

SPECTRUM MASTER MS2711B/D

100 kHz to 3.0 GHz



*Fast, Accurate, Repeatable,
Portable Spectrum Analysis*

NEW



The MS2711B/D Handheld Spectrum Analyzer provides the “ultimate” in measurement flexibility for field environments and applications requiring mobility. Unlike traditional spectrum analyzers, the MS2711B/D features a rugged, ultra-lightweight, battery-operated design that enables users to conduct spectrum analysis measurements – anywhere, anytime.

Providing complete freedom from AC/DC power requirements, the MS2711B/D enables you to locate, identify, record and solve communication systems problems quickly and easily, without sacrificing measurement accuracy.

Whether you are installing, maintaining, or troubleshooting a modern wireless communication system, the MS2711B/D provides exceptional performance combined with ease-of-use and broad functionality – making it an ideal solution for engineers and technicians who conduct field measurements in the 100 kHz to 3.0 GHz frequency range. In fact, it is ideal for finding the source of interfering signals in modern wireless systems.

Rugged and Reliable

Because the MS2711B/D was designed specifically for field environments, it can easily withstand the day-to-day punishment of field use. Rugged packaging also keeps the MS2711B/D performing in harsh environments.

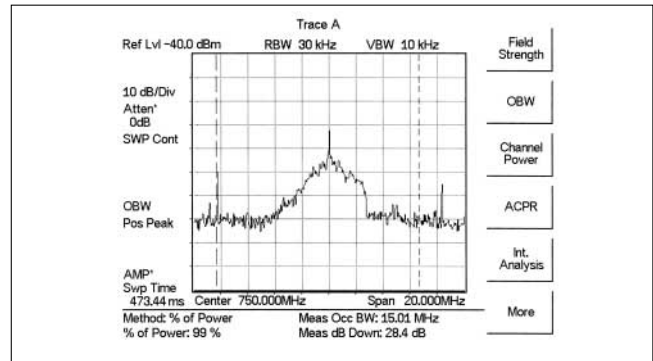
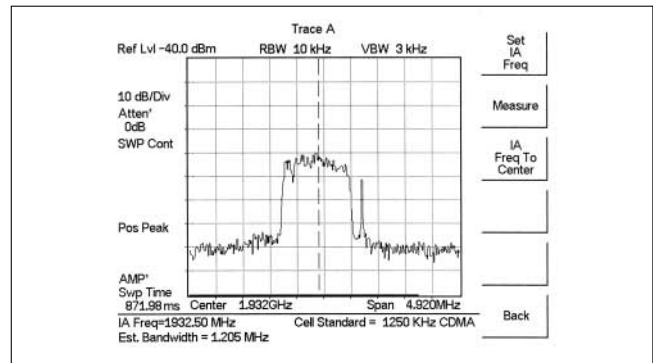
Easy-to-Use

Not only is the MS2711B/D the lightest fully-functional spectrum analyzer available at 4.5 pounds (base model including battery), operation is straight-forward and driven by firmware that simplifies the process of making measurements and interpreting the results shown on the large, high-resolution LCD display. The menu-driven user interface is easy to use and requires little training.

A full range of marker capabilities such as peak, center and delta functions are also provided, giving users a faster and more comprehensive measurement of displayed signals. Limit lines simplify amplitude measurements, giving users the capability to create quick, simple, pass/fail measurements. Frequency, span and amplitude functions are easily configured for optimum performance. Used together with the Save Setup feature, these functions can help to make testing easier and faster for less experienced users.

Powerful Trace Management

Users are able to store ten test setups along with 200 measurement traces internally in the unit's memory. The stored data can be easily downloaded to a personal computer (PC) or a printer via an RS-232 serial cable for further analysis. A notebook computer can be used with the RS-232 interface for automated control and data collection in the field. A standard preamplifier (option 8) plus a number of available options including an internal tracking generator (option 20, MS2711B) or transmission measurement (option 21, MS2711D) expand the MS2711B/D's capabilities.



To meet the challenges of today's wireless market, Anritsu Company has incorporated a pre-amp (standard) for its revolutionary MS2711B/D Handheld Spectrum Analyzer which increases the analyzer's sensitivity and dynamic range while improving measurement time. With the built-in pre-amp feature, the MS2711B/D is particularly effective in measuring low-level signals. The handheld spectrum analyzer's sensitivity is improved to -115 dBm for MS2711B and -135 dBm for MS2711D (100 Hz RBW) (full span). With this option, the MS2711B/D can identify and make measurements on low-level signals much faster than previously possible.

The improved sensitivity, dynamic range, and measurement speed complement the existing benefits of the MS2711B/D. Weighing only 4.9 pounds (including a NiMH battery, fully loaded, base model only 4.5 pounds), the MS2711B/D is the world's lightest fully functional handheld spectrum analyzer with the built-in tracking generator option (option 20).

MS2711B/D has been enhanced so that it can make highly accurate channel power measurements, occupied bandwidth and Adjacent Channel Power Ratio (ACPR) measurements. These are increasingly critical measurements, particularly for power amplifiers used in wireless communication systems. With the enhancements, the MS2711B/D has dedicated one button channel power, occupied bandwidth, and ACPR measurement capability to significantly reduce test time and expense. The MS2711B/D also features local language graphical user interface support (in Chinese, Japanese, French, German, and Spanish).

Strumenti di Misura Nuovi e Ricondizionati



Strada Vicinale Battifoglia Z.I.
06132 S. Andrea delle Fratte
Perugia

(39) 075 87 88 003 tel.
(39) 075 87 88 013 fax.
(39) 388 85 86 991 vendite
(39) 389 48 28 200 vendite
(39) 335 61 58 054 direzione

Features

- Lightweight (4.5 lbs - base model, 4.9 lbs with tracking generator - option 20, or transmission measurement, option 21)
- Synthesizer-based performance
- Wide dynamic range
- One button, ACPR, OBW, channel power, C/I measurement
- Quick zoom-in, zoom-out display
- 5 minute warm up
- Manual and automatic attenuator control
- Improved user interface, with local language support in five different languages
- Automatic overload and ESD protection
- Built-in AM/FM demodulation
- Built-in field strength measurement
- Built-in interference analysis
- Ability to store and recall up to six antenna factors
- Full range of marker capabilities including peak, center, and delta functions
- Limit lines for quick, simple pass/fail measurements
- Rugged, reliable packaging
- Battery operated design
 - 2.5 hours of continuous operation
 - Built-in energy conservation that extends battery life beyond an eight-hour workday
 - Operation using a 12.5 Vdc source AC-DC adapter or automotive cigarette lighter adapter, which simultaneously charges the battery
 - Field replaceable battery
- Built in clock and calendar
- Low cost ownership, global warranty

- Data storage and memory
 - Store up to ten test setups and 200 measurement traces in non-volatile memory
 - Stored data is easily and quickly downloaded to a personal computer (PC) or printer
- Powerful trace management
 - Automatically date/time stamped
 - Alphanumeric labeling
- PC reporting software
 - Windows® 95/98/2000/ME, XP, NT Workstation compatible
 - Supports long file names for descriptive labeling
 - Can display an unlimited number of traces for comparison to historical performance
- Optional Monochrome or Color LCD with backlight capability display
- Direct printer control via RS232 serial port

Applications

Convenient operating procedures, high sensitivity, and excellent repeatability enable the MS2711B/D to pinpoint the smallest system performance degradation and allow for easy verification of system compliance. Typical applications include:

- Transmitter Spectrum Analysis – occupied bandwidth, power, modulation measurements, location and identification of in-band, out-of-channel spurious and out-of-band spurious signals
- Receive Signal Analysis – measure receiver sensitivity, locate and identify sources of interfering signals
- Modulation identification, modulation depth, deviation, and spectral mask
- Signal Strength Mapping – to determine the most suitable location for antennas, base stations, and repeaters; or pinpoint Electromagnetic (EM) leakage in broadcast systems

Specifications

| Model | | MS2711B | MS2711D |
|--------------------------------|--|---|--|
| Frequency | Frequency range | 100 kHz to 3.0 GHz | |
| | Frequency reference | Aging: ±1 ppm/yr Accuracy: ±2 ppm | |
| | Frequency span | 1 kHz to 3 GHz in 1, 2, 5 step selections in auto mode, plus zero span | 10 Hz to 2.99 GHz in 1, 2, 5 step selections in auto mode, plus zero span |
| | Sweep time | ≥6500 msec full span; 500 msec zero span | ≤ 1.1 second full span; ≤ 50 msec to 20 second zero span |
| | Resolution bandwidth (–3dB width) | 10 kHz, 30 kHz, 100 kHz, 1 MHz, ±20% | 100 Hz to 1 MHz in 1-3 sequence, ±5% |
| | Video bandwidth (–3dB) | 100 Hz to 300 kHz in 1-3 sequence | 3 Hz to 1 MHz in 1-3 sequence, ±5% |
| | SSB Phase Noise (1 GHz) @30 kHz Offset | ≤–75 dBc/Hz | |
| | Spurious responses Input related | ≤–45 dBc | |
| | Spurious residual responses | ≤–90 dBm (≥500 kHz) | |
| | Amplitude | Measurement range | +20 dBm to –115 dBm (with preamp on) |
| Displayed average noise level | | –115 dBm (≥1 MHz typical with preamp on) ≤–95 dBm (≥500 kHz, typical) ≤–80 dBm (< 500 kHz, typical) | ≤–135 dBm typical, ≥1 MHz (preamp on) ≤–115 dBm typical, ≥500 kHz to <1 MHz ≤–110 dBm typical, < 500 kHz for input terminated, 0 dB attenuation, RMS detection, 100 Hz RBW |
| Dynamic range | | >65 dB, typical | |
| Total level accuracy | | ±2 dB, ≥500 kHz, typical; ±3 dB, <500 kHz, typical (For input signal level ≥–60 dBm) | ±0.5 dB typical (±1 dB max), ≥10 MHz to 2 GHz ±1 dB typical (±1.5 dB max), >2 GHz to 3 GHz ±2 dB, ≥500 kHz to <10 MHz ±3 dB typical, <500 kHz for input signal levels ≥–60 dBm, excludes input VSWR mismatch |
| Display range | | 1 to 15 dB/div in 1 dB steps, Ten divisions displayed | |
| Max input level without damage | | +23 dBm, ±50 Vdc | +43 dBm (Peak), ±50 Vdc |
| Attenuator Range | | 0 to 50 dB, selected manually or automatically coupled to the reference level. Resolution in 10 dB steps | 0 to 51 dB, selected manually or automatically coupled to the reference level. Resolution in 1 dB steps. |
| RF input | | VSWR 2.0:1 | 1.5:1 typical, (≥20 dB atten., 10 MHz to 2.4 GHz) |

Strumenti di Misura Nuovi e Ricondizionati



Strada Vicinale Battifoglia Z.I.
06132 S. Andrea delle Fratte
Perugia

(39) 075 87 88 003 tel.
(39) 075 87 88 013 fax.
(39) 388 85 86 991 vendite
(39) 389 48 28 200 vendite
(39) 335 61 58 054 direzione

web. www.test.it
email. testinst@tin.it

Continued on next page

| | Model | MS2711B | MS2711D |
|---------|---|---|---|
| General | Internal trace memory | 200 maximum | |
| | Setup storage | 10 test setups | 15 test setups |
| | Display | VGA Monochrome LCD | VGA Color or VGA Monochrome LCD |
| | Inputs and Outputs Ports RF In RF Out Ext trig In Ext Freq Ref In (2 MHz to 20 MHz) | Type N, female, 50 Ω Type N, female, 50 Ω N/A N/A | Type N, female, 50 Ω Type N, female, 50 Ω BNC, female (5V TTL) Shared BNC, female, 50 Ω (–15 dBm to +10 dBm) |
| | Serial Interface | RS-232 9 pin D-sub, three wire serial | |
| | Electromagnetic compatibility | Meets European community requirements for CE marking | |
| | Safety | Conforms to EN 61010-1 for Class 1 portable equipment | |
| | Temperature Operating Non-operating | 0°C to 50°C, humidity 85% or less –20°C to +75°C (recommend battery stored separately between 0°C to 40°C for any prolonged storage period) | –10°C to 55°C, humidity 85% or less –51°C to +71°C (recommend battery stored separately between 0°C to 40°C for any prolonged storage period) |
| | Power supply External DC Input Internal | +12.5 to +15 volts dc, 1350 mA max NiMH battery: 10.8 volts, 1800 mA mAh | |
| | Dimensions Size (W x H x D) Weight | 25.4 cm x 17.8 cm x 6.10 cm (10.0 in x 7.0 in x 2.4 in) 2.04 kg (4.5 lbs.) includes battery, 2.2 kg (4.9 lbs) includes tracking generator | 25.4 cm x 17.8 cm x 6.10 cm (10.0 in x 7.0 in x 2.4 in) <2.14 kg (4.7 lbs.) includes battery, <2.28 kg (5 lbs) includes transmission measurement |

MS2711B/D (Option 10) Bias Tee specifications

| | | |
|----------|---------|--|
| Bias Tee | Voltage | +18 Vdc |
| | Current | 1 A peak 200 ms, 300 mA max steady state |

MS2711D (Option 21) Transmission Measurement specifications

| | | |
|-----------|---|--------------------------|
| Frequency | Frequency range Frequency resolution | 25 MHz to 3 GHz 10 Hz |
| Output | Output power level Output impedance | –10 dBm typical 50 Ω |

FCN4760 Frequency Converter specifications

| | | |
|-----------|--|--|
| Frequency | Frequency range | 4.7 GHz to 6 GHz |
| | Frequency resolution*1 | 10 Hz |
| | Frequency reference | Aging: ±1 ppm/yr Accuracy: ±2 ppm |
| | SSB Phase Noise (6 GHz) @30 kHz Offset | ≤–65 dBc/Hz |
| | Spurious responses Input related | ≤–45 dBc |
| | Spurious residual responses ¹ | ≤–90 dBm |
| Amplitude | Measurement range | –40 dBm to –100 dBm |
| | Sensitivity*1 (displayed avg. noise level) | –100 dBm |
| | Maximum input level without damage | –5 dBm |
| | RF input | VSWR 2.0:1 max |
| General | Inputs and Outputs Ports RF In RF Out Communication Interface | Type N, female, 50 Ω Type N, male, 50 Ω 10 pin D sub |
| | Electromagnetic compatibility | Meets European community requirements for CE marking |
| | Safety | Conforms to EN 61010-1 for Class 1 portable equipment |
| | Temperature Operating Non-operating | –10°C to 50°C, humidity 85% or less –50°C to +80°C |
| | Power dissipation | 850 mW max |
| | Dimensions Size (W x H x D) Weight | 6.6 cm x 10.9 cm x 3.3 cm (2.6 in x 4.3 in x 1.3 in) <0.45 kg (< 1 lb.) |

*1: Specifications apply when connected to the MS2711D spectrum analyzer

MS2711B (Option 20) Tracking generator specifications

| | | |
|-----------|-------------------------------|--|
| Frequency | Frequency range | 10 MHz to 3 GHz |
| | Frequency resolution | 5 KHz |
| | Tracking offset range | ±5 MHz |
| Output | Output power level | 0 to -60 dBm |
| | Output power level resolution | 0.1 dB |
| | Absolute level accuracy | ±1.5 dB, 0 to -40 dBm ±4 dB, -40 dBm to -60 dBm |
| | Output flatness | ≤±1.5 dB (10 MHz – 3 GHz) |
| | Output tracking VSWR | <2.0:1, <0 dBm |
| | Spurious harmonics | ≤-20 dBc |
| | Non-Spurious | ≤-20 dBc |

MS2711B (Option 29) Power meter specifications

| | |
|----------------------|--|
| Frequency Range | 3 MHz to 3.0 GHz |
| Total Level Accuracy | ± 1 dB max (± 0.5 dB typical) for input signal levels >-60 dBm (10 MHz to 2 GHz, excludes input VSWR) ± 1.5 dB max (± 1 dB typical), >2 GHz to 3 GHz ± 2 dB max, 3 MHz to 10 MHz |
| Measurement Range | +20 dBm to -80 dBm |
| Frequency Span | 3 MHz to 2.99 GHz |
| Display Range | +80 dBm to -80 dBm |
| Offset Range | 0 to 60 dB |
| Maximum Input Power | +20 dBm without input attenuator |

Ordering Information

Please specify model/order number, name, and quantity when ordering.

| Model/Order No. | Name |
|---|--|
| MS2711B/8 MS2711D | HandHeld Spectrum Analyzer: 100 kHz to 3.0 GHz HandHeld Spectrum Analyzer: 100 kHz to 3.0 GHz |
| | Standard Accessories User's Guide, MS2711B Soft Carrying Case AC – DC Adapter Automotive Cigarette Lighter/12 Volt DC Adapter One Year Warranty CD ROM containing Software Management Tools Serial Interface Cable Rechargeable battery, NiMH Pre-amplifier (built-in) |
| Option 3 | Option Accessories Color display - MS2711D only |
| Option 6 | Frequency converter controller module for use with FCN4760 (MS2711D only) |
| Option 10 | Bias Tee (built-in) |
| Option 20 | Tracking generator (built-in) - MS2711B only |
| Option 21 | Transmission measurement (built-in) - MS2711D only |
| Option 29 | Power Meter (MS2711D only) |
| | Optional Accessories RF Detector, N(m), 50 Ω, 1 to 3000 MHz 30 dB, 50 Watt, Bi-directional, DC to 18 GHz, N(m) to N(f) Attenuator Precision Adapter, DC to 18 GHz, 50 Ω, N(m) to N(m) Precision Adapter, DC to 18 GHz, 50 Ω, N(f) to N(f) Test port cable armored, 1.5 meter, N(m) to N(m), 6.0 GHz Test port cable armored, 3.0 meter, N(m) to N(m), 6.0 GHz Test port cable armored, 5.0 meter, N(m) to N(m), 6.0 GHz Test port cable armored, 1.5 meter, N(m) to N(f), 6.0 GHz Test port cable armored, 3.0 meter, N(m) to N(f), 6.0 GHz Test port cable armored, 5.0 meter, N(m) to N(f), 6.0 GHz Test port cable armored, 1.5 meter, N(m) to 7/16 DIN(m), 3.5 GHz Test port cable armored, 1.5 meter, N(m) to 7/16 DIN(f), 3.5 GHz Adapter 7/16 (f) to N(m), 3.5 GHz Adapter, 7/16 DIN(f) to N(f), 7.5 GHz Adapter, 7/16 DIN(m) to N(m) 7.5 GHz Adapter 7/16 DIN (m) to 7/16 DIN (m), 7.5 GHz Adapter 7/16 DIN(f) to 7/16 DIN(f), 7.5 GHz 61N50 RF SWR Bridge, 10-2500 MHz, 50 Ω, N(m) 61NF50 RF SWR Bridge, 10-2500 MHz, 50 Ω, N(f) |
| 5400-71N50 42N50A-30 | |
| 34NN50A 34NFN50C 15NN50-1.5C 15NN50-3.0C 15NN50-5.0C 15NNF50-1.5C 15NNF50-3.0C 15NNF50-5.0C 15ND50-1.5C | |
| 15NDF50-1.5C | |
| 510-90 510-91 510-92 510-96 510-97 61N50 61NF50 | |

| Model/Order No. | Name |
|-----------------|---|
| 1030-86 | Band Pass Filter, 800 MHz band, 806-869 MHz, Loss = 1.7 dB, N(m)-SMA(f) |
| 1030-87 | Band Pass Filter, 900 MHz band, 902-960 MHz, Loss = 1.7 dB, N(m)-SMA(f) |
| 1030-88 | Band Pass Filter, 1900 MHz band, 1.85-1.99 GHz, Loss = 1.8 dB, N(m)-SMA(f) |
| 1030-89 | Band Pass Filter, 2400 MHz band, 2.4-2.5 GHz, Loss = 1.9 dB, N(m)-SMA(f) |
| 48258 | Spare soft carrying case |
| 40-115 | Spare AC/DC adapter |
| 806-62 | Spare automotive cigarette lighter/12 Volt DC adapter |
| 800-441 | Spare serial interface cable |
| 760-229 | Transit case for Anritsu HandHeld Spectrum Analyzer |
| 2300-347 | Anritsu HandHeld Software Tools |
| 10580-00074 | Anritsu HHSA User's Guide, Model MS2711B (spare) |
| 10580-00071 | Anritsu HHSA Programming Manual, Model MS2711B |
| 10580-00072 | Anritsu HHSA Maintenance Manual, Model MS2711B |
| 10580-00097 | Anritsu HHSA User's Guide, Model MS2711D |
| 10580-00098 | Anritsu HHSA Programming Manual, Model MS2711D |
| 10580-00099 | Anritsu HHSA Maintenance Manual, Model MS2711D |
| 633-27 | Rechargeable battery, NiMH |
| 551-1691 | USB to Serial adapter |
| 70-28 | Headset |
| 2000-1029 | Battery charger, NiMH with universal power supply |
| 2000-1030 | Portable antenna, 50 Ω, SMA (m) 1.71-1.88 GHz |
| 2000-1031 | Portable antenna, 50 Ω, SMA (m) 1.85-1.99 GHz |
| 2000-1032 | Portable antenna, 50 Ω, SMA (m) 12.4-2.5 GHz |
| 2000-1035 | Portable antenna, 50 Ω, SMA (m) 896-941 MHz |
| 2000-1200 | Portable antenna, 50 Ω, SMA (m) 806-869 MHz |
| | Printers HP DeskJet printer Includes: interface cable, black print cartridge, and US power cable Spare serial-to-parallel converter cable Power cable (Europe) for DeskJet printer Power cable (Australia) for DeskJet printer Power cable (UK) for DeskJet printer Power cable (So. Africa) for DeskJet printer Rechargeable battery for DeskJet printer Black print cartridge for DeskJet printer |
| 2000-1214 | |
| 2000-753 | |
| 2000-663 | |
| 2000-664 | |
| 2000-1218 | |
| 2000-667 | |
| 2000-1217 | |
| 2000-1216 | |

Strumenti di Misura Nuovi e Ricondizionati



Strada Vicinale Battifoglia Z.I.
06132 S. Andrea delle Fratte
Perugia

(39) 075 87 88 003 tel.
(39) 075 87 88 013 fax.
(39) 388 85 86 991 vendite
(39) 389 48 28 200 vendite
(39) 335 61 58 054 direzione

web. www.test.it
email. testinst@tin.it