:SCH2:FEC?	CONV TURB
	Data Rate	C2R3TRCHA:SCH2:RATE	76800 38400 19200 **9600** 4800 2700 1500	C2R3TRCHA:SCH2:RATE?	76800 38400 19200 9600 4800 2700 1500

Note: Parameters listed in bold type are preset values.

Table 4-8 Reverse Link Radio Configuration 3 Settings (4 of 6)

Function		Command Header	Parameter	Query Command	Query Data
Supplemental 2 Channel (Traffic Channel A)	Frame length	C2R3TRCHA:SCH2:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2R3TRCHA:SCH2:FLEN?	See to Table 4-22
	Walsh length	C2R3TRCHA:SCH2:WLEN	**4** 8	C2R3TRCHA:SCH2:WLEN?	4 8
	Walsh number	C2R3TRCHA:SCH2:WNO	**2** 6	C2R3TRCHA:SCH2:WNO?	2 6
Fundamental Channel (Traffic Channel B)	Output ON/OFF	C2R3TRCHB:CSW	**ON** OFF	C2R3TRCHB:CSW?	ON OFF
	Output level	C2R3TRCHB:CLV	Real number DB **(-15.6)**	C2R3TRCHB:CLV?	See to Table 4-22
	Channel configuration	C2R3TRCHB:CCONF	**FCH: 9600**: Real number S 4800 MS 2700 US 1500 **(0.02S)**	---	---
	Information/ Physical data	C2R3TRCHB:DATA	**PN9** PN15 ALL0 ALL1 REP	C2R3TRCHB:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeating data pattern	C2R3TRCHB:REPD	Hexadecimal digit (0 to F) **(5)**	C2R3TRCHB:REPD?	Hexadecimal digit (0 to F)
	Bit error addition ON/ OFF	C2R3TRCHB:BERR	ON **OFF**	C2R3TRCHB:BERR?	ON OFF
	CRC control	C2R3TRCHB:CRC	**ON** OFF ADDERR	C2R3TRCHB:CRC?	ON OFF ADDERR
	CRC error addition value	C2R3TRCHB:CERR	0.001 0.005 0.01 **0.02**	C2R3TRCHB:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2
	Block Interleaving ON/ OFF	C2R3TRCHB:BINT	**ON** OFF	C2R3TRCHB:BINT?	ON OFF

Note: Parameters listed in bold type are preset values.

Table 4-8 Reverse Link Radio Configuration 3 Settings (5 of 6)

Function		Command Header	Parameter	Query Command	Query Data
Funda-mental Channel (Traffic Channel B)	Data Rate	C2R3TRCHB:FCH:RATE	**9600** 4800 2700 1500	C2R3TRCHB:FCH:RATE?	9600 4800 2700 1500
	Frame length (Fixed)	C2R3TRCHB:FCH:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2R3TRCHB:FCH:FLEN?	See to Table 4-22
Supple-mental 1 Channel (Traffic Channel C)	Output ON/OFF	C2R3TRCHC:CSW	ON **OFF**	C2R3TRCHC:CSW?	ON OFF
	Output level	C2R3TRCHC:CLV	Real number DB **(-20.0)**	C2R3TRCHC:CLV?	See to Table 4-22
	Channel configuration	C2R3TRCHC:CCONF	**SCH1**:307200:Real number S 153600 MS 76800 US 38400 **(0.02S)** 19200 **9600** 4800 2700 1500	---	---
	Information/ Physical data	C2R3TRCHC:DATA	**PN9** PN15 ALL0 ALL1 REP	C2R3TRCHC:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeat-ing data pat-tern	C2R3TRCHC:REPD	Hexadecimal digit (0 to F) **(5)**	C2R3TRCHC:REPD?	Hexadeci-mal digit (0 to F)
	Bit error addition ON/ OFF	C2R3TRCHC:BERR	ON **OFF**	C2R3TRCHC:BERR?	ON OFF
	CRC control	C2R3TRCHC:CRC	**ON** OFF ADDERR	C2R3TRCHC:CRC?	ON OFF ADDERR
	CRC error addition value	C2R3TRCHC:CERR	0.001 0.005 0.01 **0.02**	C2R3TRCHC:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2

Note: Parameters listed in bold type are preset values.

Table 4-8 Reverse Link Radio Configuration 3 Settings (6 of 6)

Function		Command Header	Parameter	Query Command	Query Data
Supple-mental 1 Channel (Traffic Channel C)	Block Inter-leaving ON/ OFF	C2R3TRCHC:BINT	**ON** OFF	C2R3TRCHC:BINT?	ON OFF
	FEC method	C2R3TRCHC:SCH1:FEC	**CONV** TURB	C2R3TRCHC:SCH1:FEC?	CONV TURB
	Data Rate	C2R3TRCHC:SCH1:RATE	307200 153600 76800 38400 19200 **9600** 4800 2700 1500	C2R3TRCHC:SCH1:RATE?	307200 153600 76800 38400 19200 9600 4800 2700 1500
	Frame length	C2R3TRCHC:SCH1:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2R3TRCHC:SCH1:FLEN?	See to Table 4-22
	Walsh length	C2R3TRCHC:SCH1:WLEN	**2** 4	C2R3TRCHC:SCH1:WLEN?	2 4
	Walsh number	C2R3TRCHC:SCH1:WNO	**1** 2	C2R3TRCHC:SCH1:WNO?	1 2

Note: Parameters listed in bold type are preset values.

Table 4-9 Reverse Link Radio Configuration 4 Settings (1 of 6)

Function		Command Header	Parameter	Query Command	Query Data
Primary channel		C2R4PR	DCCH TRCHA **TRCHB** TRCHC	C2R4PR?	DCCH TRCHA TRCHB TRCHC
Coding target channel		C2R4RT	DCCH TRCHA **TRCHB** TRCHC OFF	C2R4RT?	DCCH TRCHA TRCHB TRCHC OFF
Level adjustment channel		C2R4PAC	PICH **DCCH** TRCHA TRCHB TRCHC OFF	C2R4PAC?	PICH DCCH TRCHA TRCHB TRCHC OFF
Reverse Pilot Channel	Output ON/OFF	C2R4PICH:CSW	**ON** OFF	C2R4PICH:CSW?	ON OFF
	Output level	C2R4PICH:CLV	Real number DB **(-7.0)**	C2R4PICH:CLV?	See to Table 4-22
	Gating ON/ OFF (Common setting for RC3 and RC4)	C2RPICH:GATI	ON **OFF**	C2RPICH:GATI?	ON OFF
	Gating rate (Common setting for RC3 and RC4)	C2RPICH:GRATE	**1** 2 4	C2RPICH:GRATE?	1 2 4
	Power Control bit pattern (Common setting for RC3 and RC4)	C2RPCNT	Hexadecimal digit (Up to 40 characters) **ALL "A"**	C2RPCNT?	Hexadecimal digit (Up to 40 characters)

Note: Parameters listed in bold type are preset values.

Table 4-9 Reverse Link Radio Configuration 4 Settings (2 of 6)

Function		Command Header	Parameter	Query Command	Query Data
Dedi-cated Control Channel	Output ON/ OFF	C2R4DCCH:CSW	**ON** OFF	C2R4DCCH:CSW?	ON OFF
	Output level	C2R4DCCH:CLV	Real number DB **(-1.1)**	C2R4DCCH:CLV?	See to Table 4-22
	Information/ Physical data	C2R4DCCH:DATA	**PN9** PN15 ALL0 ALL1 REP	C2R4DCCH:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeat-ing data pat-tern	C2R4DCCH:REPD	Hexadecimal digit (0 to F) **(5)**	C2R4DCCH:REPD?	Hexadeci-mal digit (0 to F)
	Bit error addition ON/ OFF	C2R4DCCH:BERR	ON **OFF**	C2R4DCCH:BERR?	ON OFF
	CRC control	C2R4DCCH:CRC	**ON** OFF ADDERR	C2R4DCCH:CRC?	ON OFF ADDERR
	CRC error addition value	C2R4DCCH:CERR	0.001 0.005 0.01 **0.02**	C2R4DCCH:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2
	Block Inter-leaving ON/ OFF	C2R4DCCH:BINT	**ON** OFF	C2R4DCCH:BINT?	ON OFF
	Frame length	C2R4DCCH:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2R4DCCH:FLEN?	See to Table 4-22

Note: Parameters listed in bold type are preset values.

Table 4-9 Reverse Link Radio Configuration 4 Settings (3 of 6)

Function		Command Header	Parameter	Query Command	Query Data
Supplemental 2 Channel (Traffic Channel A)	Output ON/OFF	C2R4TRCHA:CSW	ON **OFF**	C2R4TRCHA:CSW?	ON OFF
	Output level	C2R4TRCHA:CLV	Real numberDB **(-20.0)**	C2R4TRCHA:CLV?	See to Table 4-22
	Channel configuration	C2R4TRCHA:CCONF	**SCH2**:115200:Real number S 57600 MS 28800 US **14400** **(0.02S)** 7200 3600 1800	---	---
	Information/ Physical data	C2R4TRCHA:DATA	**PN9** PN15 ALL0 ALL1 REP	C2R4TRCHA:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeating data pattern	C2R4TRCHA:REPD	Hexadecimal digit (0 to F) **(5)**	C2R4TRCHA:REPD?	Hexadecimal digit (0 to F)
	Bit error addition ON/ OFF	C2R4TRCHA:BERR	ON **OFF**	C2R4TRCHA:BERR?	ON OFF
	CRC control	C2R4TRCHA:CRC	**ON** OFF ADDERR	C2R4TRCHA:CRC?	ON OFF ADDERR
	CRC error addition value	C2R4TRCHA:CERR	0.001 0.005 0.01 **0.02**	C2R4TRCHA:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2
	Block Interleaving ON/ OFF	C2R4TRCHA:BINT	**ON** OFF	C2R4TRCHA:BINT?	ON OFF
	FEC method	C2R4TRCHA:SCH2:FEC	**CONV** TURB	C2R4TRCHA:SCH2:FEC?	CONV TURB
	Data Rate	C2R4TRCHA:SCH2:RATE	115200 57600 28800 **14400** 7200 3600 1800	C2R4TRCHA:SCH2:RATE?	115200 57600 28800 14400 7200 3600 1800

Note: Parameters listed in bold type are preset values.

Table 4-9 Reverse Link Radio Configuration 4 Settings (4 of 6)

Function		Command Header	Parameter	Query Command	Query Data
Supplemental 2 Channel (Traffic Channel A)	Frame length	C2R4TRCHA:SCH2:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2R4TRCHA:SCH2:FLEN?	See to Table 4-22
	Walsh length	C2R4TRCHA:SCH2:WLEN	**4** 8	C2R4TRCHA:SCH2:WLEN?	4 8
	Walsh number	C2R4TRCHA:SCH2:WNO	**2** 6	C2R4TRCHA:SCH2:WNO?	2 6
Fundamental Channel (Traffic Channel B)	Output ON/OFF	C2R4TRCHB:CSW	**ON** OFF	C2R4TRCHB:CSW?	ON OFF
	Output level	C2R4TRCHB:CLV	Real number DB **(-15.6)**	C2R4TRCHB:CLV?	See to Table 4-22
	Channel configuration	C2R4TRCHB:CCONF	**FCH: 14400**: Real number S 9600 MS 7200 US 3600 **(0.02S)** 1800	---	---
	Information/ Physical data	C2R4TRCHB:DATA	**PN9** PN15 ALL0 ALL1 REP	C2R4TRCHB:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeating data pattern	C2R4TRCHB:REPD	Hexadecimal digit (0 to F) **(5)**	C2R4TRCHB:REPD?	Hexadecimal digit (0 to F)
	Bit error addition ON/ OFF	C2R4TRCHB:BERR	ON **OFF**	C2R4TRCHB:BERR?	ON OFF
	CRC control	C2R4TRCHB:CRC	**ON** OFF ADDERR	C2R4TRCHB:CRC?	ON OFF ADDERR
	CRC error addition value	C2R4TRCHB:CERR	0.001 0.005 0.01 **0.02**	C2R4TRCHB:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2
	Block Interleaving ON/ OFF	C2R4TRCHB:BINT	**ON** OFF	C2R4TRCHB:BINT?	ON OFF

Note: Parameters listed in bold type are preset values.

Table 4-9 Reverse Link Radio Configuration 4 Settings (5 of 6)

Function		Command Header	Parameter	Query Command	Query Data
Fundamental Channel (Traffic Channel B)	Data Rate	C2R4TRCHB:FCH:RATE	**14400** 9600 7200 3600 1800	C2R4TRCHB:FCH:RATE?	14400 9600 7200 3600 1800
	Frame length (Fixed)	C2R4TRCHB:FCH:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2R4TRCHB:FCH:FLEN?	See to Table 4-22
Supplemental 1 Channel (Traffic Channel C)	Output ON/OFF	C2R4TRCHC:CSW	ON **OFF**	C2R4TRCHC:CSW?	ON OFF
	Output level	C2R4TRCHC:CLV	Real number DB **(-20.0)**	C2R4TRCHC:CLV?	See to Table 4-22
	Channel configuration	C2R4TRCHC:CCONF	**SCH1**:230400:Real number S 115200 MS 57600 US 28800 **(0.02S)** **14400** 7200 3600 1800	---	---
	Information/ Physical data	C2R4TRCHC:DATA	**PN9** PN15 ALL0 ALL1 REP	C2R4TRCHC:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeating data pattern	C2R4TRCHC:REPD	Hexadecimal digit (0 to F) **(5)**	C2R4TRCHC:REPD?	Hexadecimal digit (0 to F)
	Bit error addition ON/ OFF	C2R4TRCHC:BERR	ON **OFF**	C2R4TRCHC:BERR?	ON OFF
	CRC control	C2R4TRCHC:CRC	**ON** OFF ADDERR	C2R4TRCHC:CRC?	ON OFF ADDERR
	CRC error addition value	C2R4TRCHC:CERR	0.001 0.005 0.01 **0.02**	C2R4TRCHC:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2

Note: Parameters listed in bold type are preset values.

Table 4-9 Reverse Link Radio Configuration 4 Settings (6 of 6)

Function		Command Header	Parameter	Query Command	Query Data
Supple-mental 1 Channel (Traffic Channel C)	Block Inter-leaving ON/ OFF	C2R4TRCHC:BINT	**ON** OFF	C2R4TRCHC:BINT?	ON OFF
	FEC method	C2R4TRCHC:SCH1:FEC	**CONV** TURB	C2R4TRCHC:SCH1:FEC?	CONV TURB
	Data Rate	C2R4TRCHC:SCH1:RATE	230400 115200 57600 28800 **14400** 7200 3600 1800	C2R4TRCHC:SCH1:RATE?	230400 115200 57600 28800 14400 7200 3600 1800
	Frame length	C2R4TRCHC:SCH1:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2R4TRCHC:SCH1:FLEN?	See to Table 4-22
	Walsh length	C2R4TRCHC:SCH1:WLEN	**2** 4	C2R4TRCHC:SCH1:WLEN?	2 4
	Walsh number	C2R4TRCHC:SCH1:WNO	**1** 2	C2R4TRCHC:SCH1:WNO?	1 2

Note: Parameters listed in bold type are preset values.

Table 4-10 Common Settings for Forward Link

Function	Command Header	Parameter	Query Command	Query Data
Radio Configuration	C2FRC	**1** 2 3 4 5	C2FRC?	1 2 3 4 5
Generator mode	C2FGEN	**SIGO** NOIO EBNO	C2FGEN?	SIGO NOIO EBNO
Equalizing Filter ON/OFF	C2FEQFLT	**ON** OFF	C2FEQFLT?	ON OFF
Eb/No(Nt)	C2FEBNO	Real number DB **(10)**	C2FEBNO?	See to Table 4-22

Note: Parameters listed in bold type are preset values.

Table 4-11 Forward Link Radio Configuration 1 Settings (1 of 4)

Function		Command Header	Parameter	Query Command	Query Data
Primary channel		C2F1PR	**TRCHA** TRCHB TRCHC	C2F1PR?	TRCHA TRCHB TRCHC
Coding target channel		C2F1RT	**TRCHA** TRCHB TRCHC OFF	C2F1RT?	TRCHA TRCHB TRCHC OFF
Output level adjustment channel		C2F1PAC	PICH **SYNCH** TRCHA TRCHB TRCHC OFF	C2F1PAC?	PICH SYNCH TRCHA TRCHB TRCHC OFF
Pilot Channel	Output ON/OFF	C2F1PICH:CSW	**ON** OFF	C2F1PICH:CSW?	ON OFF
	Output level	C2F1PICH:CLV	Real number DB **(-7.0)**	C2F1PICH:CLV?	See to Table 4-22
Sync Channel	Output ON/OFF	C2F1SYNCH:CSW	**ON** OFF	C2F1SYNCH:CSW?	ON OFF
	Output level	C2F1SYNCH:CLV	Real number DB **(-1.1)**	C2F1SYNCH:CLV?	See to Table 4-22
Fundamental Channel (Forward Traffic Channel A)	Output ON/OFF	C2F1TRCHA:CSW	**ON** OFF	C2F1TRCHA:CSW?	ON OFF
	Output level	C2F1TRCHA:CLV	Real number DB **(-15.6)**	C2F1TRCHA:CLV?	See to Table 4-22
	Information/Physical data	C2F1TRCHA:DATA	**PN9** PN15 ALL0 ALL1 REP	C2F1TRCHA:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeating data pattern	C2F1TRCHA:REPD	Hexadecimal digit (0 to F) **(5)**	C2F1TRCHA:REPD?	Hexadecimal digit (0 to F)
	Bit error addition ON/OFF	C2F1TRCHA:BERR	ON **OFF**	C2F1TRCHA:BERR?	ON OFF

Note: Parameters listed in bold type are preset values.

Table 4-11 Forward Link Radio Configuration 1 Settings (2 of 4)

Function		Command Header	Parameter	Query Command	Query Data
Fundamental Channel (Forward Traffic Channel A)	CRC control	C2F1TRCHA:CRC	**ON** OFF ADDERR	C2F1TRCHA:CRC?	ON OFF ADDERR
	CRC error addition value	C2F1TRCHA:CERR	0.001 0.005 0.01 **0.02**	C2F1TRCHA:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2
	Block Inter-leaving ON/ OFF	C2F1TRCHA:BINT	**ON** OFF	C2F1TRCHA:BINT?	ON OFF
	Data Rate	C2F1TRCHA:FCH:RATE	**9600** 4800 2400 1200	C2F1TRCHA:FCH:RATE?	9600 4800 2400 1200
	Frame length (Fixed)	C2F1TRCHA:FCH:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2F1TRCHA:FCH:FLEN?	See to Table 4-22
	Walsh number	C2F1TRCHA:FCH:WNO	8 to 63 **(8)**	C2F1TRCHA:FCH:WNO?	8 to 63
Fundamental Channel (Forward Traffic Channel B)	Output ON/OFF	C2F1TRCHB:CSW	ON **OFF**	C2F1TRCHB:CSW?	ON OFF
	Output level	C2F1TRCHB:CLV	Real number DB **(-20.0)**	C2F1TRCHB:CLV?	See to Table 4-22
	Informa-tion/Physi-cal data	C2F1TRCHB:DATA	**PN9** PN15 ALL0 ALL1 REP	C2F1TRCHB:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeat-ing data pat-tern	C2F1TRCHB:REPD	Hexadecimal digit (0 to F) **(5)**	C2F1TRCHB:REPD?	Hexadeci-mal digit (0 to F)
	Bit error addition ON/OFF	C2F1TRCHB:BERR	ON **OFF**	C2F1TRCHB:BERR?	ON OFF
	CRC control	C2F1TRCHB:CRC	**ON** OFF ADDERR	C2F1TRCHB:CRC?	ON OFF ADDERR

Note: Parameters listed in bold type are preset values.

Table 4-11 Forward Link Radio Configuration 1 Settings (3 of 4)

Function		Command Header	Parameter	Query Command	Query Data
Fundamental Channel (Forward Traffic Channel B)	CRC error addition value	C2F1TRCHB:CERR	0.001 0.005 0.01 **0.02**	C2F1TRCHB:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2
	Block Interleaving ON/OFF	C2F1TRCHB:BINT	**ON** OFF	C2F1TRCHB:BINT?	ON OFF
	Data Rate	C2F1TRCHB:FCH:RATE	**9600** 4800 2400 1200	C2F1TRCHB:FCH:RATE?	9600 4800 2400 1200
	Frame length (Fixed)	C2F1TRCHB:FCH:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2F1TRCHB:FCH:FLEN?	See to Table 4-22
	Walsh number	C2F1TRCHB:FCH:WNO	8 to 63 **(62)**	C2F1TRCHB:FCH:WNO?	8 to 63
Fundamental Channel (Forward Traffic Channel C)	Output ON/OFF	C2F1TRCHC:CSW	ON **OFF**	C2F1TRCHC:CSW?	ON OFF
	Output level	C2F1TRCHC:CLV	Real number DB **(-20.0)**	C2F1TRCHC:CLV?	See to Table 4-22
	Information/Physical data	C2F1TRCHC:DATA	**PN9** PN15 ALL0 ALL1 REP	C2F1TRCHC:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeating data pattern	C2F1TRCHC:REPD	Hexadecimal digit (0 to F) **(5)**	C2F1TRCHC:REPD?	Hexadecimal digit (0 to F)
	Bit error addition ON/OFF	C2F1TRCHC:BERR	ON **OFF**	C2F1TRCHC:BERR?	ON OFF
	CRC control	C2F1TRCHC:CRC	**ON** OFF ADDERR	C2F1TRCHC:CRC?	ON OFF ADDERR
	CRC error addition value	C2F1TRCHC:CERR	0.001 0.005 0.01 **0.02**	C2F1TRCHC:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2

Note: Parameters listed in bold type are preset values.

Table 4-11 Forward Link Radio Configuration 1 Settings (4 of 4)

Function		Command Header	Parameter	Query Command	Query Data
Fundamental Channel (Forward Traffic Channel C)	Block Inter-leaving ON/ OFF	C2F1TRCHC:BINT	**ON** OFF	C2F1TRCHC:BINT?	ON OFF
	Data Rate	C2F1TRCHC:FCH:RATE	**9600** 4800 2400 1200	C2F1TRCHC:FCH:RATE?	9600 4800 2400 1200
	Frame length (Fixed)	C2F1TRCHC:FCH:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2F1TRCHC:FCH:FLEN?	See to Table 4-22
	Walsh number	C2F1TRCHC:FCH:WNO	8 to 63 **(63)**	C2F1TRCHC:FCH:WNO?	8 to 63

Note: Parameters listed in bold type are preset values.

Table 4-12 Forward Link Radio Configuration 2 Settings (1 of 4)

Function		Command Header	Parameter	Query Command	Query Data
Primary channel		C2F2PR	**TRCHA** TRCHB TRCHC	C2F2PR?	TRCHA TRCHB TRCHC
Coding target channel		C2F2RT	**TRCHA** TRCHB TRCHC OFF	C2F2RT?	TRCHA TRCHB TRCHC OFF
Output level adjustment channel		C2F2PAC	PICH **SYNCH** TRCHA TRCHB TRCHC OFF	C2F2PAC?	PICH SYNCH TRCHA TRCHB TRCHC OFF
Pilot Channel	Output ON/OFF	C2F2PICH:CSW	**ON** OFF	C2F2PICH:CSW?	ON OFF
	Output level	C2F2PICH:CLV	Real number DB **(-7.0)**	C2F2PICH:CLV?	See to Table 4-22
Sync Channel	Output ON/OFF	C2F2SYNCH:CSW	**ON** OFF	C2F2SYNCH:CSW?	ON OFF
	Output level	C2F2SYNCH:CLV	Real number DB **(-1.1)**	C2F2SYNCH:CLV?	See to Table 4-22
Fundamental Channel (Forward Traffic Channel A)	Output ON/OFF	C2F2TRCHA:CSW	**ON** OFF	C2F2TRCHA:CSW?	ON OFF
	Output level	C2F2TRCHA:CLV	Real number DB **(-15.6)**	C2F2TRCHA:CLV?	See to Table 4-22
	Information/Physical data	C2F2TRCHA:DATA	**PN9** PN15 ALL0 ALL1 REP	C2F2TRCHA:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeating data pattern	C2F2TRCHA:REPD	Hexadecimal digit (0 to F) **(5)**	C2F2TRCHA:REPD?	Hexadecimal digit (0 to F)
	Bit error addition ON/OFF	C2F2TRCHA:BERR	ON **OFF**	C2F2TRCHA:BERR?	ON OFF

Note: Parameters listed in bold type are preset values.

Table 4-12 Forward Link Radio Configuration 2 Settings (2 of 4)

Function		Command Header	Parameter	Query Command	Query Data
Fundamental Channel (Forward Traffic Channel A)	CRC control	C2F2TRCHA:CRC	**ON** OFF ADDERR	C2F2TRCHA:CRC?	ON OFF ADDERR
	CRC error addition value	C2F2TRCHA:CERR	0.001 0.005 0.01 **0.02**	C2F2TRCHA:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2
	Block Inter-leaving ON/ OFF	C2F2TRCHA:BINT	**ON** OFF	C2F2TRCHA:BINT?	ON OFF
	Data Rate	C2F2TRCHA:FCH:RATE	**14400** 7200 3600 1800	C2F2TRCHA:FCH:RATE?	14400 7200 3600 1800
	Frame length (Fixed)	C2F2TRCHA:FCH:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2F2TRCHA:FCH:FLEN?	See to Table 4-22
	Walsh number	C2F2TRCHA:FCH:WNO	8 to 63 **(8)**	C2F2TRCHA:FCH:WNO?	8 to 63
Fundamental Channel (Forward Traffic Channel B)	Output ON/OFF	C2F2TRCHB:CSW	ON **OFF**	C2F2TRCHB:CSW?	ON OFF
	Output level	C2F2TRCHB:CLV	Real number DB **(-20.0)**	C2F2TRCHB:CLV?	See to Table 4-22
	Informa-tion/Physi-cal data	C2F2TRCHB:DATA	**PN9** PN15 ALL0 ALL1 REP	C2F2TRCHB:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeat-ing data pat-tern	C2F2TRCHB:REPD	Hexadecimal digit (0 to F) **(5)**	C2F2TRCHB:REPD?	Hexadeci-mal digit (0 to F)
	Bit error addition ON/OFF	C2F2TRCHB:BERR	ON **OFF**	C2F2TRCHB:BERR?	ON OFF
	CRC control	C2F2TRCHB:CRC	**ON** OFF ADDERR	C2F2TRCHB:CRC?	ON OFF ADDERR

Note: Parameters listed in bold type are preset values.

Table 4-12 Forward Link Radio Configuration 2 Settings (3 of 4)

Function		Command Header	Parameter	Query Command	Query Data
Fundamental Channel (Forward Traffic Channel B)	CRC error addition value	C2F2TRCHB:CERR	0.001 0.005 0.01 **0.02**	C2F2TRCHB:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2
	Block Interleaving ON/OFF	C2F2TRCHB:BINT	**ON** OFF	C2F2TRCHB:BINT?	ON OFF
	Data Rate	C2F2TRCHB:FCH:RATE	**14400** 7200 3600 1800	C2F2TRCHB:FCH:RATE?	14400 7200 3600 1800
	Frame length (Fixed)	C2F2TRCHB:FCH:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2F2TRCHB:FCH:FLEN?	See to Table 4-22
	Walsh number	C2F2TRCHB:FCH:WNO	8 to 63 **(62)**	C2F2TRCHB:FCH:WNO?	8 to 63
Fundamental Channel (Forward Traffic Channel C)	Output ON/OFF	C2F2TRCHC:CSW	ON **OFF**	C2F2TRCHC:CSW?	ON OFF
	Output level	C2F2TRCHC:CLV	Real number DB **(-20.0)**	C2F2TRCHC:CLV?	See to Table 4-22
	Information/Physical data	C2F2TRCHC:DATA	**PN9** PN15 ALL0 ALL1 REP	C2F2TRCHC:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeating data pattern	C2F2TRCHC:REPD	Hexadecimal digit (0 to F) **(5)**	C2F2TRCHC:REPD?	Hexadecimal digit (0 to F)
	Bit error addition ON/OFF	C2F2TRCHC:BERR	ON **OFF**	C2F2TRCHC:BERR?	ON OFF
	CRC control	C2F2TRCHC:CRC	**ON** OFF ADDERR	C2F2TRCHC:CRC?	ON OFF ADDERR
	CRC error addition value	C2F2TRCHC:CERR	0.001 0.005 0.01 **0.02**	C2F2TRCHC:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2

Note: Parameters listed in bold type are preset values.

Table 4-12 Forward Link Radio Configuration 2 Settings (4 of 4)

Function		Command Header	Parameter	Query Command	Query Data
Fundamental Channel (Forward Traffic Channel C)	Block Inter-leaving ON/ OFF	C2F2TRCHC:BINT	**ON** OFF	C2F2TRCHC:BINT?	ON OFF
	Data Rate	C2F2TRCHC:FCH:RATE	**14400** 7200 3600 1800	C2F2TRCHC:FCH:RATE?	14400 7200 3600 1800
	Frame length (Fixed)	C2F2TRCHC:FCH:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2F2TRCHC:FCH:FLEN?	See to Table 4-22
	Walsh number	C2F2TRCHC:FCH:WNO	8 to 63 **(63)**	C2F2TRCHC:FCH:WNO?	8 to 63

Note: Parameters listed in bold type are preset values.

Table 4-13 Forward Link Radio Configuration 3 Settings (1 of 5)

Function		Command Header	Parameter	Query Command	Query Data
Primary channel		C2F3PR	TRCHA **TRCHB** TRCHC	C2F3PR?	TRCHA TRCHB TRCHC
Coding target channel		C2F3RT	TRCHA **TRCHB** TRCHC OFF	C2F3RT?	TRCHA TRCHB TRCHC OFF
Output level adjustment channel		C2F3PAC	PICH **SYNCH** TRCHA TRCHB TRCHC OFF	C2F3PAC?	PICH SYNCH TRCHA TRCHB TRCHC OFF
Pilot Channel	Output ON/OFF	C2F3PICH:CSW	**ON** OFF	C2F3PICH:CSW?	ON OFF
	Output level	C2F3PICH:CLV	Real number DB **(-7.0)**	C2F3PICH:CLV?	See to Table 4-22
Sync Channel	Output ON/OFF	C2F3SYNCH:CSW	**ON** OFF	C2F3SYNCH:CSW?	ON OFF
	Output level	C2F3SYNCH:CLV	Real number DB **(-1.1)**	C2F3SYNCH:CLV?	See to Table 4-22
Supple-mental Channel (Forward Traffic Channel A)	Output ON/OFF	C2F3TRCHA:CSW	ON **OFF**	C2F3TRCHA:CSW?	ON OFF
	Output level	C2F3TRCHA:CLV	Real number DB **(-20.0)**	C2F3TRCHA:CLV?	See to Table 4-22
	Channel configuration	C2F3TRCHA:CCONF	**SCH**: 153600:Real number S 76800 MS 38400 US 19200 **(0.02S)** **9600** 4800 2700 1500	---	---
	Information/ Physical data	C2F3TRCHA:DATA	**PN9** PN15 ALL0 ALL1 REP	C2F3TRCHA:DATA?	PN9 PN15 ALL0 ALL1 REP

Note: Parameters listed in bold type are preset values.

Table 4-13 Forward Link Radio Configuration 3 Settings (2 of 5)

Function		Command Header	Parameter	Query Command	Query Data
Supplemental Channel (Forward Traffic Channel A)	4-bit repeating data pattern	C2F3TRCHA:REPD	Hexadecimal digit (0 to F) **(5)**	C2F3TRCHA:REPD?	Hexadecimal digit (0 to F)
	Bit error addition ON/OFF	C2F3TRCHA:BERR	ON **OFF**	C2F3TRCHA:BERR?	ON OFF
	CRC control	C2F3TRCHA:CRC	**ON** OFF ADDERR	C2F3TRCHA:CRC?	ON OFF ADDERR
	CRC error addition value	C2F3TRCHA:CERR	0.001 0.005 0.01 **0.02**	C2F3TRCHA:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2
	Block Interleaving ON/OFF	C2F3TRCHA:BINT	**ON** OFF	C2F3TRCHA:BINT?	ON OFF
	FEC method	C2F3TRCHA:SCH:FEC	**CONV** TURB	C2F3TRCHA:SCH:FEC?	CONV TURB
	Data Rate	C2F3TRCHA:SCH:RATE	153600 76800 38400 19200 **9600** 4800 2700 1500	C2F3TRCHA:SCH:RATE?	153600 76800 38400 19200 9600 4800 2700 1500
	Frame length	C2F3TRCHA:SCH:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2F3TRCHA:SCH:FLEN?	See to Table 4-22
	Walsh number	C2F3TRCHA:SCH:WNO	0 to 63 **(62)**	C2F3TRCHA:SCH:WNO?	0 to 63
	QOF number	C2F3TRCHA:SCH:QUASI	0 to 3 **(0)**	C2F3TRCHA:SCH:QUASI?	0 to 3
Fundamental Channel (Forward Traffic Channel B)	Output ON/OFF	C2F3TRCHB:CSW	**ON** OFF	C2F3TRCHB:CSW?	ON OFF
	Output level	C2F3TRCHB:CLV	Real number DB **(-15.6)**	C2F3TRCHB:CLV?	See to Table 4-22

Note: Parameters listed in bold type are preset values.

Table 4-13 Forward Link Radio Configuration 3 Settings (3 of 5)

Function		Command Header	Parameter	Query Command	Query Data
Funda-mental Channel (Forward Traffic Channel B)	Channel configuration	C2F3TRCHB:CCONF	**FCH: 9600**: Real number S 4800 MS 2700 US 1500 **(0.02S)**	---	---
	Information/ Physical data	C2F3TRCHB:DATA	**PN9** PN15 ALL0 ALL1 REP	C2F3TRCHB:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeating data pattern	C2F3TRCHB:REPD	Hexadecimal digit (0 to F) **(5)**	C2F3TRCHB:REPD?	Hexadecimal digit (0 to F)
	Bit error addition ON/ OFF	C2F3TRCHB:BERR	ON **OFF**	C2F3TRCHB:BERR?	ON OFF
	CRC control	C2F3TRCHB:CRC	**ON** OFF ADDERR	C2F3TRCHB:CRC?	ON OFF ADDERR
	CRC error addition value	C2F3TRCHB:CERR	0.001 0.005 0.01 **0.02**	C2F3TRCHB:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2
	Block Interleaving ON/ OFF	C2F3TRCHB:BINT	**ON** OFF	C2F3TRCHB:BINT?	ON OFF
	Data Rate	C2F3TRCHB:FCH:RATE	**9600** 4800 2700 1500	C2F3TRCHB:FCH:RATE?	9600 4800 2700 1500
	Frame length	C2F3TRCHB:FCH:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2F3TRCHB:FCH:FLEN?	See to Table 4-22
	Walsh number	C2F3TRCHB:FCH:WNO	8 to 63 **(8)**	C2F3TRCHB:FCH:WNO?	8 to 63
	QOF number	C2F3TRCHB:FCH:QUASI	0 to 3 **(0)**	C2F3TRCHB:FCH:QUASI?	0 to 3

Note: Parameters listed in bold type are preset values.

Table 4-13 Forward Link Radio Configuration 3 Settings (4 of 5)

Function		Command Header	Parameter	Query Command	Query Data
Supplemental Channel (Forward Traffic Channel C)	Output ON/OFF	C2F3TRCHC:CSW	ON **OFF**	C2F3TRCHC:CSW?	ON OFF
	Output level	C2F3TRCHC:CLV	Real number DB **(-20.0)**	C2F3TRCHC:CLV?	See to Table 4-22
	Channel configuration	C2F3TRCHC:CCONF	**SCH**: 153600:Real numberS 76800 MS 38400 US 19200 **(0.02S)** **9600** 4800 2700 1500	---	---
	Information/ Physical data	C2F3TRCHC:DATA	**PN9** PN15 ALL0 ALL1 REP	C2F3TRCHC:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeating data pattern	C2F3TRCHC:REPD	Hexadecimal digit (0 to F) **(5)**	C2F3TRCHC:REPD?	Hexadecimal digit (0 to F)
	Bit error addition ON/ OFF	C2F3TRCHC:BERR	ON **OFF**	C2F3TRCHC:BERR?	ON OFF
	CRC control	C2F3TRCHC:CRC	**ON** OFF ADDERR	C2F3TRCHC:CRC?	ON OFF ADDERR
	CRC error addition value	C2F3TRCHC:CERR	0.001 0.005 0.01 **0.02**	C2F3TRCHC:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2
	Block Interleaving ON/ OFF	C2F3TRCHC:BINT	**ON** OFF	C2F3TRCHC:BINT?	ON OFF
	FEC method	C2F3TRCHC:SCH:FEC	**CONV** TURB	C2F3TRCHC:SCH:FEC?	CONV TURB

Note: Parameters listed in bold type are preset values.

Table 4-13 Forward Link Radio Configuration 3 Settings (5 of 5)

Function		Command Header	Parameter	Query Command	Query Data
Supple-mental Channel (Forward Traffic Channel C)	Data Rate	C2F3TRCHC:SCH:RATE	153600 76800 38400 19200 **9600** 4800 2700 1500	C2F3TRCHC:SCH:RATE?	153600 76800 38400 19200 9600 4800 2700 1500
	Frame length	C2F3TRCHC:SCH:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2F3TRCHC:SCH:FLEN?	See to Table 4-22
	Walsh length	C2F3TRCHC:SCH:WNO	0 to 63 **(63)**	C2F3TRCHC:SCH:WNO?	0 to 63
	QOF number	C2F3TRCHC:SCH:QUASI	0 to 3 **(0)**	C2F3TRCHC:SCH:QUASI?	0 to 3

Note: Parameters listed in bold type are preset values.

Table 4-14 Forward Link Radio Configuration 4 Settings (1 of 5)

Function		Command Header	Parameter	Query Command	Query Data
Primary channel		C2F4PR	TRCHA **TRCHB** TRCHC	C2F4PR?	TRCHA TRCHB TRCHC
Coding target channel		C2F4RT	TRCHA **TRCHB** TRCHC OFF	C2F4RT?	TRCHA TRCHB TRCHC OFF
Output level adjustment channel		C2F4PAC	PICH **SYNCH** TRCHA TRCHB TRCHC OFF	C2F4PAC?	PICH SYNCH TRCHA TRCHB TRCHC OFF
Pilot Channel	Output ON/OFF	C2F4PICH:CSW	**ON** OFF	C2F4PICH:CSW?	ON OFF
	Output level	C2F4PICH:CLV	Real number DB **(-7.0)**	C2F4PICH:CLV?	See to Table 4-22
Sync Channel	Output ON/OFF	C2F4SYNCH:CSW	**ON** OFF	C2F4SYNCH:CSW?	ON OFF
	Output level	C2F4SYNCH:CLV	Real number DB **(-1.1)**	C2F4SYNCH:CLV?	See to Table 4-22
Supple-mental Channel (Forward Traffic Channel A)	Output ON/OFF	C2F4TRCHA:CSW	ON **OFF**	C2F4TRCHA:CSW?	ON OFF
	Output level	C2F4TRCHA:CLV	Real number DB **(-20.0)**	C2F4TRCHA:CLV?	See to Table 4-22
	Channel configuration	C2F4TRCHA:CCONF	**SCH**: 307200:Real number S 153600 MS 76800 US 38400 **(0.02S)** 19200 **9600** 4800 2700 1500	---	---

Note: Parameters listed in bold type are preset values.

Table 4-14 Forward Link Radio Configuration 4 Settings (2 of 5)

Function		Command Header	Parameter	Query Command	Query Data
Supplemental Channel (Forward Traffic Channel A)	Information/ Physical data	C2F4TRCHA:DATA	**PN9** PN15 ALL0 ALL1 REP	C2F4TRCHA:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeating data pattern	C2F4TRCHA:REPD	Hexadecimal digit (0 to F) **(5)**	C2F4TRCHA:REPD?	Hexadecimal digit (0 to F)
	Bit error addition ON/ OFF	C2F4TRCHA:BERR	ON **OFF**	C2F4TRCHA:BERR?	ON OFF
	CRC control	C2F4TRCHA:CRC	**ON** OFF ADDERR	C2F4TRCHA:CRC?	ON OFF ADDERR
	CRC error addition value	C2F4TRCHA:CERR	0.001 0.005 0.01 **0.02**	C2F4TRCHA:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2
	Block Interleaving ON/ OFF	C2F4TRCHA:BINT	**ON** OFF	C2F4TRCHA:BINT?	ON OFF
	FEC method	C2F4TRCHA:SCH:FEC	**CONV** TURB	C2F4TRCHA:SCH:FEC?	CONV TURB
	Data Rate	C2F4TRCHA:SCH:RATE	307200 153600 76800 38400 19200 **9600** 4800 2700 1500	C2F4TRCHA:SCH:RATE?	307200 153600 76800 38400 19200 9600 4800 2700 1500
	Frame length	C2F4TRCHA:SCH:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2F4TRCHA:SCH:FLEN?	See to Table 4-22
	Walsh number	C2F4TRCHA:SCH:WNO	0 to 127 **(126)**	C2F4TRCHA:SCH:WNO?	0 to 127
	QOF number	C2F4TRCHA:SCH:QUASI	0 to 3 **(0)**	C2F4TRCHA:SCH:QUASI?	0 to 3

Note: Parameters listed in bold type are preset values.

Table 4-14 Forward Link Radio Configuration 4 Settings (3 of 5)

Function		Command Header	Parameter	Query Command	Query Data
Funda-mental Channel (Forward Traffic Channel B)	Output ON/OFF	C2F4TRCHB:CSW	ON OFF	C2F4TRCHB:CSW?	ON OFF
	Output level	C2F4TRCHB:CLV	Real number DB **(-15.6)**	C2F4TRCHB:CLV?	See to Table 4-22
	Channel configuration	C2F4TRCHB:CCONF	**FCH: 9600** : Real number S 4800 MS 2700 US 1500 **(0.02S)**	---	---
	Information/ Physical data	C2F4TRCHB:DATA	**PN9** PN15 ALL0 ALL1 REP	C2F4TRCHB:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeating data pattern	C2F4TRCHB:REPD	Hexadecimal digit (0 to F) **(5)**	C2F4TRCHB:REPD?	Hexadecimal digit (0 to F)
	Bit error addition ON/ OFF	C2F4TRCHB:BERR	ON **OFF**	C2F4TRCHB:BERR?	ON OFF
	CRC control	C2F4TRCHB:CRC	**ON** OFF ADDERR	C2F4TRCHB:CRC?	ON OFF ADDERR
	CRC error addition value	C2F4TRCHB:CERR	0.001 0.005 0.01 **0.02**	C2F4TRCHB:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2
	Block Interleaving ON/ OFF	C2F4TRCHB:BINT	**ON** OFF	C2F4TRCHB:BINT?	ON OFF
	Data Rate	C2F4TRCHB:FCH:RATE	**9600** 4800 2700 1500	C2F4TRCHB:FCH:RATE?	9600 4800 2700 1500
	Frame length	C2F4TRCHB:FCH:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2F4TRCHB:FCH:FLEN?	See to Table 4-22
	Walsh number	C2F4TRCHB:FCH:WNO	8 to 63 **(8)**	C2F4TRCHB:FCH:WNO?	8 to 63
	QOF number	C2F4TRCHB:FCH:QUASI	0 to 3 **(0)**	C2F4TRCHB:FCH:QUASI?	0 to 3

Note: Parameters listed in bold type are preset values.

Table 4-14 Forward Link Radio Configuration 4 Settings (4 of 5)

Function		Command Header	Parameter	Query Command	Query Data
Supplemental Channel (Forward Traffic Channel C)	Output ON/OFF	C2F4TRCHC:CSW	ON **OFF**	C2F4TRCHC:CSW?	ON OFF
	Output level	C2F4TRCHC:CLV	Real number DB **(-20.0)**	C2F4TRCHC:CLV?	See to Table 4-22
	Channel configuration	C2F4TRCHC:CCONF	**SCH**: 307200:Real number S 153600 MS 76800 US 38400 **(0.02S)** 19200 **9600** 4800 2700 1500	---	---
	Information/ Physical data	C2F4TRCHC:DATA	**PN9** PN15 ALL0 ALL1 REP	C2F4TRCHC:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeating data pattern	C2F4TRCHC:REPD	Hexadecimal digit (0 to F) **(5)**	C2F4TRCHC:REPD?	Hexadecimal digit (0 to F)
	Bit error addition ON/ OFF	C2F4TRCHC:BERR	ON **OFF**	C2F4TRCHC:BERR?	ON OFF
	CRC control	C2F4TRCHC:CRC	**ON** OFF ADDERR	C2F4TRCHC:CRC?	ON OFF ADDERR
	CRC error addition value	C2F4TRCHC:CERR	0.001 0.005 0.01 **0.02**	C2F4TRCHC:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2
	Block Interleaving ON/ OFF	C2F4TRCHC:BINT	**ON** OFF	C2F4TRCHC:BINT?	ON OFF
	FEC method	C2F4TRCHC:SCH:FEC	**CONV** TURB	C2F4TRCHC:SCH:FEC?	CONV TURB

Note: Parameters listed in bold type are preset values.

Table 4-14 Forward Link Radio Configuration 4 Settings (5 of 5)

Function		Command Header	Parameter	Query Command	Query Data
Supple-mental Channel (Forward Traffic Channel C)	Data Rate	C2F4TRCHC:SCH:RATE	307200 153600 76800 38400 19200 **9600** 4800 2700 1500	C2F4TRCHC:SCH:RATE?	307200 153600 76800 38400 19200 9600 4800 2700 1500
	Frame length	C2F4TRCHC:SCH:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2F4TRCHC:SCH:FLEN?	See to Table 4-22
	Walsh number	C2F4TRCHC:SCH:WNO	0 to 127 **(127)**	C2F4TRCHC:SCH:WNO?	0 to 127
	QOF number	C2F4TRCHC:SCH:QUASI	0 to 3 **(0)**	C2F4TRCHC:SCH:QUASI?	0 to 3

Note: Parameters listed in bold type are preset values.

Table 4-15 Forward Link Radio Configuration 5 Settings (1 of 5)

Function		Command Header	Parameter	Query Command	Query Data
Primary channel		C2F5PR	TRCHA **TRCHB** TRCHC	C2F5PR?	TRCHA TRCHB TRCHC
Coding target channel		C2F5RT	TRCHA **TRCHB** TRCHC OFF	C2F5RT?	TRCHA TRCHB TRCHC OFF
Level adjustment channel		C2F5PAC	PICH **SYNCH** TRCHA TRCHB TRCHC OFF	C2F5PAC?	PICH SYNCH TRCHA TRCHB TRCHC OFF
Pilot Channel	Output ON/OFF	C2F5PICH:CSW	**ON** OFF	C2F5PICH:CSW?	ON OFF
	Output level	C2F5PICH:CLV	Real number DB **(-7.0)**	C2F5PICH:CLV?	See to Table 4-22
Sync Channel	Output ON/OFF	C2F5SYNCH:CSW	**ON** OFF	C2F5SYNCH:CSW?	ON OFF
	Output level	C2F5SYNCH:CLV	Real number DB **(-1.1)**	C2F5SYNCH:CLV?	See to Table 4-22
Supplemental Channel (Forward Traffic Channel A)	Output ON/OFF	C2F5TRCHA:CSW	ON **OFF**	C2F5TRCHA:CSW?	ON OFF
	Output level	C2F5TRCHA:CLV	Real number DB **(-20.0)**	C2F5TRCHA:CLV?	See to Table 4-22
	Channel configuration	C2F5TRCHA:CCONF	**SCH**: 230400:Real number S 115200 MS 57600 US 28800 **(0.02S)** **14400** 7200 3600 1800	---	---
	Information/ Physical data	C2F5TRCHA:DATA	**PN9** PN15 ALL0 ALL1 REP	C2F5TRCHA:DATA?	PN9 PN15 ALL0 ALL1 REP

Note: Parameters listed in bold type are preset values.

Table 4-15 Forward Link Radio Configuration 5 Settings (2 of 5)

Function		Command Header	Parameter	Query Command	Query Data
Supplemental Channel (Forward Traffic Channel A)	4-bit repeating data pattern	C2F5TRCHA:REPD	Hexadecimal digit (0 to F) **(5)**	C2F5TRCHA:REPD?	Hexadecimal digit (0 to F)
	Bit error addition ON/OFF	C2F5TRCHA:BERR	ON **OFF**	C2F5TRCHA:BERR?	ON OFF
	CRC control	C2F5TRCHA:CRC	**ON** OFF ADDERR	C2F5TRCHA:CRC?	ON OFF ADDERR
	CRC error addition value	C2F5TRCHA:CERR	0.001 0.005 0.01 **0.02**	C2F5TRCHA:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2
	Block Interleaving ON/OFF	C2F5TRCHA:BINT	**ON** OFF	C2F5TRCHA:BINT?	ON OFF
	FEC method	C2F5TRCHA:SCH:FEC	**CONV** TURB	C2F5TRCHA:SCH:FEC?	CONV TURB
	Data Rate	C2F5TRCHA:SCH:RATE	230400 115200 57600 28800 **14400** 7200 3600 1800	C2F5TRCHA:SCH:RATE?	230400 115200 57600 28800 **14400** 7200 3600 1800
	Frame length	C2F5TRCHA:SCH:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2F5TRCHA:SCH:FLEN?	See to Table 4-22
	Walsh number	C2F5TRCHA:SCH:WNO	0 to 63 **(62)**	C2F5TRCHA:SCH:WNO?	0 to 63
	QOF number	C2F5TRCHA:SCH:QUASI	0 to 3 **(0)**	C2F5TRCHA:SCH:QUASI?	0 to 3

Note: Parameters listed in bold type are preset values.

Table 4-15 Forward Link Radio Configuration 5 Settings (3 of 5)

Function		Command Header	Parameter	Query Command	Query Data
Funda-mental Channel (Forward Traffic Channel B)	Output ON/OFF	C2F5TRCHB:CSW	**ON** OFF	C2F5TRCHB:CSW?	ON OFF
	Output level	C2F5TRCHB:CLV	Real number DB **(-15.6)**	C2F5TRCHB:CLV?	See to Table 4-22
	Channel configuration	C2F5TRCHB:CCONF	**FCH: 14400**: Real number S 9600 MS 7200 US 3600 **(0.02S)** 1800	---	---
	Information/ Physical data	C2F5TRCHB:DATA	**PN9** PN15 ALL0 ALL1 REP	C2F5TRCHB:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeating data pattern	C2F5TRCHB:REPD	Hexadecimal digit (0 to F) **(5)**	C2F5TRCHB:REPD?	Hexadecimal digit (0 to F)
	Bit error addition ON/ OFF	C2F5TRCHB:BERR	ON **OFF**	C2F5TRCHB:BERR?	ON OFF
	CRC control	C2F5TRCHB:CRC	**ON** OFF ADDERR	C2F5TRCHB:CRC?	ON OFF ADDERR
	CRC error addition value	C2F5TRCHB:CERR	0.001 0.005 0.01 **0.02**	C2F5TRCHB:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2
	Block Interleaving ON/ OFF	C2F5TRCHB:BINT	**ON** OFF	C2F5TRCHB:BINT?	ON OFF
	Data Rate	C2F5TRCHB:FCH:RATE	**14400** 9600 7200 3600 1800	C2F5TRCHB:FCH:RATE?	14400 9600 7200 3600 1800
	Frame length	C2F5TRCHB:FCH:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2F5TRCHB:FCH:FLEN?	See to Table 4-22

Note: Parameters listed in bold type are preset values.

Table 4-15 Forward Link Radio Configuration 5 Settings (4 of 5)

Function		Command Header	Parameter	Query Command	Query Data
Funda-mental Channel (Forward Traffic Channel B)	Walsh number	C2F5TRCHB:FCH:WNO	8 to 63 **(8)**	C2F5TRCHB:FCH:WNO?	8 to 63
	QOF number	C2F5TRCHB:FCH:QUASI	0 to 3 **(0)**	C2F5TRCHB:FCH:QUASI?	0 to 3
Supple-mental Channel (Forward Traffic Channel C)	Output ON/OFF	C2F5TRCHC:CSW	ON **OFF**	C2F5TRCHC:CSW?	ON OFF
	Output level	C2F5TRCHC:CLV	Real number DB **(-20.0)**	C2F5TRCHC:CLV?	See to Table 4-22
	Channel configuration	C2F5TRCHC:CCONF	**SCH**: 230400:Real number S 115200 MS 57600 US 28800 **(0.02S)** **14400** 7200 3600 1800	---	---
	Information/ Physical data	C2F5TRCHC:DATA	**PN9** PN15 ALL0 ALL1 REP	C2F5TRCHC:DATA?	PN9 PN15 ALL0 ALL1 REP
	4-bit repeating data pattern	C2F5TRCHC:REPD	Hexadecimal digit (0 to F) **(5)**	C2F5TRCHC:REPD?	Hexadecimal digit (0 to F)
	Bit error addition ON/ OFF	C2F5TRCHC:BERR	ON **OFF**	C2F5TRCHC:BERR?	ON OFF
	CRC control	C2F5TRCHC:CRC	**ON** OFF ADDERR	C2F5TRCHC:CRC?	ON OFF ADDERR
	CRC error addition value	C2F5TRCHC:CERR	0.001 0.005 0.01 **0.02**	C2F5TRCHC:CERR?	1.0E-3 5.0E-3 1.0E-2 2.0E-2
	Block Interleaving ON/ OFF	C2F5TRCHC:BINT	**ON** OFF	C2F5TRCHC:BINT?	ON OFF
	FEC method	C2F5TRCHC:SCH:FEC	**CONV** TURB	C2F5TRCHC:SCH:FEC?	CONV TURB

Note: Parameters listed in bold type are preset values.

Table 4-15 Forward Link Radio Configuration 5 Settings (5 of 5)

Function		Command Header	Parameter	Query Command	Query Data
Supple-mental Channel (Forward Traffic Channel C)	Data Rate	C2F5TRCHC:SCH:RATE	230400 115200 57600 28800 **14400** 7200 3600 1800	C2F5TRCHC:SCH:RATE?	230400 115200 57600 28800 14400 7200 3600 1800
	Frame length	C2F5TRCHC:SCH:FLEN	Real number S (sec) MS (msec) US (µsec) **(0.02S)**	C2F5TRCHC:SCH:FLEN?	See to Table 4-22
	Walsh number	C2F5TRCHC:SCH:WNO	0 to 63 **(63)**	C2F5TRCHC:SCH:WNO?	0 to 63
	QOF number	C2F5TRCHC:SCH:QUASI	0 to 3 **(0)**	C2F5TRCHC:SCH:QUASI?	0 to 3

Note: Parameters listed in bold type are preset values.

Table 4-16 External I/Q Commands

Function	Command Header	Parameter	Query Command	Query Data
I signal input gain adjustment	LBAI	Integer	LBAI?	Integer
Q signal input gain adjustment	LBAQ	Integer	LBAQ?	Integer
I/Q signal input phase adjustment	PHA	Integer	PHA?	Integer
I signal output gain adjustment	LOAI	Integer	LOAI?	Integer
Q signal output gain adjustment	LOAQ	Integer	LOAQ?	Integer

Table 4-17 BER Counter Commands

Function	Command Header	Parameter	Query Command	Query Data
Measurement start/result output	BER	---	BER?	See to Table 4-22
Measurement stop	STOP	---	---	---
Measurement data setting	BMDAT	PN9/PN15	BMDAT?	PN9/PN15
Measurement bit length setting	BLEN	Integer	BLEN?	Integer
Input clock polarity	BCLK	POS/NEG	BCLK?	POS/NEG
Input data polarity	BDAT	POS/NEG	BDAT?	POS/NEG

Table 4-18 Selftest and Calibration Commands

Function	Command Header	Parameter	Query Command	Query Data
Modulator calibration execution	CMOD	---	---	---
Modulator calibration correction ON/OFF	CMC	ON/OFF	CMC?	ON/OFF
Selftest execution/result output	---	---	*TST?	Integer
AWGN calibration execution	CWGN	---	---	
AWGN calibration ON/OFF	CAC	ON OFF	CAC?	ON OFF

Table 4-19 Clock/Timing Signal Commands

Function	Command Header	Parameter	Query Command	Query Data
SYNTHE REF IN	RSYN	**INTERNAL** C0 (1 MHz) C1 (1.2288 MHz) C2 (2 MHz) C3 (2.4576 MHz) C4 (4.9152 MHz) C5 (5 MHz) C6 (9.8304 MHz) C7 (10 MHz) C8 (15 MHz) C9 (19.6608 MHz)	RSYN?	INTERNAL C0 C1 C2 C3 C4 C5 C6 C7 C8 C9
10 MHz reference source adjustment	SRAD	Integer	SRAD?	Integer
MOD TIME BASE IN	MODTB	**INTERNAL** C0 (1 MHz) C1 (1.2288 MHz) C2 (2 MHz) C3 (2.4576 MHz) C4 (4.9152 MHz) C5 (5 MHz) C6 (9.8304 MHz) C7 (10 MHz) C8 (15 MHz) C9 (19.6608 MHz)	MODTB?	INTERNAL C0 C1 C2 C3 C4 C5 C6 C7 C8 C9
CLOCK OUT1	REAROUT1	**OFF** T0 (20 msec) T1 (26.6 msec) T2 (80 msec) T3 (2 sec) T4 (5 msec) T5 (Chip Clock) EXTERNAL	REAROUT1?	**OFF** T0 T1 T2 T3 T4 T5 EXTERNAL
CLOCK OUT2	REAROUT2	**OFF** T0 (20 msec) T1 (26.6 msec) T2 (80 msec) T3 (2 sec) T4 (5 msec) T5 (Chip Clock) EXTERNAL	REAROUT2?	**OFF** T0 T1 T2 T3 T4 T5 EXTERNAL

Note: Parameters listed in bold type are preset values.

Table 4-20 Save/Recall Condition Commands

Function	Command Header	Parameter	Query Command	Query Data
Saving conditions	SAVC	Integer	---	---
Recalling conditions	RECC	Integer	---	---

Table 4-21 System Revision Format

Product Name	MS	Product Serial Number	MS	System Code	MS	System Revision1	MS	System Revision2
R3562	,	9-digit integer	,	cdma2000	,	A00	,	A00

Note: MS indicates Message Separator.

Table 4-22 Numerical Data Output Format

Item			Output Format	Unit
Output frequency settings	Direct input		D.DDDDDDDDDeD	Hz
	Channel number input	Channel spacing setting		
		Start frequency setting		
Output level settings	Output level setting		D.DDDeD D.DDDe-D -D.DDDeD -D.DDDe-D	(See NOTE)
	Output level upper limit setting			dB
	Output level offset setting			
Eb/No(Nt) value				
Channel output level				
PN offset (EXT TRIG Delay)			D.DDDDeD D.DDDDe-D	---
Frame length			D.DDDe-D	Sec
BER Counter setting	Measurement result		D.DDDDDDDe-D	---

Note: The unit can be specified by the query data unit setting.

5. PERFORMANCE VERIFICATION

This chapter explains the devices and procedures used to verify that Option 65 conforms to the specifications.

CAUTION:

1. ***Before executing a performance verification, warm up and calibrate the R3562 and the devices used for measurement.***
2. ***For information on the procedures to be used for verifying basic performance such as the output frequency and output level, refer to Chapter 6 in the "R3562 Receiver Test Source Operating Instructions."***

5.1 Devices Used and Their Specifications

Table 5-1 lists the devices used for performance verifications.

CAUTION: Ensure that these devices conform to the specified standard.

Table 5-1 Devices Used

No.	Device name	Specifications	Recommended model	Quantity
1	Spectrum analyzer	Frequency range: 100 Hz to 8 GHz Noise sideband: -100 dBc/Hz (offset 10 kHz) Average noise level: 125 dBm/Hz Cdma2000 modulation analysis function	R3267 + 01 + 08 + 65 Advantest	1
2	Power meter	Frequency range: 800 MHz to 6600 MHz Level range: -20 dBm to +10 dBm	NRVS + NRV-Z51 Rode & Schwarz	1
3	Function generator	Frequency range: 100 kHz to 20 MHz Level: TTL	HP3325B Hewlett Packard	1
4	RF Cable	BNC(m) to BNC(m), 50Ω	A01037-1500	3
5	Adapter	Type N(m) to BNC(f), 50Ω	JUG-201-A/U	2

5.2 Performance Verification

5.2.1 Output level

Using the power meter, check the output level at the RF OUT connector during cdma2000 modulation. Specifically, verify that RF OUT output level is 0 dBm when the setting of the generator mode (which is added by installing this option) is changed.

---

*NOTE: **For information on how to verify output levels other than 0 dBm, refer to Section 6.2.2, "Output Level" in the R3562 Receiver Test Source Operating Instructions.***

---

1. Specifications

   Accuracy: < ±1.5 dB, 25°C±10°C

2. Setup

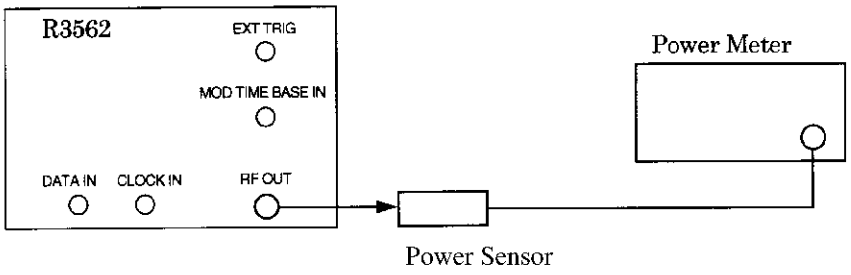


Figure 5-1 Setup (Output level measurement)

3. Procedure

   1. Set the R3562 as follows:

Frequency:	800 MHz
Output level:	0 dBm
Modulation:	ON
Generator mode:	SIGO (Signal Only)

   2. Vary the frequency from 800 MHz to 2300 MHz in steps of 50 MHz and check the output level with the power meter.

   3. Set the generator mode to NOIO (Noise Only) and perform the same measurement.

   4. Set the generator mode to EBNO (Eb/No) and perform the same measurement.

5.2.2 Modulation

Using the cdma2000 modulation analysis option of the R3267, verify the modulation accuracy of the output signal at the RF OUT connector.

1. Specifications

   Accuracy: Error Vector Magnitude < 6 %rms

2. Setup

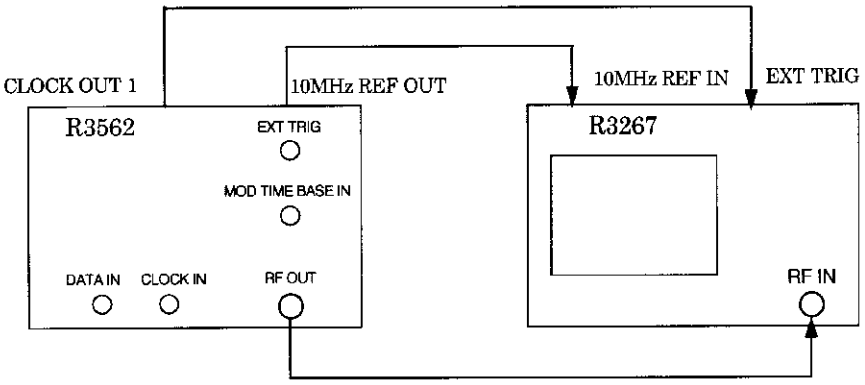


Figure 5-2 Setup (Modulation)

3. Procedure

   1. Set the R3562 as follows:

      IP (Preset)

      Frequency: 800 MHz

      Output level: 0 dBm

      Modulation: ON

      Link: Forward Link

      Radio Configuration: RC4

      CLOCK OUT 1: 2 Sec

   2. Calibrate the R3562 modulator.

3. Verify the modulation accuracy using the cdma2000 modulation analysis option of the R3267.

   PRESET

   FREQUENCY: 800 MHz

   [TRANSIENT mode]

   STD Setup (STD → STD Setup)

   Band Class: 0

   Link: Forward

   Offset Level: 0.0 dB

   Frequency Input: FREQUENCY

   Input: RF

   IQ Inverse: NORMAL

   Cont Auto Level Set: OFF

4. Select code domain measurement. (Modulation → Code Domain Power Coef)

   Meas Option

   EVM: ON

   Parameter Setup (Values other than those indicated in bold are defaults.)

   Meas Range: 128 chip

   τ Offset: 0.00 μs

   Complementary Filter: ON

   Rolloff Factor: 0.05

   Equalizing Filter: ON

   PN Offset Search Mode: OFF

   PN Offset: 0

   Carrier Freq. Search: 10 kHz

   Trigger Source: EXT

   EXT Trigger Slope: +

   Threshold: -27 dB

   Channel Define: OFF

   Walsh Code Length: 128

   QOF: 0

   Palay Order: OFF

   After performing Auto Level Set, start a measurement and then check the error vector magnitude.

5. Repeat the same measurement while changing the R3562 frequency until it reaches 2300 MHz in accordance with the performance check sheet.

5.2.3 AWGN

Verify the AWGN bandwidth using the spectrum analyzer.

1. Specifications
   Bandwidth (3 dB down) > 2 MHz
2. Setup

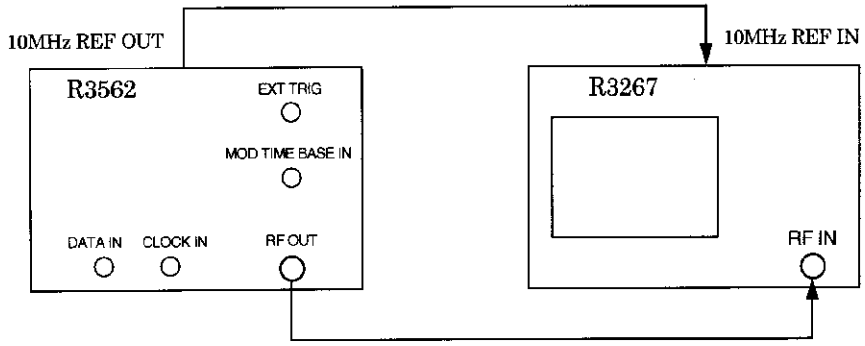


Figure 5-3 Setup (AWGN)

3. Procedure

   1. Set up the R3562 as follows:
      Initialization: IP (Preset)
      Frequency: 800 MHz
      Output level: 0 dBm
      Modulation: ON
      Generator mode: NOIO (Noise Only)
   2. Calibrate the R3562 AWGN.
   3. Verify the AWGN bandwidth using the R3267 spectrum analyzer.
      PRESET
      FREQUENCY: 800 MHz
      REF LEVEL: 0.0 dBm
   4. Measure the occupied bandwidth using the OBW measurement function.
      [TRANSIENT mode]
      F - Domain → OBW

5.2.4 SYNTHE REF IN

1. Specifications

   Input frequency: 1 MHz/ 2 MHz/ 5 MHz/ 10 MHz/ 15 MHz
   1.2288 MHz/ 2.4576 MHz/ 4.9152 MHz/ 9.8304 MHz/ 19.6608 MHz

   Input level: > 0 dBm, 50Ω

2. Setup

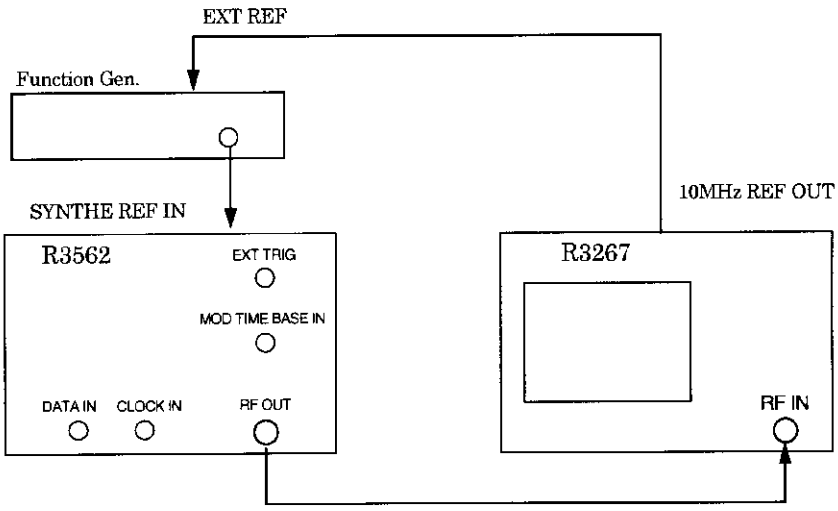


Figure 5-4 Setup (SYNTHE REF IN)

3. Procedure

   1. Set up the R3562 as follows:

      Initialization: IP (Preset)
      Frequency: 1000 MHz
      Output level: 0 dBm
      Modulation: OFF

   2. Set the function generator to 1 MHz, 0 dBm.

   3. Change R3562 SYNTHE REF.

      SYNTH REF: 1 MHz

   4. Confirm that the SYNTH UNLOCK LED on the front panel goes off and then confirm that synchronization is established using the R3267 frequency counter function.

      NOTE: Synchronization takes approximately 2 minutes.

   5. Perform the same verification while changing the R3562 SYNTHE REF setting and function generator frequency.

5.2.5 MOD TIMEBASE IN

1. Specifications

   Input frequency: 1 MHz/ 2 MHz/ 5 MHz/ 10 MHz/ 15MHz
   1.2288 MHz/ 2.4576 MHz/ 4.9152 MHz/ 9.8304 MHz/ 19.6608 MHz

   Input level: TTL

2. Setup

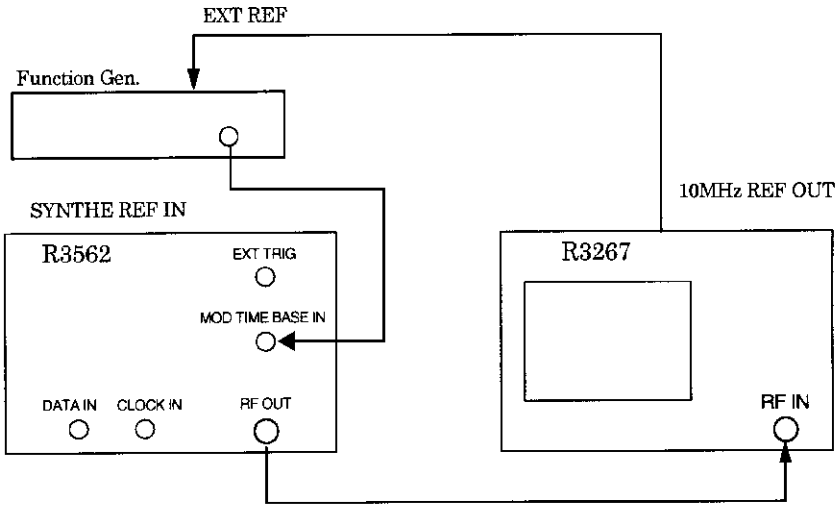


Figure 5-5 Setup (MOD TIMEBASE IN)

3. Procedure

   1. Set up the R3562 as follows:

      Initialization: IP (Preset)
      Frequency: 1000 MHz
      Output level: 0 dBm
      Modulation: ON

   2. Set the function generator to 1 MHz and the TTL level. (Example: 2Vpp, DC Offset 1 V *Output Impedance 50Ω)

   3. Change the R3562 MODE TIMEBASE setting as follows.

      MOD TIME BASE: 1 MHz

   4. Confirm that the SYNTH UNLOCK LED on the front panel goes off.

   5. Perform the same verification while changing the R3562 MOD TIMEBASE setting and function generator frequency.

5.3 Performance Check Sheet

Table 5-2 Performance Check Sheet

Item	Setting		Specification (minimum)	Measured value	Specification (maximum)	Unit	Evaluation
5.2.1 Output level	MOD: ON 800 MHz to 2300 MHz 50 MHz Step	SIGO	-1.5		+1.5	dBm	
		NOIO	-1.5		+1.5	dBm	
		EBNO	-1.5		+1.5	dBm	
5.2.2 Modulation	MOD: ON Forward Link RC4	800 MHz			6.0	%rms	
		1500 MHz			6.0	%rms	
		2300 MHz			6.0	%rms	
5.2.3 AWGN	Band Width		2.0			MHz	
5.2.4 SYNTHE REF IN	Level: >0 dBm	1 MHz	Checked				
		2 MHz	Checked				
		5 MHz	Checked				
		10 MHz	Checked				
		15 MHz	Checked				
		1.2288 MHz	Checked				
		2.4576 MHz	Checked				
		4.9152 MHz	Checked				
		9.8304 MHz	Checked				
		19.6608 MHz	Checked				
5.2.5 MOD TIMEBASE IN	Level: TTL	1 MHz	Checked				
		2 MHz	Checked				
		5 MHz	Checked				
		10 MHz	Checked				
		15 MHz	Checked				
		1.2288 MHz	Checked				
		2.4576 MHz	Checked				
		4.9152 MHz	Checked				
		9.8304 MHz	Checked				
		19.6608 MHz	Checked				

6. SPECIFICATIONS

Item		Specification
Modulation basis	Spreading rate	SR1
	Chip Rate	1.2288 Mcps
	Long Code Mask	ALL 0
	Error Vector Magnitude	<6 %rms (after calibration)
	ACP	<-45 dBc (BW: 30 kHz, Offset: 750 kHz) <-55 dBc (BW: 30 kHz, Offset: 1.98 MHz)
	Channel Power	0 dB to -20dB
Reverse Link	Radio Configuration	RC1 to RC4
	PN Offset	0 to 511 (1PN offset: 64 chips)
	Channel Type	Pilot Channel (PICH) Dedicated Control Channel (DCCH) Fundamental Channel (FCH) Supplemental Channel 1 (SCH1) Supplemental Channel 2 (SCH2)
	PICH Gating Rate	1, 1/2, 1/4
	Power Control Bit	Repeating 160 bits (User defined pattern)
	Frame Length	DCCH, FCH: 5 msec, 20 msec SCH1, 2: 20 msec, 40 msec, 80 msec *Depending on RC and Frame Length
	Data Rate	DCCH: 14400 bps, 9600 bps FCH: 1200 bps to 14400 bps SCH1, 2: 1.5 kbps to 307.2 kbps *Depending on RC and Frame Length
	Data Source	PN9, PN15, ALL0, ALL1, Repeating 4-bit pattern
	CRC	ON/OFF
	Block Interleaving	ON/OFF
	BER addition	0%, 1 %
	CRC Error addition	0%, 0.1 %, 0.5 %, 1%, 2%
	Real-time Coding	Can be selected one channel from DCCH/FCH/SCH, SCH2 *Other channels: Partially coded data

6. SPECIFICATIONS

Item		Specification
Forward Link	Radio Configuration	RC1 to RC5
	Channel Type	Pilot Channel (PICH) Sync Channel (SYNCH) Fundamental Channel (FCH) Supplemental Channel (SCH)
	Frame Length	DCCH, FCH: 5 msec, 20 msec SCH: 20 msec, 40 msec, 80 msec *Depending on RC and Frame Length
	Data Rate	FCH: 1200 bps to 14400 bps SCH: 1.5 kbps to 307.2 kbps *Depending on RC and Frame Length
	Walsh Code	PICH: 0, SYNCH: 32 (Fixed) FCH, SCH: 0 to 127 (Depending on RC and Frame Length)
	QOF	0 to 3
	Data Source	PN9, PN15, ALL0, ALL1, Repeating 4-bit pattern
	CRC	ON/OFF
	Block Interleaving	ON/OFF
	BER addition	0 %, 1 %
	CRC Error addition	0 %, 0.1 %, 0.5 %, 1%, 2%
	Real-time Coding	Can be selected one channel from FCH, SCH *Other channels: Partially coded data
AWGN	Band Width	> 2 MHz (Typical)
	Eb/No(Nt) Range	0 dB to 15 dB
	Eb/No(Nt) Resolution	0.1 dB
	Eb/No(Nt) Accuracy	< ±1.0 dB (after calibration)
Clock& Timing	External Trigger	2 sec ± 300 nsec (TTL)
	Modulation Time Base	19.6608 MHz, 9.8304 MHz, 4.9152 MHz, 2.4576 MHz, 1.2288 MHz 15 MHz, 10MHz, 5 MHz, 2 MHz, 1 MHz (TTL)
	Clock Out 1, 2	20 msec, 26.6 msec, 80 msec, 2 sec, 5 msec External Trigger Input Signal (TTL)
	Synthe Reference	19.6608 MHz, 9.8304 MHz, 4.9152 MHz, 2.4576 MHz, 1.2288 MHz 15 MHz, 10MHz, 5 MHz, 2 MHz, 1 MHz (> 0 dBm)

APPENDIX

A.1 Examples of Connection for the Receiver Test

This appendix provides connection examples of a receiver test using a cdma2000 base station (BS: Base Station) and a mobile station (MS: Mobile Station).

A.1.1 Receiver test for a base station

The R3562 generates each Reverse Link (Reverse Pilot / Dedicated Control / Fundamental / Supplemental 1 and 2) channel signal in sync with the frequency reference and Even Second signals from the base station.

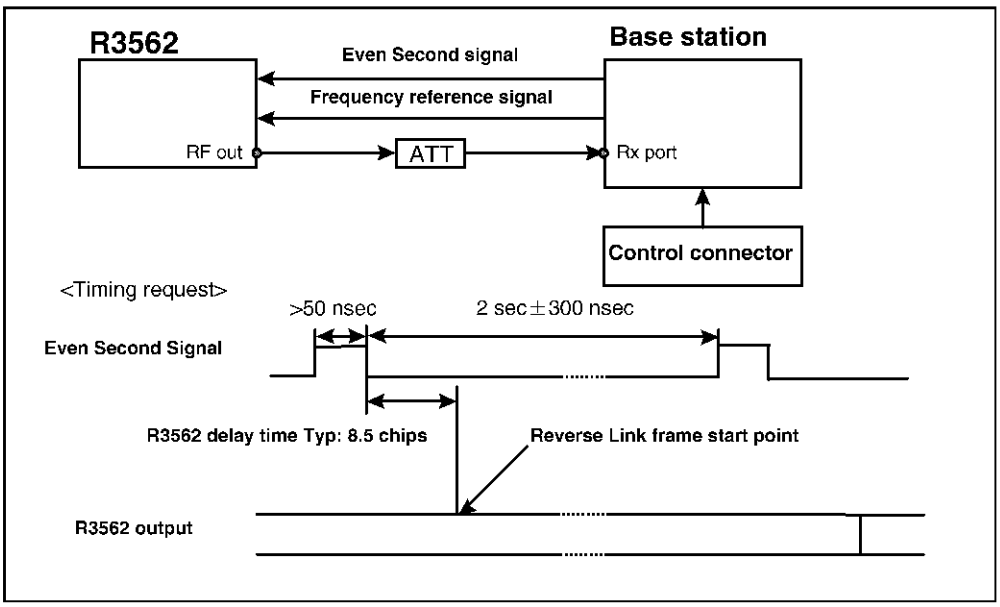


Figure A-1 Receiver Test for a Base Station

A.1.2 Receiver test for a mobile station

The R3562, which is used as a pseudo base station, generates each Forward Link (Pilot / Sync / Fundamental / Supplemental) channel signal. In this case, a BER measurement can also be performed by connecting the R3562 with the MS connectors, which are used for the demodulation data and demodulation clock signal outputs.

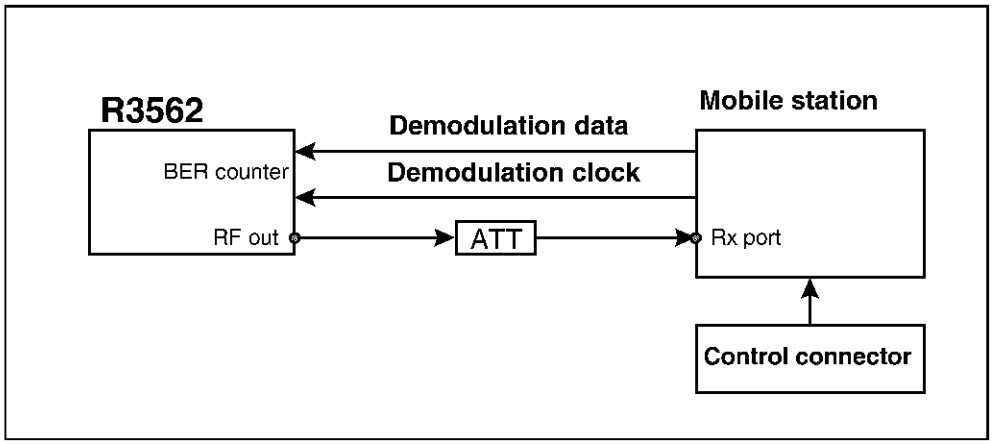


Figure A-2 Receiver Test for a Mobile Station

ALPHABETICAL INDEX

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