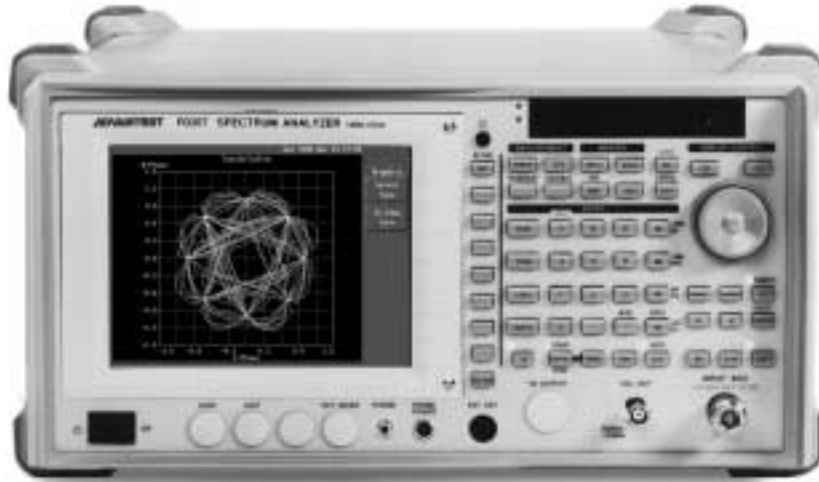


For PDC/PHS/IS-136 Transmission Test



Spectrum Analyzer R3267/3273

■ Overview

The PDC/PHS/IS-136 analysis software option (OPT.64) makes R3267/3273 possible to measure the PDC/PHS/IS-136 transmission test items.

This option contributes to both base station/mobile station with a single unit. In addition, modulation accuracy and graphics analysis measurement are possible (Operation of OPT.64 require Digital Modulation Analysis Option (OPT.01).)

■ Target systems

PDC/PHS/IS-136 - BS/MS (CS/PS)

■ Features

- Dual mode analysis
 - Spectrum analyzer mode
 - (R3267 100Hz to 8GHz)
 - (R3273 100Hz to 26.5GHz)
 - PDC/PHS/IS-136 Tx tester mode
- Measurement of items specified modulation accuracy measurement (EVM, etc.)
- Automatic setting of PDC/PHS/IS-136 parameters
- Simple operation with conversational key menu
- Standard limit test function is provided

■ Measurement items

- Power
- On/Off Ratio (Carrier off Power)
- ACP
- OBW
- Spurious
- Modulation Accuracy (EVM, etc.)
- Carrier Frequency Error
- I/Q Origin Offset
- Bit Rate Error
- Power vs Time
- Graphics analysis
- Tx Power(DSP)

Display Example

STD parameter setup menu (PDC)

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STD Measurement Parameter Set

Type	PDC 800M-1	PDC 800M-2	PDC 800M-3	PDC 1.5G	STD
Link	UPLINK	DOWNLINK	1 DC CAL		
Meas Mode	BURST	MULTI-BURST	CONTINUOUS		
Slot Format	CONTROL	TRAFFIC	VOX		
Rate	FULL RATE	HALF RATE			
Sync Type	SYNC WORD	NO SYNC WORD			
Sync Word	S1/S7	S2/S8	S3/S9	785B4/CE450	
	S4/S10	S5/S11	S6/S12		
Root Nyquist Filter	ON	OFF			
Freq Meas Range	NORMAL	EXPAND			
Filter Mode	WIDE	NARROW			
Offset Level	0.0 dB				
Freq Input	FREQUENCY	CHANNEL	6 Channel Setting		
Input	RF	BASEBAND(I&Q)	7 STD Setup		
Baseband Input	aC	DC			
IQ Inverse	NORMAL	INVERSE			
Cont Auto Level Set	ON	OFF			

TRANSIENT (Tx tester mode) menu

Wed 1999 May 19 17:12

Measurement Parameter (Setup in the STD)

Standard

Type	PDC(800MHz - 1)	Transient
Link	UPLINK	1 T-Domain
Slot Format	TRAFFIC	2 F-Domain
Rate	FULL RATE	3 Modulation
Sync Type	SYNC WORD	
Sync Word	785B4/CE450	
Offset Level	0.0 dB	
Input	RF	
IQ Inverse	NORMAL	

Parameter Entry

Frequency	940.000000 MHz
Reference Level	3.8 dBm
Attenuator	15.0 dB
10MHz Ref.	INT

7 STD

STD parameter setup menu (PHS)

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STD Measurement Parameter Set

Type	PHS	STD	
Link	UPLINK	DOWNLINK	1 DC CAL
Meas Mode	BURST	CONTINUOUS	
Slot Format	CONTROL	TRAFFIC	
Sync Type	UNIQUE WORD	NO UNIQUE WORD	
Unique Word	E149		
Root Nyquist Filter	ON	OFF	
Freq Meas Range	NORMAL	EXPAND	
Filter Mode	WIDE	NARROW	
Offset Level	0.0 dB		
Freq Input	FREQUENCY	CHANNEL	6 Channel Setting
Input	RF	BASEBAND(I&Q)	7 STD Setup
Baseband Input	aC	DC	
IQ Inverse	NORMAL	INVERSE	
Cont Auto Level Set	ON	OFF	

Channel setup menu (PHS)

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Channel Setting

Channel 1	ENABLE	DISABLE	Channel
1	dB	82	1 Copy from STD
Uplink	300.0 kHz	*(N+ -1)*	1.8951500 GHz
Downlink	300.0 kHz	*(N+ -1)*	1.8951500 GHz
Channel 2	ENABLE	DISABLE	
251	dB	255	
Uplink	300.0 kHz	*(N+ -256)*	1.8951500 GHz
Downlink	300.0 kHz	*(N+ -256)*	1.8951500 GHz
Channel 3	ENABLE	DISABLE	
	dB		
Uplink		*(N+)*	
Downlink		*(N+)*	

STD parameter setup menu (IS-136)

Wed 1999 May 19 18:46

STD Measurement Parameter Set

Type	IS-136 800M	IS-136 1.9G	STD	
Link	UPLINK	DOWNLINK	1 DC CAL	
Meas Mode	BURST	MULTI-BURST	CONTINUOUS	
Rate	FULL RATE	HALF RATE		
Sync Type	SYNC WORD	NO SYNC WORD		
Sync Word	S1	S2	S3	A91DE4A
	S4	S5	S6	
Root Nyquist Filter	ON	OFF		
Freq Meas Range	NORMAL	EXPAND		
Filter Mode	WIDE	NARROW		
Offset Level	0.0 dB			
Freq Input	FREQUENCY	CHANNEL	6 Channel Setting	
Input	RF	BASEBAND(I&Q)	7 STD Setup	
Baseband Input	aC	DC		
IQ Inverse	NORMAL	INVERSE		
Cont Auto Level Set	ON	OFF		

Tx Power measurement

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Tx Power

Results

Burst Power	0.05 dBm	Tx Power
	1.01 mW	1 Auto Level Set
Frame Power	-4.83 dBm	
	329.03 μW	
	(Offset : 0.0 dB)	

Parameter Entry

Frequency	1.850010000 GHz
Reference Level	17.1 dBm
Attenuator	30.0 dB
10MHz Ref.	INT

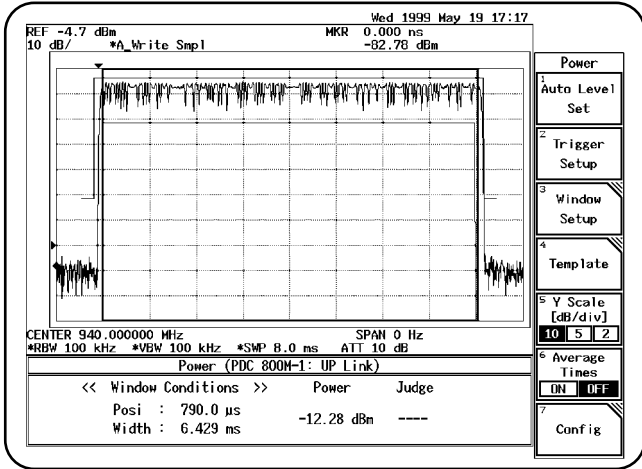
5 Parameter Setup

6 Average Times

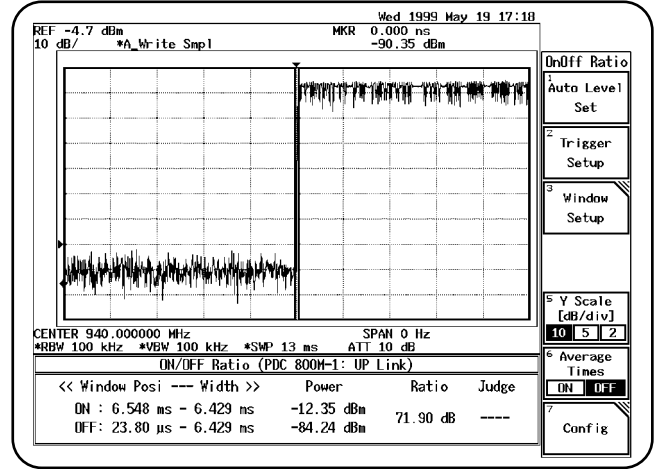
ON OFF

PDC/PHS/IS-136 Analysis Software Option (OPT.64)

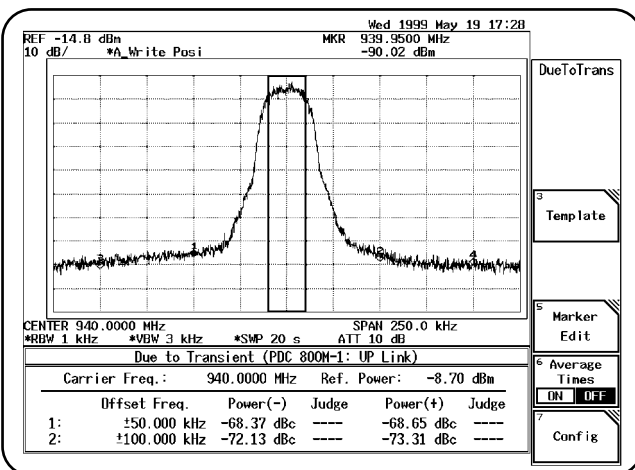
T-Domain power measurement



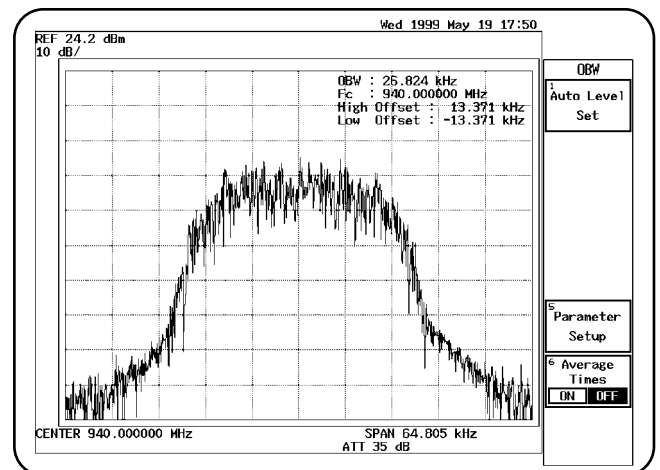
On/Off ratio measurement



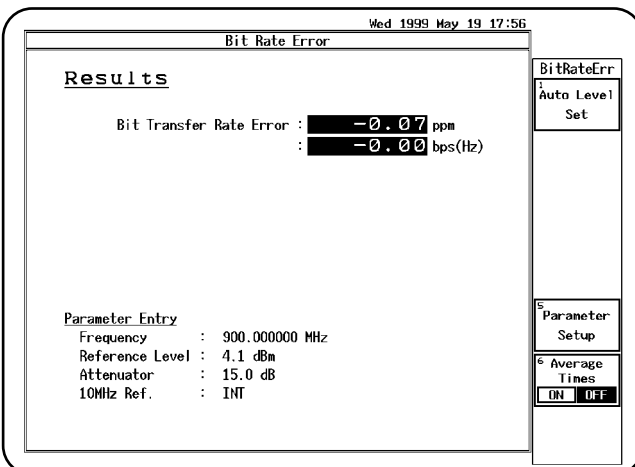
Due to Trans. (ACP) measurement



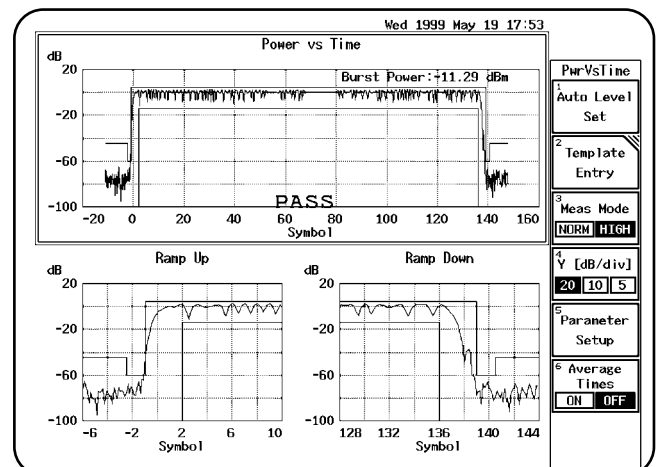
OBW (Modulation mode)



Bit Rate Error measurement

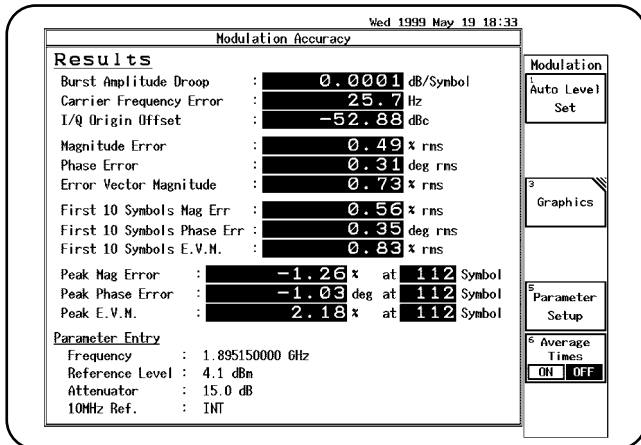


Power vs Time measurement

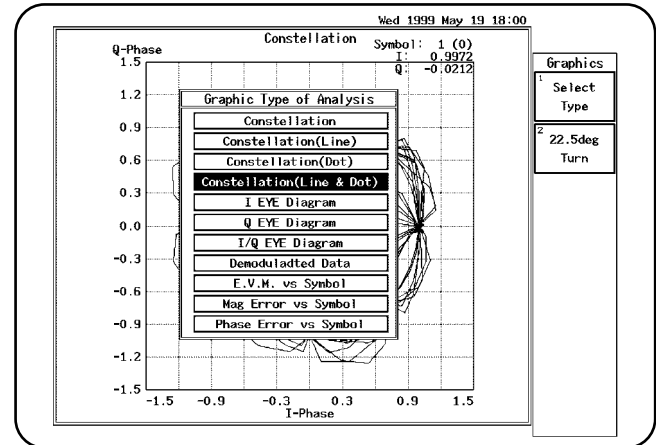


PDC/PHS/IS-136 Analysis Software Option (OPT.64)

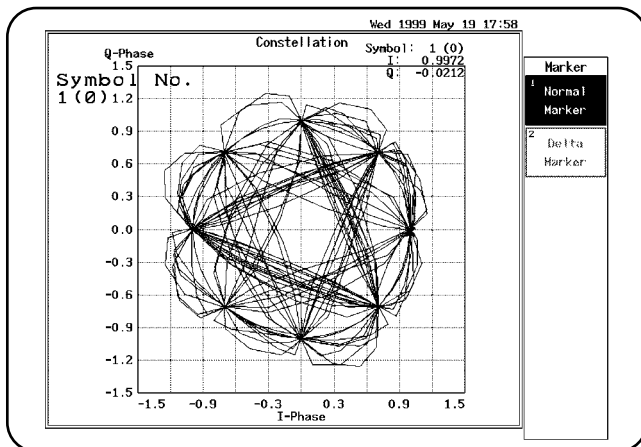
■ Modulation accuracy measurement



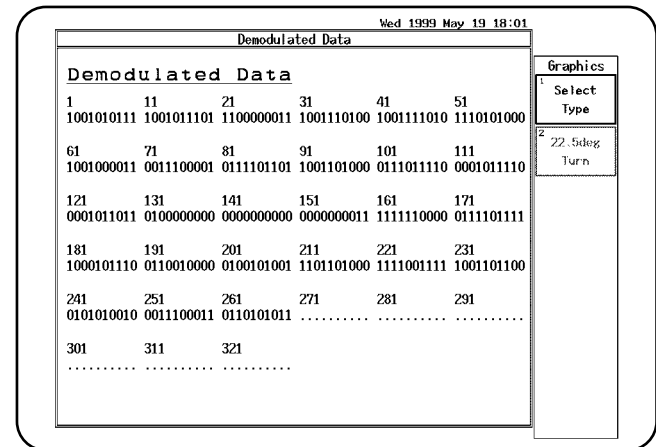
■ Graphics analysis (Select type)



■ Constellation display



■ Demodulated data display



■ Specifications (RF Input)

Items	Specifications	Items	Specifications
PDC/IS-136 Measurement		PHS Measurement	
Frequency range	30 MHz to 3.0 GHz	Frequency range	30 MHz to 3.0 GHz
Input level	-30dBm to +30 dBm	Input level	-30 dBm to +30 dBm
Frequency error	Accuracy : ±(Frequency reference accuracy × Carrier frequency + 5 Hz) Range : < ± 1.4 kHz (normal) < ± 5 kHz (expand)	Frequency error	Accuracy : ±(Frequency reference accuracy × Carrier frequency + 20 Hz) Range : < ± 13 kHz (normal) < ± 50 kHz (expand)
Modulation Accuracy	Accuracy : < ± (1% + measurement value × 3%)	Modulation accuracy	Accuracy : < ± (1% + measurement value × 2%)
Bit rate error	< 1ppm		

* No accessory

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