

# JRC

## Multi System UE Tester NJZ-2000 Series

**3.5 Generation Multi System UE Tester  
Supports HSDPA function,  
EGPRS function and  
Handover from W-CDMA to GSM**



### Main Features

#### ■ Wide coverage of Radio System and Signaling

- HSDPA (High Speed Downlink Packet Access) which provides in further 3.5 generation communication service
- EGPRS (Enhanced General Packet Radio Service) on GSM
- Intersystem Handover from W-CDMA to GSM system

#### ■ High Measurement Speed by Multi-task Measurement of several test items

#### ■ All GSM/W-CDMA frequency bands

- P/E/R-GSM, DCS, PCS, GSM850
- W-CDMA (Band I ~ VI)

#### ■ Easy to store user configurable test plans and results by TCP/IP communications protocol, Main unit and USB memory

#### ■ Flexibility function enhancement hardware (plan to support cdma2000®)

#### ■ User friendly operation with built-in automatic test

Note : cdma2000® is the registered trademark of the Telecommunications Industry Association (TIA-USA)



*Japan Radio Co., Ltd.*

# Specifications

## Frequency Bands

GSM		
Band	Frequency (MHz)	
	Uplink	Downlink
GSM850	824 to 849	869 to 894
P-GSM	890 to 915	935 to 960
E-GSM	880 to 915	925 to 960
R-GSM	876 to 915	921 to 960
DCS1800	1710 to 1785	1805 to 1880
PCS1900	1850 to 1910	1930 to 1990

W-CDMA		
Band	Frequency (MHz)	
	Uplink	Downlink
I	1920 to 1980	2110 to 2170
II	1850 to 1910	1930 to 1990
III	1710 to 1785	1805 to 1880
IV	1710 to 1770	2120 to 2170
V	824 to 849	869 to 894
VI	830 to 840	875 to 885

## Signaling Functions

GSM	
<ul style="list-style-type: none"> <li>● Location Update</li> <li>● MS Call</li> <li>● BS Call</li> <li>● MS Release</li> <li>● BS Release</li> </ul>	<ul style="list-style-type: none"> <li>● TCH Loop</li> <li>● Voice Loop Back</li> <li>● Emergency Call</li> <li>● Handover</li> <li>● Short Message Service</li> </ul>

GPRS / EGPRS
<ul style="list-style-type: none"> <li>● Attach</li> <li>● Connect</li> <li>● Disconnect</li> </ul>

W-CDMA	
<ul style="list-style-type: none"> <li>● Location Update</li> <li>● MS Call</li> <li>● BS Call</li> <li>● MS Release</li> <li>● BS Release</li> </ul>	<ul style="list-style-type: none"> <li>● Voice Loop Back</li> <li>● RMC Test Loop Back</li> <li>● Emergency Call</li> <li>● Handover</li> </ul>

## Measurement Functions

GSM
<ul style="list-style-type: none"> <li>● Peak TX Power</li> <li>● Power Ramp</li> <li>● Burst Timing</li> <li>● Frequency Error</li> <li>● Phase Error</li> <li>● Sensitivity: Class Ib, Class II, Fast BER, FER</li> <li>● Spectrum Monitor</li> </ul>

GPRS
<ul style="list-style-type: none"> <li>● Peak TX Power</li> <li>● Power Ramp</li> <li>● Burst Timing</li> <li>● Frequency Error</li> <li>● Phase Error</li> <li>● Sensitivity: BER(Test mode B), BLER</li> <li>● Spectrum Monitor</li> </ul>

EGPRS
<ul style="list-style-type: none"> <li>● Peak TX Power</li> <li>● Burst Timing</li> <li>● Power Ramp</li> <li>● Frequency Error</li> <li>● EVM(Peak,RMS,95%)</li> <li>● Origin Offset Suppression</li> <li>● ORFS ±400kHz (TX Analyzer only)</li> <li>● Sensitivity:BLER</li> <li>● Spectrum Monitor</li> </ul>

W-CDMA	
<ul style="list-style-type: none"> <li>● Maximum Output Power</li> <li>● Minimum Output Power</li> <li>● Open Loop Power Control</li> <li>● Inner Loop Power Control</li> <li>● Frequency Error</li> <li>● EVM</li> </ul>	<ul style="list-style-type: none"> <li>● Origin Offset</li> <li>● Sensitivity: BER</li> <li>● Max Input Level: BER</li> <li>● ACLR(TX Analyzer only)</li> <li>● OBW(TX Analyzer only)</li> </ul>

HSDPA(OPTION)		
<ul style="list-style-type: none"> <li>● Throughput</li> </ul>	<ul style="list-style-type: none"> <li>● Median CQI</li> <li>● CQI variance</li> </ul>	<ul style="list-style-type: none"> <li>● BLER</li> </ul>

## Transmitter/Measurement Performance

GSM/GPRS/EGPRS			
<b>Tx Power Measurement</b>		<b>Phase Error</b>	
Range	-20 to +39dBm	Input Range	-5 to +39dBm
Accuracy	±1.0dB	Range	GMSK 0.1° 8 PSK 0.01°
<b>Frequency Error</b>		Resolution	GMSK 0.1° 8 PSK 0.01%
Input Range	-5 to +39dBm	Accuracy	GMSK $\leq \pm 1.5^\circ$ rms 8 PSK $\leq \pm 6.0^\circ$ peak
Range	0 to ±60kHz		
Resolution	0.1Hz		
Accuracy	GMSK: ±(10Hz+Reference Accuracy) 8 PSK: ±(10Hz+Reference Accuracy)		

W-CDMA	
<b>Tx Power Measurement</b>	
Range	-60 to +36dBm
Accuracy	±0.7dB(0.0 to +36.0dBm)
<b>Frequency Error</b>	
Input Range	-20 to +36dBm
Range	0 to ±500Hz
Resolution	0.1Hz
Accuracy	±(10Hz +Reference Accuracy)
<b>EVM Measurement</b>	
Input Range	-20 to +36dBm
Range	0.01%
Resolution	0.01%
Residual EVM	$\leq 3.8\%$

W-CDMA (HSDPA)	
Throughput	1 to 2332*1 [kbps]
Median CQI	1 to 30
CQI variance*2	0.00 to 100.00[%]
BLER	0.00 to 100.00[%]

\*1 Supporting HSET-1 to 5 of FRC (UE Category 1,2,3,4,5, 6,11,12)  
\*2 Probability of Median CQI being within ±2.

## RF Signal Generator

Frequency	
Range	Refer to Frequency Band's forward frequency
Resolution	30kHz (Band Class 0: 800MHz Band) 12.5kHz (Band Class 3: JTACS) 50kHz (Band Class 4: PCS Korea) 50kHz (Band Class 1: 1900MHz Band) 50kHz (Band Class 6: 2GHz Band)
Accuracy	Same as Frequency Reference Stability

Output Level	
Range	-115dBm to -18dBm
Accuracy	±1.0dBm (at $\leq -50$ dBm) ±1.5dBm (at $> -50$ dBm)
Resolution	0.1dB

Modulation	
Modulation	Pilot Only, Normal Modulation, AM, CW
Modulation Quality (Rho)	>0.912 (for CDMA2000 MC1×) >0.97 (for CDMA2000 1×EV-DO)

## External Control

Interface	10BASE-T, 100BASE-TX, GPIB, RS232C
-----------	------------------------------------

• Specifications may be subject to change without notice

For further information, contact:



Since 1915

**Japan Radio Co., Ltd.**

URL <http://www.jrc.co.jp/eng/>

**Main Office:** 1-1, Shimorenjaku 5-chome, Mitaka-shi,  
Tokyo 181-8510, Japan  
Telephone: +81-422-45-9867  
Facsimile: +81-422-45-9969

**Overseas Branches :** Seattle, Amsterdam  
**Liaison Offices :** Taipei, Manila, Jakarta, Singapore,  
Hanoi, New York, Athens