

## ADVANTEST

# U3751

The Advantest U3751 is a compact, lightweight 8 GHz portable spectrum analyzer optimized for both production line and field maintenance applications. Incorporating advanced digital IF technology for outstanding level measurement reproducibility, the U3751 offers twice the processing speed of predecessor models and features standard LAN connectivity, a 5-minute warm-up time, and a versatile 3-way power supply that supports AC, DC, and battery operation.

## SPECIFICATIONS

### General

|              |                                                                   |
|--------------|-------------------------------------------------------------------|
| Interfaces   | LAN, USB (Type A, Type B), VGA output (standard); GPIB (optional) |
| Display      | 6.5-inch color TFT LCD, 640 × 480 (VGA) resolution                |
| Warm-Up Time | 5 minutes                                                         |

### Physical

|                       |                                                                |
|-----------------------|----------------------------------------------------------------|
| Power Supply          | 100 V to 240 V AC (50 Hz/60 Hz); 11 V to 17 V DC; Battery pack |
| Operating Temperature | 0 °C to +50 °C °C                                              |
| Dimensions (W×H×D)    | 308 mm × 175 mm × 209 mm mm                                    |
| Weight                | 5.6 kg                                                         |

### Frequency Specifications

|                                 |                                                                                       |
|---------------------------------|---------------------------------------------------------------------------------------|
| Frequency Range                 | 9 kHz to 8 GHz                                                                        |
| Frequency Span Range            | Zero span, 10 kHz to 8 GHz                                                            |
| Reference Frequency Accuracy    | $\pm 2 \times 10^{-6}$ / year (standard), $\pm 1 \times 10^{-7}$ / year (with Opt 20) |
| Aging Rate Per Year             | $\pm 2 \times 10^{-6}$ / year                                                         |
| Frequency Temperature Stability | $\pm 2.5 \times 10^{-6}$ (0 °C to +50 °C)                                             |

### Resolution and Bandwidth

|                                  |                                                                            |
|----------------------------------|----------------------------------------------------------------------------|
| Resolution Bandwidth (RBW) Range | 100 Hz to 1 MHz (standard, 1-3 step); 30 Hz to 1 MHz / 3 MHz (with Opt 70) |
| Video Bandwidth (VBW) Range      | 10 Hz to 1 MHz (1-3 step)                                                  |

### Signal Processing and Measurements

|                 |                                                   |
|-----------------|---------------------------------------------------|
| Trace Detectors | Normal, Positive Peak, Negative Peak, Sample, RMS |
|-----------------|---------------------------------------------------|

### Inputs and Outputs

|                    |             |
|--------------------|-------------|
| RF Input Impedance | 50 $\Omega$ |
| RF Input Connector | N (female)  |

## Physical and Power

|                        |                   |
|------------------------|-------------------|
| AC Input Voltage Range | 100 V to 240 V AC |
| AC Input Frequency     | 50 Hz / 60 Hz     |
| DC Input Voltage Range | 11 V to 17 V DC   |

## Environmental and Compliance

|                           |                  |
|---------------------------|------------------|
| Storage Temperature Range | -20 °C to +60 °C |
|---------------------------|------------------|

## Options and Accessories

|           |                                                                                         |
|-----------|-----------------------------------------------------------------------------------------|
| Option 10 | 2 Channel Input (50 $\Omega$ , 3 GHz)                                                   |
| Option 11 | 2 Channel Input (75 $\Omega$ , 2.2 GHz)                                                 |
| Option 15 | 1 Channel Input (75 $\Omega$ )                                                          |
| Option 20 | High-Stability Frequency Reference Source                                               |
| Option 28 | EMC Filter                                                                              |
| Option 53 | Time-Domain Analysis (1 ch)                                                             |
| Option 54 | Time-Domain Analysis (2 ch)                                                             |
| Option 55 | Wide-Band Time-Domain Analysis (1 ch)                                                   |
| Option 70 | High-Purity Spectrum Analysis (Resolution Bandwidth 30 Hz to 1 / 3 MHz - U3741 / U3751) |
| Option 75 | Tracking Generator (75 $\Omega$ , 2.2 GHz)                                              |
| Option 76 | Tracking Generator (50 $\Omega$ , 3 GHz)                                                |
| Option 77 | Tracking Generator (50 $\Omega$ , 6 GHz)                                                |

## Frequency

|               |                                                                                                  |
|---------------|--------------------------------------------------------------------------------------------------|
| Phase Noise   | $\leq -85$ dBc/Hz (at 10 kHz offset, 1 GHz carrier) (standard); $\leq -100$ dBc/Hz (with Opt 70) |
| Span Accuracy | $\pm 1\%$                                                                                        |

## Amplitude

|                                      |                                                                                                   |
|--------------------------------------|---------------------------------------------------------------------------------------------------|
| Displayed Average Noise Level (DANL) | $\leq -115$ dBm (10 MHz to 8 GHz, RBW 100 Hz, preamplifier OFF)                                   |
| DANL with Preamplifier (Option 20)   | $\leq -135$ dBm (10 MHz to 3 GHz), $\leq -130$ dBm (3 GHz to 8 GHz) (RBW 100 Hz, preamplifier ON) |
| Maximum Safe Input Level             | +30 dBm (with attenuator $\geq 20$ dB), 0 VDC                                                     |
| Input Attenuator Range               | 0 to 50 dB (10 dB steps)                                                                          |

## Sweep

|                  |                                                                |
|------------------|----------------------------------------------------------------|
| Sweep Time Range | 2 ms to 1000 s (Span > 0 Hz), 50 $\mu$ s to 1000 s (Zero Span) |
|------------------|----------------------------------------------------------------|

## Performance

|                             |                                                                                                                           |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------|
| 1 dB Gain Compression       | $\geq -10$ dBm (10 MHz to 8 GHz)                                                                                          |
| RF Input VSWR               | 1.5 or less (10 MHz to 3 GHz, input attenuator $\geq 10$ dB), 2.0 or less (3 GHz to 8 GHz, input attenuator $\geq 10$ dB) |
| Frequency Response Flatness | $\pm 1.0$ dB (9 kHz to 3.1 GHz), $\pm 1.5$ dB (3.1 GHz to 8 GHz)                                                          |

**Accuracy**

|                             |                                                 |
|-----------------------------|-------------------------------------------------|
| Absolute Amplitude Accuracy | +/- 0.8 dB (at 20 MHz, calibrator output level) |
|-----------------------------|-------------------------------------------------|

**Protection**

|                          |            |
|--------------------------|------------|
| Maximum DC Input Voltage | +/- 50 VDC |
|--------------------------|------------|

**Inputs & Outputs**

|                           |                            |
|---------------------------|----------------------------|
| Calibration Signal Output | 20 MHz, -20 dBm +/- 0.3 dB |
|---------------------------|----------------------------|

**TECHNOLOGY**

Superheterodyne Spectrum Analysis

**APPLICATIONS**

RF and microwave spectrum analysis, field maintenance, production-line testing, and EMC pre-compliance

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