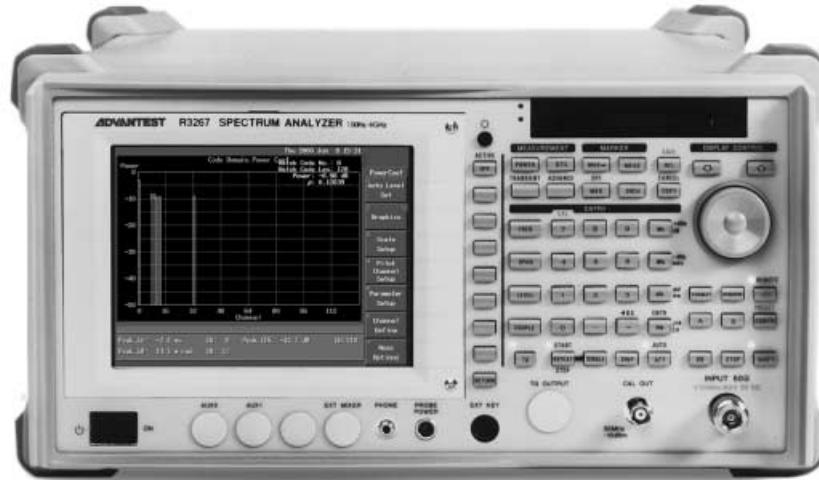


### For cdma2000 Transmission Test



Spectrum Analyzer R3267/3273

#### ■ Overview

The cdma2000 analysis software option (OPT.65) makes R3267/3273 possible to measure the transmission test items for cdma2000 1X system.

This option contributes to both base station/mobile station for each band class with a single unit. In addition, waveform quality (Rho etc.) and code domain power measurement are possible. (Operation of OPT.65 require Digital Modulation Analysis Option (OPT.01).)

#### ■ Target systems

cdma2000 1X system

BS : RC1 to RC5

MS : RC3, RC4

( RC1 and RC2 measurement of MS require cdmaOne )  
( IS-95B ) Analysis Software Option (OPT.61).

#### ■ Features

- Dual mode analysis
  - Spectrum analyzer mode
    - ( R3267 20Hz to 8GHz )
    - ( R3273 20Hz to 26.5GHz )
  - cdma2000 Tx tester mode
- Standard item measurement such as Rho ( $\rho$ ) and code domain power, etc.
- Automatic setting of cdma2000 parameters
- Simple operation with conversational key menu.
- Standard limit test function is provided

#### ■ Measurement items

- Channel (F-Domain) power
- Gated output (T-Domain) power
- Tx power
- ON/OFF ratio
- OBW
- Due to Trans. (Spectrum Mask)
- Waveform quality (Multiple  $\rho$ )
- Time Alignment Error ( $\tau$ )
- Frequency Error
- Code domain power/ $\rho/\tau/\theta$ , CDE
- Spurious emissions
- Graphics analysis
- CCDF

# Display Example

## STD parameter setup menu

STD Measurement Parameter Set

Band Class: 6

Link: FORWARD REVERSE(RC3&4)

Offset Level: 0.0 dB

Frequency Input: FREQUENCY CHANNEL

Input: RF

IQ Inverse: NORMAL INVERSE

Cont Auto Level Set: ON OFF

Channel Setting

STD Setup

## Channel setup menu

Channel Setting

Table 1: ENABLE DISABLE

Reverse: 50.00 kHz \*(N+ 0) + 1.9200000 GHz

Forward: 50.00 kHz \*(N+ 0) + 2.1100000 GHz

Table 2: ENABLE DISABLE

Reverse: \*(N+ ) +

Forward: \*(N+ ) +

Table 3: ENABLE DISABLE

Reverse: \*(N+ ) +

Forward: \*(N+ ) +

Channel

Copy from STD

Edit Table 1 2 3

Edit Table 4 5 6

Edit Table 7 8 9

## Channel Power

Channel Power

Power (Band Class 6: FWD Link)

Window Conditions	Power	Judge
Posi: 2.11000000 GHz	-1.20 dBm	PASS
Width: 1.2288 MHz		

## Due to Trans. (Spectrum Mask)

Due to Trans. (Spectrum Mask)

Due to Transient (Band Class 6: FWD Link)

Carrier Freq.	Ref. Power	Offset Freq.	Power(-)	Judge	Power(+)	Judge
1: 885.000 kHz	3.15 dBm	-49.79 dBc	PASS	-50.02 dBc	PASS	
2: 1.980000 MHz		-59.97 dBc	PASS	-57.67 dBc	PASS	
3: 2.250000 MHz		-55.49 dBc	PASS	-59.60 dBc	PASS	

## In-Band spurious

In-Band spurious

Inband Spurious (Band Class 6: FWD Link)

Carrier Freq.	Ref. Power	Search Region	Peak Freq.	Power	Judge
1: 2.11000 GHz	-65.88 dBm	-2.250000 MHz	2.13141 GHz	-65.88 dBm	PASS
2: 2.11000 GHz		+2.250000 MHz			

## Out-Band Spurious

Out-Band Spurious

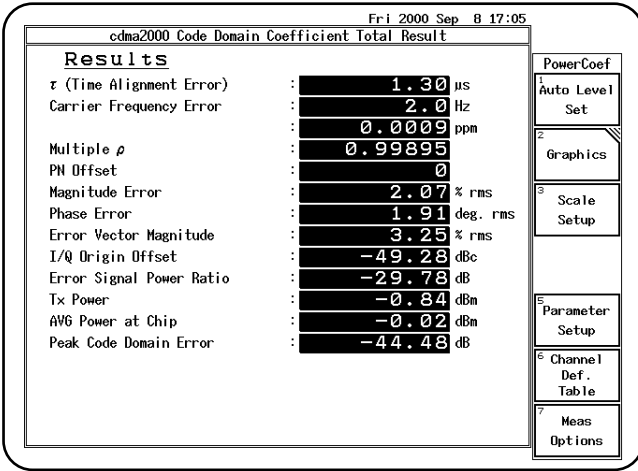
Outband Spurious (Band Class 6: FWD Link)

Start Freq.	Stop Freq.	Peak Freq.	Power	Judge
1: 10.000 MHz	810.000 MHz	482.800 MHz	-72.09 dBm	PASS
2: 810.000 MHz	885.000 MHz	866.175 MHz	-73.75 dBm	PASS
3: 885.000 MHz	1.000000 GHz	940.775 MHz	-72.15 dBm	PASS
4: 1.000000 GHz	2.100000 GHz	1.872300 GHz	-69.40 dBm	PASS
5: 2.170000 GHz	8.000000 GHz	7.533600 GHz	-67.95 dBm	PASS

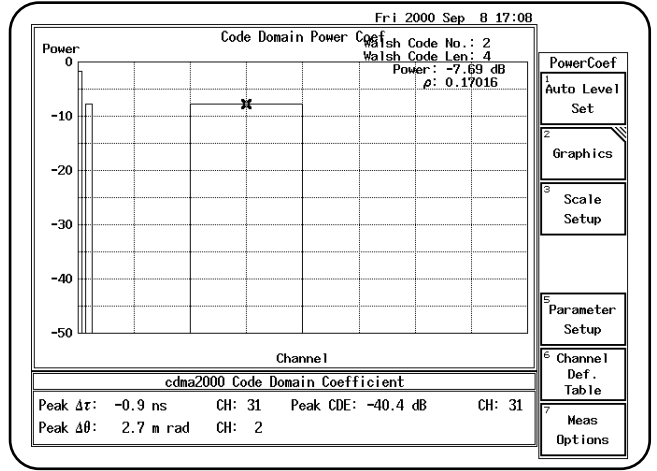
# cdma2000 Analysis Software Option (OPT.65)

## Code domain coefficient (Total result)

## Code domain power

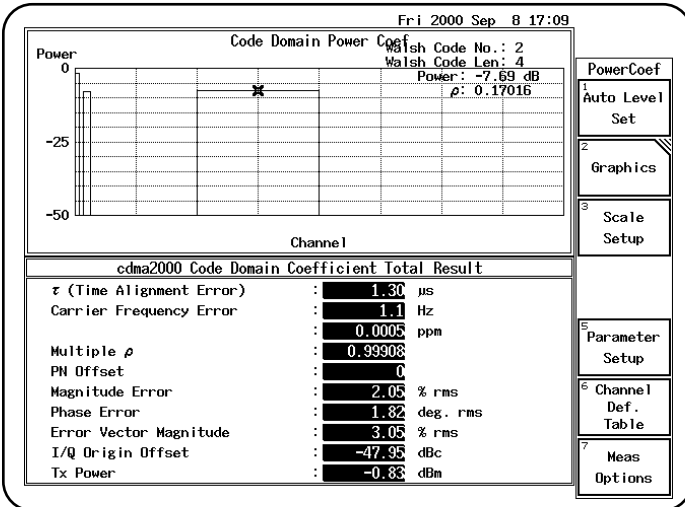


<BS>

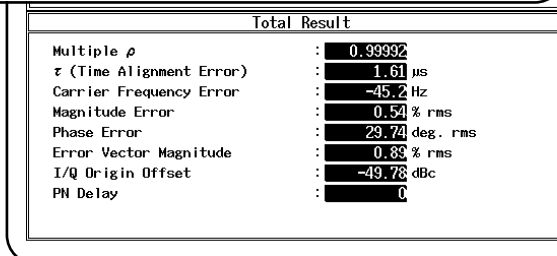


<BS>

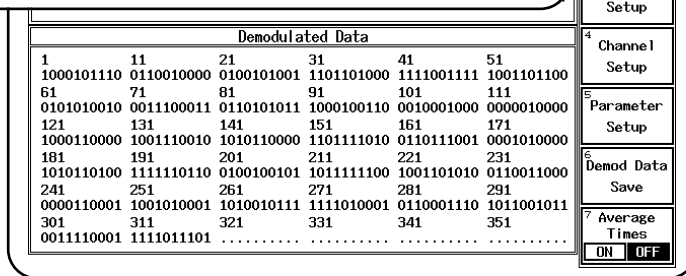
## Code domain power



◀ BS Dual Display



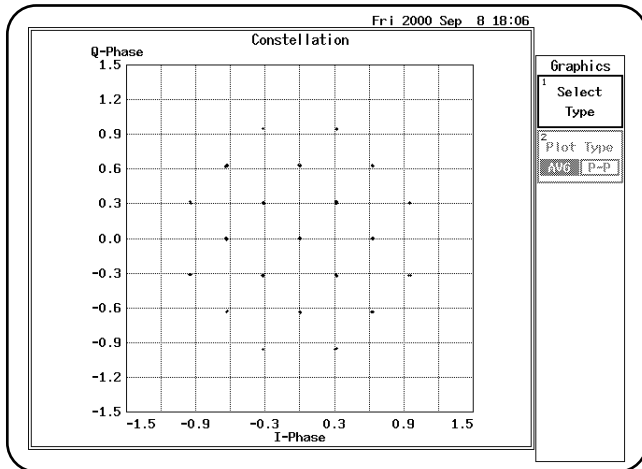
◀ MS Total result



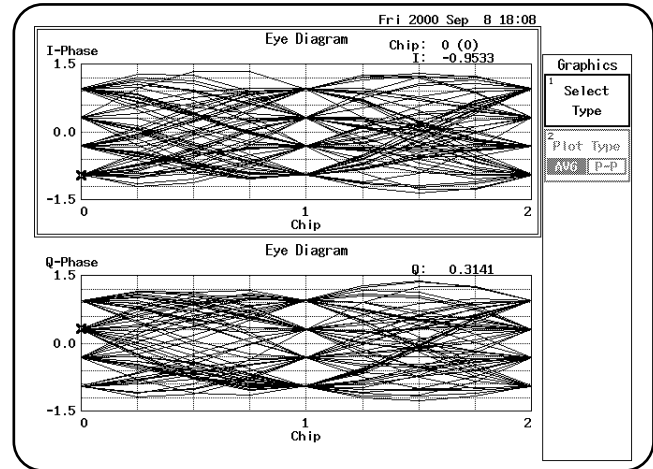
◀ MS Demod. data

# cdma2000 Analysis Software Option (OPT.65)

## ■ Constellation (Dot) display



## ■ I/Q Eye diagram display



## ■ FORWARD Link

Items	Specifications
Code Domain Power Measurement Frequency range Input level	IS-97 "Base Station Test Model" measurement 30MHz to 3.0GHz -30dBm to +30dBm (@ATT auto, Total power)
POWER $i$ Carrier frequency error	(@1280 chip measurement) Accuracy : $< \pm 0.1\text{dB}$ ( $@ \Delta \tau i = 0$ ) Accuracy : $< \pm$ (Frequency reference accuracy $\times$ Carrier frequency + 10Hz) (@Carrier frequency $\leq \pm 4\text{kHz}$ , Carrier Freq. Search=10kHz)
$\Delta \tau i$ $\Delta \theta i$	Accuracy : $< \pm 10\text{ns}$ Accuracy : $< \pm 10\text{mrad}$

## ■ REVERSE Link

Items	Specifications																					
Code Domain Power Measurement	Measurement Signal Condition																					
	<table border="1"> <thead> <tr> <th>Reverse Traffic channel</th> <th colspan="2">Long Code Mask : ALL 0</th> </tr> <tr> <th>Channel</th> <th>Walsh function</th> <th>Amplitude</th> </tr> </thead> <tbody> <tr> <td>PICH</td> <td><math>W_0^{32}</math></td> <td>-6.99dB</td> </tr> <tr> <td>DCCH</td> <td><math>W_8^{16}</math></td> <td>-6.99dB</td> </tr> <tr> <td>SCH2</td> <td><math>W_6^8 (M=2)</math></td> <td>-6.99dB</td> </tr> <tr> <td>FCH</td> <td><math>W_4^{16}</math></td> <td>-6.99dB</td> </tr> <tr> <td>SCH1</td> <td><math>W_2^4 (M=2)</math></td> <td>-6.99dB</td> </tr> </tbody> </table> <p>M : Walsh Function Repetition Factor</p>	Reverse Traffic channel	Long Code Mask : ALL 0		Channel	Walsh function	Amplitude	PICH	$W_0^{32}$	-6.99dB	DCCH	$W_8^{16}$	-6.99dB	SCH2	$W_6^8 (M=2)$	-6.99dB	FCH	$W_4^{16}$	-6.99dB	SCH1	$W_2^4 (M=2)$	-6.99dB
Reverse Traffic channel	Long Code Mask : ALL 0																					
Channel	Walsh function	Amplitude																				
PICH	$W_0^{32}$	-6.99dB																				
DCCH	$W_8^{16}$	-6.99dB																				
SCH2	$W_6^8 (M=2)$	-6.99dB																				
FCH	$W_4^{16}$	-6.99dB																				
SCH1	$W_2^4 (M=2)$	-6.99dB																				
Frequency range Input level	30MHz to 3.0GHz -30dBm to +30dBm (@ ATT auto, Total power)																					
Precise Mode POWER $i$ Carrier frequency error	(@1536 chip measurement) Accuracy : $< \pm 0.1\text{dB}$ Accuracy : $< \pm$ (Frequency reference accuracy $\times$ Carrier frequency + 10Hz) (@Carrier frequency $\leq \pm 4\text{kHz}$ , Expand mode)																					

— Technology Support on the Leading Edge —

# ADVANTEST®

Your Local Representative

## ADVANTEST CORPORATION

Shinjuku-NS Building, 4-1, Nishi-Shinjuku 2-chome, Shinjuku-ku, Tokyo 163-0880, Japan  
Phone:+81-3-3342-7500 Facsimile:+81-3-5381-7661 Telex:232-4914 ADVAN J

Advantest (Singapore) Pte. Ltd. : 438A Alexandra Road #08-03/06 Alexandra Technopark Singapore 119967 Phone: +65-274-3100

Tektronix Inc :

(North America)

Phone: +1-800-426-2200

Rohde & Schwarz Engineering and Sales GmbH :

(Europe)

Phone: +49-89-4129-13711

Homepage <http://www.advantest.co.jp>

Data subject to change without notice. © Copyright 2000 ADVANTEST CORPORATION

We use recycled paper for the environmental protection.