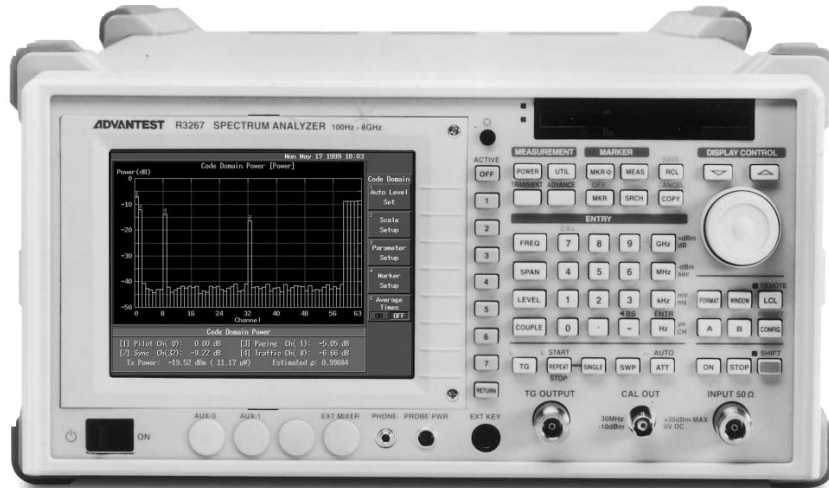


For cdmaOne (IS-95B) Transmission Test



Spectrum Analyzer R3267/3273

Photo is additional TG option

Overview

The cdmaOne analysis software option (OPT.61) makes R3267/3273 possible to measure the cdmaOne transmission test items specified by IS-95B/J-STD-008.

This option contributes to both base station/mobile station for both cellular and PCS with a single unit. In addition, waveform quality (Rho etc.) and code domain power measurement are possible. (Operation of OPT.61 require Digital Modulation Analysis Option (OPT.01).)

Target systems

cdmaOne (Cellular/PCS)-BS/MS

Features

- Dual mode analysis
 - Spectrum analyzer mode

(R3267	20Hz to 8GHz)
(R3273	20Hz to 26.5GHz)
 - cdmaOne Tx tester mode
- Measurement of items specified by IS-95B such as Rho (ρ) and code domain power, etc.
- Automatic setting of cdmaOne 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 Transient (Spectrum Mask)
- Waveform quality (Rho, τ , etc.)
- Code domain power
- Spurious emission
- Graphics analysis

Display Example

STD parameter setup menu

Mon 1999 May 10 13:28

STD Measurement Parameter Set

Type : CDMA(800MHz) | CDMA(1.8GHz) | CDMA(1.9GHz) | STD

Link : JAPAN(800MHz) | CHINA(800MHz)

Rate : FORWARD | REVERSE

Rate : 9600/14400 | 4800/?200

Offset Level : 0.0 dB

Frequency Input : FREQUENCY | CHANNEL

Input : RF | BASEBAND(I&Q)

Baseband Input : AC | DC

IQ Inverse : NORMAL | INVERSE

Cont Auto Level Set : ON | OFF

DC CAL

Channel Setting

STD Setup

Channel setup menu

Mon 1999 May 10 13:30

Channel Setting

Channel 1 : ENABLE | DISABLE

1 | 799

UpLink : 12.50 kHz *(N* 0) * 915.00000 MHz

DownLink : 12.50 kHz *(N* 0) * 860.00000 MHz

Channel 2 : ENABLE | DISABLE

801 | 1039

UpLink : 12.50 kHz *(N* -800) * 898.00000 MHz

DownLink : 12.50 kHz *(N* -800) * 843.00000 MHz

Channel 3 : ENABLE | DISABLE

1041 | 1199

UpLink : 12.50 kHz *(N* -1040) * 887.00000 MHz

DownLink : 12.50 kHz *(N* -1040) * 832.00000 MHz

Channel

Copy from STD

F-Domain power

Mon 1999 May 10 17:41

REF -19.9 dBm

10 dB/ *A_Write Smp1

Power

Gate Setup

Window Setup

Y Scale [dB/div]

10 | 5 | 2

Average Times

ON | OFF

Config

EXT

CENTER 878.490 MHz SPAN 2.000 MHz

*RBW 30 kHz *VBW 100 kHz *SMP 20 ms ATT 10 dB

Power (CDMA(800MHz): FWD Link)

<< Window Conditions >> Power Judge

Posi : 878.490000 MHz -24.35 dBm

Width: 1.2288 MHz

Tx power

Mon 1999 May 10 17:24

Tx Power

Results

Tx Power : -23.99 dBm

: 3.99 μW

Peak Factor : 9.04 dB

(Offset : 0.0 dB)

Parameter Entry

Frequency : 878.490000 MHz

Reference Level : 2.0 dBm

Attenuator : 15.0 dB

10MHz Ref. : EXT

Tx Power

Auto Level Set

Parameter Setup

Average Times

ON | OFF

T-Domain power

Mon 1999 May 10 19:58

REF -0.2 dBm

10 dB/ *A_Write Smp1

Power

Auto Level Set

Trigger Setup

Window Setup

Template

Y Scale [dB/div]

10 | 5 | 2

Average Times

ON | OFF

Config

EXT

CENTER 878.490000 MHz SPAN 0 Hz

*RBW 3 MHz *VBW 10 MHz *SMP 1.5 ms ATT 10 dB

Power (CDMA(800MHz): FWD Link)

<< Window Conditions >> Power Judge

Posi : 120.0 μs -9.19 dBm

Width: 1.250 ms

On/Off ratio

Mon 1999 May 10 20:00

REF -0.2 dBm

10 dB/ *A_Write Smp1

On/Off Ratio

Auto Level Set

Trigger Setup

Window Setup

Y Scale [dB/div]

10 | 5 | 2

Average Times

ON | OFF

Config

EXT

CENTER 878.490000 MHz SPAN 0 Hz

*RBW 3 MHz *VBW 10 MHz *SMP 5.0 ms ATT 10 dB

ON/OFF Ratio (CDMA(800MHz): FWD Link)

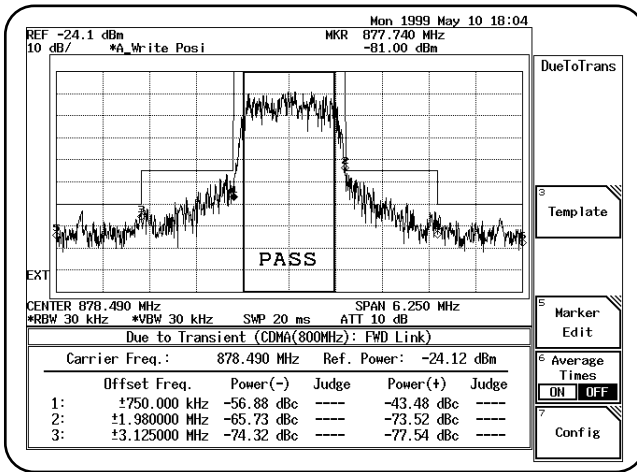
<< Window Posi --- Width >> Power Ratio Judge

ON : 2.625 ms - 1.000 ms -9.16 dBm 66.66 dB

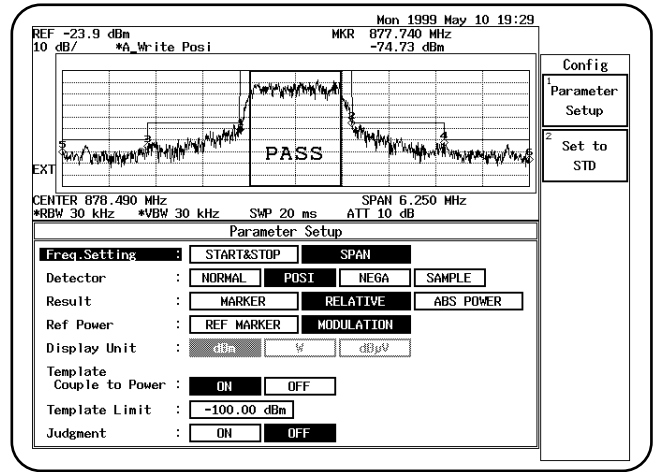
OFF : 1.375 ms - 1.000 ms -75.82 dBm

cdmaOne Analysis Software Option (OPT.61)

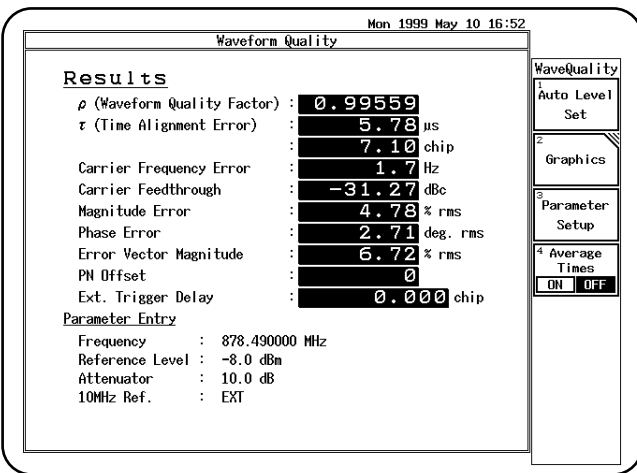
■ Due to Transient (Spectrum Mask)



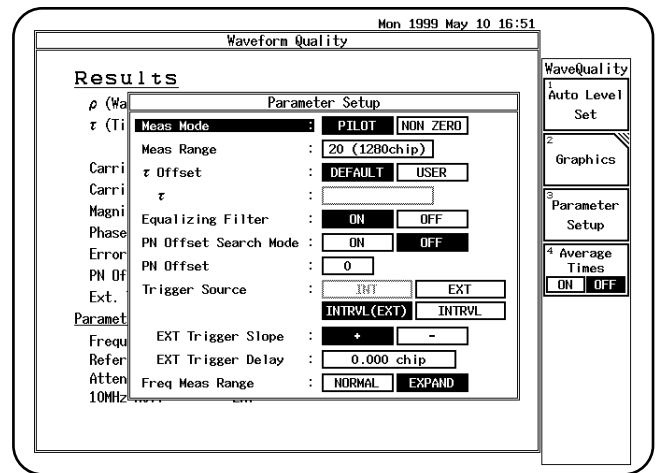
■ Due to Transient (Parameter setup)



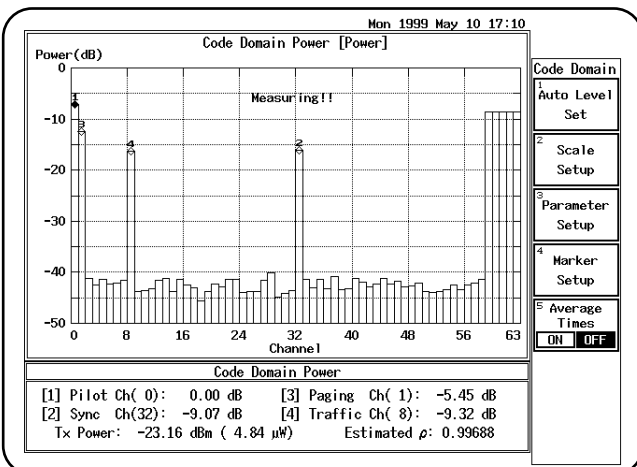
■ Waveform quality



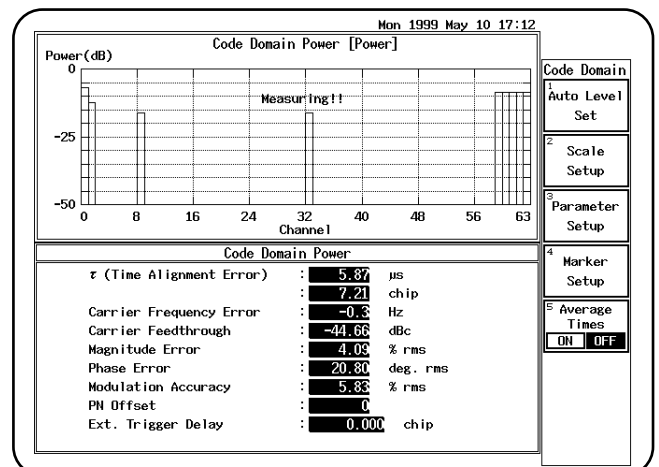
■ Waveform quality (Parameter setup)



■ Code domain power

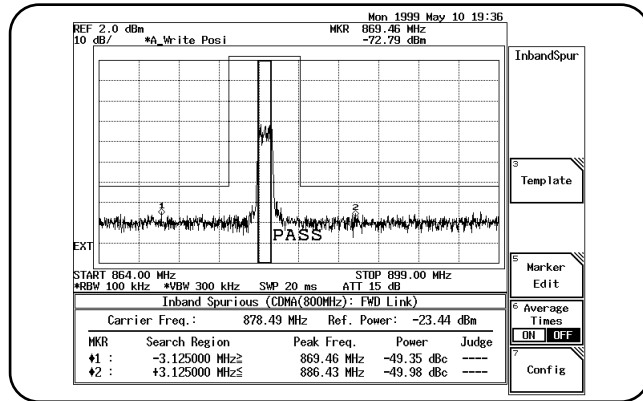


■ Code domain power (Dual disp.)

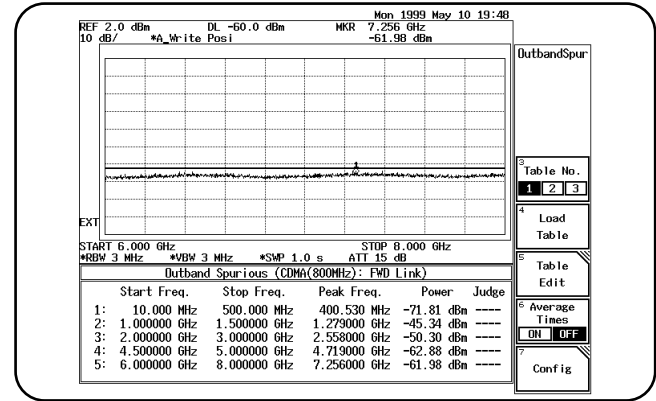


cdmaOne Analysis Software Option (OPT.61)

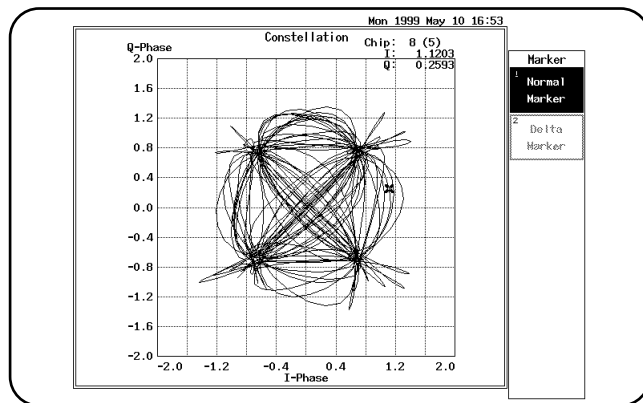
In-Band spurious



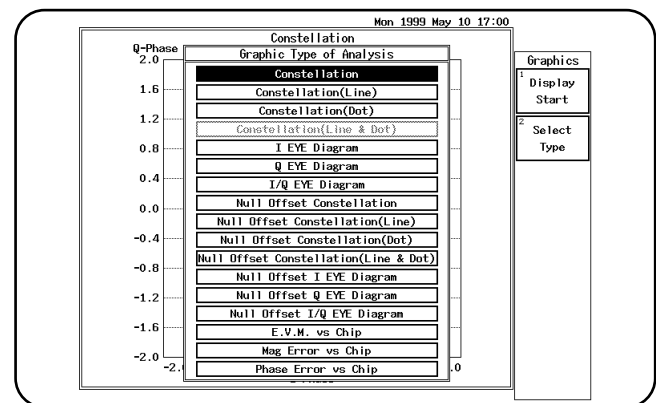
Out-Band spurious



Constellation display



Graphics analysis



Specifications (RF Input)

Items	Specifications	Items	Specifications
Waveform Quality Measurement		Code Domain Power Measurement	IS97 "Base Station Test Model" measurement
Frequency range	30MHz to 3.0GHz	Frequency range	30MHz to 3.0GHz
Input level	-30dBm to +30dBm (@ ATT auto, Total power)	Input level	-30dBm to +30dBm (@ ATT auto, Total power)
Forward Link		Precise Mode	(@ 64*20chip)
waveform quality ρ	Accuracy : $< \pm 0.0015$	POWER i	Accuracy : $< \pm 0.1\text{dB} (@ \tau_i = 0)$
Time Alignment error τ	Accuracy : $< \pm 30\text{nsec}$	Carrier frequency error	$< \pm (\text{Frequency reference accuracy} \times \text{Carrier frequency} + 10\text{Hz})$
Carrier frequency error	$< \pm (\text{Frequency reference accuracy} \times \text{Carrier frequency} + 10\text{Hz})$ (@ \leq Carrier frequency $\pm 4\text{kHz}$, Expand mode)	τ_i	Accuracy : $< \pm 10\text{nsec}$
Reverse Link		$\Delta \theta_i$	Accuracy : $< \pm 10\text{mrad}$
waveform quality ρ	Accuracy : $< \pm 0.003$	Normal Mode	(@ 64*20chip)
Time Alignment error τ	Accuracy : $< \pm 30\text{nsec}$	POWER i	Accuracy : $< \pm 0.1\text{dB} (@ \tau_i = 0)$
Carrier frequency error	$< \pm (\text{Frequency reference accuracy} \times \text{Carrier frequency} + 10\text{Hz})$ (@ \leq Carrier frequency $\pm 4\text{kHz}$)	Carrier frequency error	$< \pm (\text{Frequency reference accuracy} \times \text{Carrier frequency} + 10\text{Hz})$ (@ \leq Carrier frequency $\pm 4\text{kHz}$, Expand mode)

* No accessory

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