Spectrum Analyzers

3.5GHz to 8GHz for Testing and Evaluation of Next Generation Mobile Communication Systems such as W-CDMA.

R3264/3267/3273

- **Wide frequency range:**
  - R3264: 9kHz to 3.5GHz
  - R3267: 100Hz to 8GHz
  - R3273: 100Hz to 26.5GHz
- **Resolution bandwidth (RBW):**
  - 10Hz to 10MHz, 5MHz (analog)
  - 1Hz to 100Hz (digital)
- **Wide dynamic range:**
  - -145dBc/Hz (2GHz band, typ.)
  - 70dB or better for W-CDMA ACP measurement (5MHz offset, typ.)
- **1µs fast zero-span sweep**
- **Simplified, Automated measurements for mobile communications**
- **Digital modulation analysis options for 1G, 2G, and 3rd Generation:**
  - PHS, PDC, IS-136, GSM, DECT, EDGE, GPRS
  - IS-95, W-CDMA, 3GPP, cdma2000, Bluetooth

**Advance digital modulation analysis (option):**
The R3264/3267/3273 support both spectrum analysis and modulation analysis in a single unit. In addition to major existing mobile communication standards, the R3264/3267/3273 can also support advanced standards such as W-CDMA, 3GPP, and cdma2000.

**Wide frequency range:**
- **R3264:** 9kHz to 3.5GHz
- **R3267:** 100Hz to 8GHz
- **R3273:** 100Hz to 26.5GHz
- **External mixer options:**
  - 26.5GHz to 40GHz
  - 40GHz to 60GHz
- **Synchronization available up to 325 GHz**
- **Resolution bandwidth (RBW):**
  - 10Hz to 10MHz, 5MHz (analog)
  - 1Hz to 100Hz (digital)
- **Wide dynamic range:**
  - -145dBc/Hz (2GHz band, typ.)
  - 70dB or better for W-CDMA ACP measurement (5MHz offset, typ.)
- **1µs fast zero-span sweep**
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**OPT.01**
Digital Modulation Analysis Hardware

**OPT.02**
Memory Card Drive (swapped with floppy disk drive)

**OPT.06**
Rx Control (for R3560/3561/3562)

**OPT.10**
High-Accuracy Power Measurement (for PDC-BS)

**OPT.11**
High-Accuracy Power Measurement (for 3GPP-BS)

**OPT.12**
High-Accuracy Power Measurement (for cdma2000-BS)

**OPT.16**
External mixer (26.5GHz to 40GHz)

**OPT.17**
External mixer (40GHz to 60GHz)

**OPT.21**
High-stability Frequency Reference Source (+5 x 10⁻¹⁰/day)

**OPT.22**
High-stability Frequency Reference Source (+5 x 10⁻¹⁰/month)

**OPT.23**
Rubidium Frequency Reference Source (+1 x 10⁻¹⁰/month)

**OPT.25**
Tracking generator (with attenuator)

**OPT.74**
AMPS/MTACS/NTACS Analysis Software

Note: Options OPT.01 and OPT.07 are for the R3273 only.
Key Functions

• High-level signal purity
  The advanced RF technology of ADVANTEST enables signal purity of -145 dBc/Hz (at 2GHz band, 5MHz offset, typical value). -145dBc/Hz (typ.) dynamic range can be measured within a 2GHz band.

• Wide Dynamic Range ACP
  Offering the highest basic functionality in their class, the R3264/3267/3273 ensure an ACP dynamic range of 70dBc or more (typ.) in W-CDMA ACP measurement.

• Low Distortion
  These spectrum analyzers offer high performance for 2-signal 3rd order inter-modulation distortion, the R3267 delivering 90dBc or more in the 1.6 to 8GHz band. This makes them ideal for evaluating inter-modulation in transmission amplifiers and so on.

Realizes -148dBc/Hz (typ.) phase noise in the W-CDMA transmission signal band at 5MHz detuning.

Variety of ACP Measurement Methods
  • Full mode calculated from 1 screen of trace data
  • SEPA mode can separately sweep and calculate a specified channel and the adjacent channels above and below it.
  • CARRIER mode in which a carrier power and an adjacent channel power are separately specified using a window.

• High-Speed Zero-Span Sweep
  The R3264/3267/3273 feature high-speed transient signal analysis in the time domain sweep with a high speed of 1µs and a 10MHz IF bandwidth filter.
Spectrum Analyzers

3.5GHz/8GHz/26.5GHz For Testing and Evaluation of Next Generation Mobile Communication Systems such as W-CDMA.

R3264/3267/3273 (Continued From Previous Page)

- **Occupied Bandwidth Measurement**
The spectrum analyzer can calculate the bandwidth of a specified power ratio from measured spectrum data and display the OBW. A frequency span accuracy of 1% or better enables highly accurate OBW measurement.

- **One Touch Harmonic Measurement**
Automatic measurement of harmonics is possible simply by inputting the frequency of the fundamental waveform and the order of the harmonic you want to measure.

- **Simultaneous 2-Trace Measurement**
The R3264/3267/3273 have a two-trace display function, and POSI, NEGA or SAMPLE detector modes can be specified separately for each trace. In addition, both traces are sampled simultaneously, allowing true simultaneous measurement of two traces. For example, it is possible to measure the peak factor by simultaneously sampling the POSI peak and AVE power.

- **Power Calculation Function**
The R3264/3267/3273 have a built-in power calculation function for burst signals with large amplitude variations typical of PDC and PHS, and for wide frequency range signals such as CDMA and OFDM. Measurement accuracy can be increased by executing PBW Cal. to calibrate the pass band characteristics of the IF band filter.

- **Spurious Measurement**
A wide band spurious search can require a long time for measurement, but this time can be dramatically reduced by running the spurious search using a sweep table corresponding to known spurious map. The R3264/3267/3273 allow you to create up to 10 tables of sweep start and stop frequencies.

- **Tracking Generator (OPT.74)**
An optional 100kHz to 3.6GHz signal generator that is synchronized to the R3264/3267/3273 frequency sweep can be built into the signal analyzer. This lets you directly view the frequency characteristics of filters and amplifiers. The power sweep function provides a continuously variable output level from 0dBm to -50dBm enabling you to view the saturation characteristics of amplifiers and other devices.
Optional Modulation Analysis for Next Generation Mobile Communications

Modulation analysis options for analyzing transmission characteristics in 3rd generation mobile communication systems such as W-CDMA, 3GPP and cdma2000, as well as existing digital mobile communication systems, are available for the R3264/3267/3273. By combining the digital modulation analysis hardware option (OPT.01) and the appropriate analysis software option, it is possible to measure compliance with standards and analyze signal modulation for transmission systems including W-CDMA, 3GPP, PDC, PHS, IS-136, GSM, EDGE, GPRS, DECT, cdmaOne (IS-95), cdma2000, Bluetooth.

A single signal analyzer can support a number of communication systems (up to five options can be installed) for greater efficiency on the production line or in the field.

• Communications System Selection Screen

• Example of Modulation Analysis

• Example of Constellation

• Example of Eye Diagram
R3264 Specifications

**Frequency:**
- Frequency range: 9 kHz to 3.5 GHz
- Harmonic order N: 1

**Frequency span:**
- Range: 20 Hz to 3.5 GHz, Zero span
- Accuracy: ±1%

**Signal purity (dBc/hz):**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>1 MHz</th>
<th>10 kHz</th>
<th>100 kHz</th>
<th>1 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 kHz</td>
<td>-106</td>
<td>-110</td>
<td>-118</td>
<td>-135</td>
</tr>
<tr>
<td>10 kHz</td>
<td>-110</td>
<td>-113</td>
<td>-118</td>
<td>-135</td>
</tr>
<tr>
<td>1.25 kHz</td>
<td>-116</td>
<td>-119</td>
<td>-118</td>
<td>-135</td>
</tr>
<tr>
<td>2.5 kHz</td>
<td>-126</td>
<td>-130</td>
<td>-118</td>
<td>-135</td>
</tr>
</tbody>
</table>

**Input attenuator range:** 0 to 75 dB (5 dB steps)

**Dynamic range**

**Average noise level**
- (Resolution bandwidth 100 Hz, input ATT 0 dB, video bandwidth 1 Hz)

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Average noise level</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 kHz</td>
<td>-120 dBm</td>
</tr>
<tr>
<td>100 kHz</td>
<td>-121 dBm</td>
</tr>
<tr>
<td>1 MHz</td>
<td>-141 dBm</td>
</tr>
<tr>
<td>10 MHz to 3.5 GHz</td>
<td>-150 to -2f (GHz) dBm</td>
</tr>
</tbody>
</table>

**1-dB gain compression**
- 10 to 100 MHz: -3 dBm
- 100 MHz to 3.5 GHz: 0 dBm

**Spurious response**

2nd-order harmonics distortion
- <70 kHz: 10 to 100 MHz: -30 dBm
- >70 MHz: 10 kHz, 1 MHz, 10 MHz: -30 dBm

2-tone 3rd-order intermodulation distortion (When using the digital filter, distortion measurement should be performed on condition that f > 5 kHz)

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Mixer level</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;70 MHz</td>
<td>10 to 100 MHz: -30 dBm</td>
</tr>
<tr>
<td>&gt;70 MHz</td>
<td>10 kHz, 1 MHz, 10 MHz: -30 dBm</td>
</tr>
</tbody>
</table>

**Residual response**
- <90 dBm: 10 to 100 MHz
- 100 MHz to 3.5 GHz: 0 dBm

**Amplitude accuracy**

**Frequency response (Input ATT 10 dB):**
- Flatness with 30 MHzcalibration signal as reference
- ±3.0 dB (9 kHz to 3.5 GHz)

**Input ATT switching error** (Reference 10 dB at 15 to 75 dB)

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Mixer level</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 kHz</td>
<td>11.1 dB (+/-0.5 dB steps, Max. 12.0 dB)</td>
</tr>
</tbody>
</table>

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R3267 Specifications

**Frequency:**
- Frequency range: 100 Hz to 8 GHz
- Harmonic order N: 1

**Frequency span:**
- Range: 20 Hz to 8 GHz, Zero span
- Accuracy: ±1%

**Signal purity (dBc/hz):**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>1 MHz</th>
<th>10 kHz</th>
<th>100 kHz</th>
<th>1 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 MHz</td>
<td>0</td>
<td>90 dBm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 kHz</td>
<td>0</td>
<td>-100 dBm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100 kHz</td>
<td>0</td>
<td>-101 dBm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 MHz</td>
<td>0</td>
<td>-125 dBm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 MHz to 3.5 GHz</td>
<td>0</td>
<td>-130 (1 GHz) dBm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.6 to 3.5 GHz</td>
<td>1</td>
<td>-125 dBm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.5 to 7 GHz</td>
<td>2</td>
<td>-125 dBm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.5 to 8 GHz</td>
<td>3</td>
<td>-125 dBm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Input attenuator range:** 0 to 75 dB (5 dB steps)

**Dynamic range**

**Average noise level**
- (Resolution bandwidth 100 Hz, input ATT 0 dB, video bandwidth 1 Hz)

<table>
<thead>
<tr>
<th>Frequency</th>
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<tr>
<td>10 kHz</td>
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<td>10 MHz to 3.5 GHz</td>
<td>-150 to -2f (GHz) dBm</td>
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</tbody>
</table>

**1-dB gain compression**
- 10 to 100 MHz: -3 dBm
- 100 MHz to 8 GHz: 0 dBm

**Spurious response**

2nd-order harmonic distortion
- <70 kHz: 10 MHz to 3.5 GHz: 0 dBm
- >70 MHz: >1.6 GHz: 10 dBm

2-tone 3rd-order intermodulation distortion (When using the digital filter, distortion measurement should be performed on condition that f > 5 kHz)

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Mixer level</th>
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</thead>
<tbody>
<tr>
<td>&lt;70 kHz</td>
<td>10 MHz to 3.5 GHz: 0 dBm</td>
</tr>
<tr>
<td>&gt;70 MHz</td>
<td>&gt;1.6 GHz: 10 dBm</td>
</tr>
</tbody>
</table>

**Image/multiple/out-band response**
- <70 dBm (10 MHz to 8 GHz)

**Residual response** (No input, input ATT 0 dB, 50Ω termination)
- <100 dBm: 1 MHz to 3.5 GHz
- <90 dBm: 300 kHz to 8 GHz
### Spectrum Analyzers

**3.5GHz/8GHz/26.5GHz For Testing and Evaluation of Next Generation Mobile Communication Systems such as W-CDMA.**

**R3264/3267/3273**

#### R3273 Specifications

<table>
<thead>
<tr>
<th>Frequency range</th>
<th>100 Hz to 26.5 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>26.5 to 60 GHz (with external mixer; tuning possible up to 325 GHz)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency band</th>
<th>0.1 Hz to 16 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>±1.0 dB per 1.0 dB steps, max. 2.0 dB</td>
</tr>
</tbody>
</table>

#### Marker frequency counter (SPAN < 1 GHz):

<table>
<thead>
<tr>
<th>Frequency</th>
<th>0.1 Hz to 16 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>±1.8/10 dB steps, max. 3.5 dB</td>
</tr>
</tbody>
</table>

#### Additional error by band switching: ± 0.5 dB

**Flatness with 30 MHz calibration signal as reference:** ± 3.0 dB (100Hz to 8.0 GHz)

#### Input ATT switching error (Reference 10 dB at 15 to 75 dB):

<table>
<thead>
<tr>
<th>Frequency</th>
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</thead>
<tbody>
<tr>
<td></td>
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#### Input ATT switching error:

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<tr>
<td></td>
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</table>

#### Dynamic range

**Average noise level:**

(Resolution bandwidth 100 Hz, input ATT 0 dB, video bandwidth 1 Hz)

<table>
<thead>
<tr>
<th>Frequency band</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>±1.0 dB per 1.0 dB steps, max. 2.0 dB</td>
</tr>
</tbody>
</table>

#### Average noise level:

(Resolution bandwidth 1 Hz (digital), input ATT 0 dB)

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<tr>
<th>Frequency band</th>
<th>0.1 Hz to 16 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>±1.0 dB per 1.0 dB steps, max. 2.0 dB</td>
</tr>
</tbody>
</table>

#### 1 dB gain compression:

- 10 to 100 MHz : -3 dBm
- 100 MHz to 3.5 GHz : 0 dBm
- 3.5 to 7.5 GHz : -10 dBm
- 7.5 to 26.5 GHz : -3 dBm

#### Spurious response

2nd-order harmonics distortion

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<tr>
<th>Frequency band</th>
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<tbody>
<tr>
<td></td>
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</tbody>
</table>

#### 2-tone 3rd-order intermodulation distortion

(When using the digital filter, distortion measurement should be performed on condition that Df > 5 kHz)

<table>
<thead>
<tr>
<th>Frequency band</th>
<th>0.1 Hz to 16 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>±1.0 dB per 1.0 dB steps, max. 2.0 dB</td>
</tr>
</tbody>
</table>

#### Image/multiple/out-band response:

- ≤70 dBc (10 MHz to 18 GHz)
- ≤60 dBc (10 MHz to 23 GHz)
- ≤50 dBc (10 MHz to 26.5 GHz)

#### Residual response

No input, input ATT 0 dB, 50 Ω termination:

- ≤100 dBc
- 1 MHz to 3.5 GHz
- ≤90 dBm
- 300 kHz to 26.5 GHz

#### Amplitude accuracy

**Frequency response**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>0.1 Hz to 16 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>±1.0 dB per 1.0 dB steps, max. 2.0 dB</td>
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</table>

**Additional error by band switching:** ± 0.5 dB

Flattness with 30 MHz calibration signal as reference: ± 5.0 dB

#### Input ATT switching error (Reference 10 dB, at 20 to 70 dB range):

<table>
<thead>
<tr>
<th>Frequency range</th>
<th>0.1 Hz to 16 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>±1.0 dB per 1.0 dB steps, max. 2.0 dB</td>
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Spectrum Analyzers

100Hz to 8GHz/26.5GHz For Testing and Evaluation of Next Generation Mobile Communication Systems such as W-CDMA.

R3264/3267/3273 (Continued From Previous Page)

**R3264/3267/3273 Common Specifications**

**Frequency stability:**
- Drift: ±0.5 Hz over 1 hour
- Warm up: ±0.5 Hz after 60 minutes

**Marker frequency counter:**
- Reference: ±30 kHz
- Resolution: ±0.1 µs

**Delay time/resolution:**
- Range: 1 Hz to 10 MHz
- Resolution: ±0.1 µs

**Trigger:**
- Free run, line, video, external, IF

**Gate value/resolution:**
- 1 µs to 1 s/100 ns

**Display range:**
- 10 Hz to 10 MHz
- Log mode: 10, 5, 2, 1, 0.5 dB/div
- Linear mode: 10% of the reference level/div.

**Reference level range:**
- Log: -140 to -60 dBm (0.1 dB steps)
- Linear: 22.4 mV to 223 V (steps of about 1% of the full scale)

**F1 gain error** (After automatic calibration):
- 0 to -50 dBm: ±0.5 dB
- 0 to -80 dBm: ±0.7 dB

**Amplitude range**
- Measurement range: +30 dBm, to average noise level
- Maximum safety input: Average continuous power (input ATT >10 dB); +30 dBm (1 W)
- DC input: 0 V

**Video bandwidth:**
- Reference: RBW 300 kHz, after automatic calibration)
- <0.3 dB (RBW = 100 Hz to 5 MHz)
- <1.0 dB (RBW = 30 Hz)
- <0.5 dB (RBW = 1 to 100 Hz, digital filter)

**Frequency range:**
- 50 MHz to 2.6 GHz
- Log: 0 to -90 dB
- Linear: ±0.85 dB
- ±0.2 dB

**Resolution bandwidth switching error:**
- Linear: 10% of the reference level/div.
- ±1% of reference level

**Total level accuracy**
- Accuracy (typ.): ±1.0 dB
  - Frequency range: 50 MHz to 2.6 GHz
  - Resolution bandwidth: 3 kHz to 1 MHz
  - Frequency span: <Resolution bandwidth × 20
  - Input ATT: 10 dB
  - Log scale display: 0 to -50 dB
  - Reference level: 0 to -50 dBm
  - Detection mode: Sample
  - Ambient temperature: 20 to 30 ºC
  - S/N: 20 dB or more

**Frequency range:**
- 50 MHz to 2.6 GHz
- (Frequency band 0)
- Resolution bandwidth: 3 kHz to 1 MHz
- Frequency span: <Resolution bandwidth × 20
- Input ATT: 10 dB
- Log scale display: 0 to -50 dB
- Reference level: 0 to -50 dBm
- Detection mode: Sample
- Ambient temperature: 20 to 30 ºC
- S/N: 20 dB or more

**Frequency range:**
- 50 MHz to 2.6 GHz
- (Frequency band 0)
- Resolution bandwidth: 3 kHz to 1 MHz
- Frequency span: <Resolution bandwidth × 20
- Input ATT: 10 dB
- Log scale display: 0 to -50 dB
- Reference level: 0 to -50 dBm
- Detection mode: Sample
- Ambient temperature: 20 to 30 ºC
- S/N: 20 dB or more
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100Hz to 8GHz/26.5GHz For Testing and Evaluation of Next Generation Mobile Communication Systems such as W-CDMA.

R3264/3267/3273

Input/Output

RF input
- Connector : N-type female (R3273 only: SMA convertible)
- Impedance : 50 Ω (nominal)
- VSWR (Input ATT >10 dB, with set frequency) : <1.5:1 (<3.5 GHz) (nominal)
- <2:1:1 (>3.5 GHz) (nominal)

Calibration signal output:
- Connector : BNC female, front panel
- Frequency : 30 MHz × (1 ± Frequency reference determined)
- Impedance : 50 Ω (nominal)
- Output frequency accuracy : 10 MHz × Frequency reference accuracy
- Output amplitude range : 0 dBm ±5 dB

10 MHz frequency reference output
- Connector : BNC female, rear panel
- Impedance : 50 Ω (nominal)
- Output amplitude range : -5 to +5 dBm

Probe power supply : ±12.6 V (100 mA) (nominal)
- Connector : BNC female, rear panel
- Impedance : 50 Ω (nominal)

421.4 MHz IF output:
- Connector : BNC female, rear panel
- Impedance : 50 Ω (nominal)

1st LO output (R3273 only):
- Connector : SMA female, front panel

Video output
- Connector : VGA (15-pin, female), rear panel,
  Equivalent to 640 × 480 dot VGA

X-axis output
- Connector : BNC female, rear panel
- Impedance : 1kΩ (nominal), DC-coupled
- Amplitude : Approx. -5 to +5 V

Y-axis output
- Connector : BNC female, rear panel
- Impedance : 220 Ω (nominal)
- Amplitude : Approx. 2 V for full scale (with 10 dB/div.)

External trigger input
- Connector : BNC female, rear panel
- Impedance : 10 kΩ (nominal), DC-coupled
- Trigger level : TTL level

Calibration signal output:
- Connector : BNC female, rear panel
- Impedance : 50 Ω (nominal)
- Output frequency accuracy : 10 MHz × Frequency reference accuracy
- Output amplitude range : 0 dBm ±5 dB

10 MHz frequency reference input
- Connector : BNC female, rear panel
- Impedance : 50 Ω (nominal)
- Input amplitude range : -5 to +5 dBm

10 MHz frequency reference input
- Connector : BNC female, rear panel
- Impedance : 50 Ω (nominal)
- Input amplitude range : -5 to +5 dBm

Probe power supply : ±12.6 V (100 mA) (nominal)
- Connector : BNC female, rear panel
- Impedance : 50 Ω (nominal)

421.4 MHz IF output:
- Connector : BNC female, rear panel
- Impedance : 50 Ω (nominal)

1st LO output (R3273 only):
- Connector : SMA female, front panel

Video output
- Connector : VGA (15-pin, female), rear panel,
  Equivalent to 640 × 480 dot VGA

X-axis output
- Connector : BNC female, rear panel
- Impedance : 1kΩ (nominal), DC-coupled
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- Connector : BNC female, rear panel
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External trigger input
- Connector : BNC female, rear panel
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- Trigger level : TTL level

I/O
- GPIB : IEEE-488 bus connector, rear panel
- RS232 : D-SUB 9-pin, rear panel
- Printer : D-SUB 25-pin, rear panel
- Extended I/O port : D-SUB 25-pin, rear panel
- FDD : 3.5-inch floppy disk drive

Direct print
- Output by ESC/P, PCL, or ESC/P raster commands

General Specifications

Temperature
- Operating temperature : 0 to 50°C
- Storage temperature : -20 to +60°C
- Humidity : 85% RH or less (no condensation)

Power supply: Automatically selects between 100 VAC and 220 VAC

Mass : 18 kg or less (excluding options, front cover, and accessories)

Dimensions : Approx. 177 (H) × 350 (W) × 420 (D) mm
  (without handle, feet, and front cover)

Accessories

<table>
<thead>
<tr>
<th>Product name</th>
<th>Model name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power cable</td>
<td>A01412</td>
</tr>
<tr>
<td>Input cable</td>
<td>A01036-0150</td>
</tr>
<tr>
<td>Converter adaptor</td>
<td>JU2G-201AU</td>
</tr>
<tr>
<td>Power fuse</td>
<td>16.3W/205V</td>
</tr>
<tr>
<td>Front cover</td>
<td></td>
</tr>
</tbody>
</table>

Voltage

<table>
<thead>
<tr>
<th>Voltage</th>
<th>100 V</th>
<th>220 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power consumption</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100 V</td>
<td>300 VA or less</td>
<td></td>
</tr>
<tr>
<td>220 V</td>
<td>300 VA or less</td>
<td></td>
</tr>
</tbody>
</table>

Frequency

<table>
<thead>
<tr>
<th>Frequency</th>
<th>0 to 100 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 V</td>
<td>0 to 100 Hz</td>
</tr>
<tr>
<td>220 V</td>
<td>0 to 100 Hz</td>
</tr>
</tbody>
</table>

Dimensions

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Approx. 177 (H) × 350 (W) × 420 (D) mm</th>
</tr>
</thead>
</table>

(without handle, feet, and front cover)
Spectrum Analyzers

100Hz to 8GHz/26.5GHz For Testing and Evaluation of Next Generation Mobile Communication Systems such as W-CDMA.

**R3264/3267/3273 (Continued From Previous Page)**

**Options**

**OPT.02 Memory card drive:**
Memory card drive: (Exchangeable with floppy disk drive)
Connector: JEIDA-Ver. 4.2/PCMCIA2.1

**OPT.08 Rx control**
When connected to the R3560
Signal source parameter settings: Output frequency, output level, output On-Off, modulation parameters
BER measurement & parameter settings
BER measurement: Average frequency, bit length, clock polarity, data polarity, measurement interval, TCH frame timing signal
Receiver sensitivity measurement & parameter settings
Receiver sensitivity measurement: Search upper and lower limits, search step, search point

When connected to the R3561
Signal source parameter settings: Output frequency, output level, output On-Off, modulation, I/O clock
CAL/ADJ function: AWGN CAL execution, modulator CAL execution, 10 MHz Ref Adjust value setting
Self Test: Self Test execution

**OPT.09 CDMA test source control (for R3264/3267)**

**OPT.10 High-Accuracy Power Measurement (for PDC-BS)**
Calibration frequency range: 810 to 959.45 MHz
1420 to 1518 MHz
Level measurement range: +15 to -30 dBm
Level measurement accuracy
Calibration error: ±0.2 dB or less
Measurement error: ±0.3 dB or less
(±0.2 dB or less (at 1 dB, 2 dB/DIV, 25°C), Input ATT 30 dB, RBW 30 kHz, 100 kHz, ZERO SPAN mode, TOTAL GAIN after automatic calibration)
During average power
measurement mode: ±0.5 dB or less (5 dB, 10 dB/DIV, 25°C)
Temperature-induced
TOTAL GAIN calibration error: 0.015 dB/°C
Calibration cycle: 6 months

**OPT.11 High-Accuracy Power Measurement (for 3GPP-BS)**
Calibration frequency range: 1848.3 to 2171.7 MHz
Level measurement range: ±25 to -60 dBm
Level measurement accuracy
Measurement error: ±0.4 dB or less (+25 to -50 dBm)
±0.6 dB or less (-50 to -60 dBm)
(±0.4 dB or less (+25 to -50 dBm) (±0.6 dB or less (-50 to -60 dBm) (at 25°C, after GAIN CAL, ATT = AUTO, Min ATT = ON)
Measurement linearity: ±0.2 dB or less (0 to -30 dB)
Temperature-induced
GAIN CAL error: ±0.015 dB/°C
Calibration cycle: 1 year

**OPT.12 High-Accuracy Power Measurement (for cdma2000-BS)**
Calibration frequency range: 802 to 963.7 MHz
1848.3 to 2171.7 MHz
Level measurement range: ±25 to -60 dBm
Level measurement accuracy
Measurement error: ±0.4 dB or less (+25 to -50 dBm)
±0.6 dB or less (-50 to -60 dBm)
(±0.4 dB or less (+25 to -50 dBm) (±0.6 dB or less (-50 to -60 dBm) (at 25°C, after GAIN CAL, ATT = AUTO, Min ATT = ON)
Measurement linearity: ±0.2 dB or less (0 to -30 dB)
Temperature-induced
GAIN CAL error: ±0.015 dB/°C
Calibration cycle: 1 year

**OPT.16/17 External mixer**
OPT3273+16
1 dB gain compression: 26.5 to 40 GHz, 0 dBm (typ.)
Max. input level: 26.5 to 40 GHz, ±15 dBm (typ.)
Frequency response: 26.5 to 40 GHz, ±3 dB (typ.)
(±0.2 dB or less (±0.3 dB or less (±3 dB or less) (after reading frequency response compensated data)
Average display noise level: 26.5 to 40 GHz: -90 dBm (typ.)
(RBW 1 kHz, VIDEO BW 10 Hz)

OPT3273+17
1 dB gain compression: 40 to 60 GHz; 0 dBm (typ.)
Max. input level: 40 to 60 GHz; ±15 dBm (typ.)
Frequency response: 40 to 60 GHz; ±5 dB (typ.)
(±0.2 dB or less (±0.3 dB or less (±5 dB or less) (after reading frequency response compensated data)
Average display noise level: 40 to 60 GHz: -90 dBm (typ.)
(RBW 1 kHz, VIDEO BW 10 Hz)

**OPT.25 Reference Converter**
10MHz frequency reference input:
Frequency: 10 MHz, 15 MHz, 19.6608 MHz
Input amplitude range: ±5 to ±5 dBm
## Spectrum Analyzers

### OPT.74 Tracking Generator

**Output frequency**: 100 kHz to 3.6 GHz  
(START FREQ < 3.5 GHz)

**Output level**
- **Setting range**: 0 to -50 dBm
- **Setting resolution**: 0.1 dB

**Output level flatness**
- (< 3 dB)
- (100 kHz to 3.6 GHz, relative value)

**Output level accuracy**
- (< ±1.1 dB)
- (30 MHz, -10 dBm, 25 ± 10°C)

**Vernier accuracy**
- (< 0.5 dB/1 dB)

**Level sweep width setting range**
- (0 to -10 dBm) - ATT
  (ATT = 0 to 40 dB/10 dB Step)

**Spurious output**
- Harmonic: < 15 dBc (at 0 dBm output)
- Non-harmonic: < 25 dBc (at 0 dBm output)

**TG Leakage**
- 100 kHz to 3.0 GHz: < -110 dBm
- 3.0 to 3.6 GHz: < -100 dBm

**TG Output Impedance**
- 50 Ω (nominal)

**VSWR**
- (at -10 dBm output, nominal): < 1.5 (100 kHz to 3.6 GHz)

### Main Units

- **R3264**: Spectrum Analyzer
- **R3267**: Spectrum Analyzer
- **R3273**: Spectrum Analyzer

### Options

- **OPT.01**: Digital Modulation Analysis Option
- **OPT.02**: Memory Card Drive
- **OPT.08**: Rx Control (for R3560/3561/3562)
- **OPT.09**: CDMA Test Source Control  
  (for R3560L and R3264/3267 only)
- **OPT.10**: High-Accuracy Power Measurement (for PDC-BS)
- **OPT.11**: High-Accuracy Power Measurement (for 3GPP-PS)
- **OPT.12**: High-Accuracy Power Measurement (for cdma2000-BS)
- **OPT.16**: External Mixer (20.5 to 40 GHz, R3273 only)
- **OPT.17**: External Mixer (40 to 60 GHz, R3273 only)
- **OPT.21**: High Stability Frequency Reference Source  
  (± 5 x 10⁻¹⁰/day)
- **OPT.22**: High Stability Frequency Reference Source  
  (± 3 x 10⁻¹⁰/day)
- **OPT.23**: Rubidium Frequency Reference Source  
  (± 1 x 10⁻¹³/month)
- **OPT.25**: Reference Converter
- **OPT.74**: Tracking Generator

### Accessories

- **R16081**: Transit Case

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Specifications may change without notification.