**Third Order Intercept (TOI) (preamplifier off)**

–20 dBm tones 100 kHz apart

–20 dBm Ref level

0 dB attenuation

| Frequency | Typical |
|---|---|
| 50 MHz to 300 MHz | >8 dBm |
| >300 MHz to 2.2 GHz | >10 dBm |
| >2.2 to 2.8 GHz | >15 dBm |
| >2.8 to 4.0 GHz | >10 dBm |
| >4.0 to 7.1 GHz | >13 dBm |

0 dB attenuation, –20 dBm reference level, –20 dBm tones, spaced 100 kHz

**Displayed Average Noise Level:** DANL in 10 Hz RBW

| Frequency | Preamplifier On | | Preamplifier Off | |
|---|---|---|---|---|
| | Typical | Max | Typical | Max |
| 10 MHz to 1 GHz | –153 | –151 | –130 | –127 |
| >1 GHz to 2.2 GHz | –150 | –149 | –126 | –123 |
| >2.2 to 2.8 GHz | –146 | –143 | –120 | –116 |
| >2.8 to 4.0 GHz | –150 | –149 | –129 | –126 |
| >4.0 to 7.1 GHz | –148 | –144 | –121 | –117 |

Test conditions: Input attenuation: 0 dB, RMS detection, Reference level = –20 dBm for preamplifier off and –50 dBm for preamplifier on.

Note: Discrete spurious signals are not included in the measurement of DANL as they are covered by the residual spurious specification.

**Noise Figure (derived from DANL measurement)**
**0 dB attenuation, 23°C: Preamplifier On**

| Frequency | Typical |
|---|---|
| 10 MHz to 1 GHz | 11 dB |
| >1 GHz to 2.2 GHz | 14 dB |
| >2.2 to 2.8 GHz | 18 dB |
| >2.8 to 4.0 GHz | 14 dB |
| >4.0 to 7.1 GHz | 16 dB |

**Input-Related Spurious:** –60 dBc max*, (<–70 dBc typical), –30 dBm input, 0 dB RF attenuation

***Exceptions:**

| Input Frequency | Spur Level |
|---|---|
| 1674 MHz | –46 dBc max (–56 dBc typical), 0 to 2800 MHz |
| >1674 to 1774 MHz | –50 dBc max (–60 dBc typical) at ($F_{input}$ –1674 MHz) |

**Residual Spurious, preamplifier off:** (RF input terminated, 0 dB RF attenuation)

–90 dBm max**, 100 kHz to <3200 MHz

–84 dBm max**, 3200 to 7100 MHz

****Exceptions:**

| Frequency | Spur Level |
|---|---|
| 250, 300, and 350 MHz | –85 dBm max |
| ~4010 MHz | –80 dBm max (–90 dBm typical) |
| ~5084 MHz | –70 dBm max (–83 dBm typical) |
| ~5894 MHz | –75 dBm max (–87 dBm typical) |
| ~7028 MHz | –80 dBm max (–92 dBm typical) |

**Residual Spurious, preamplifier on:** –100 dBm max (RF input terminated, 0 dB RF attenuation)

## General

**RF Input VSWR:** 2.0:1 maximum, 1.5:1 typical (≥10 dB attenuation)

**Maximum Continuous Input:** (≥10 dB attenuation), +30 dBm

**Input Damage Level*:**

≥10 dB attenuation, >+43 dBm, ±50 Vdc

<10 dB attenuation, >+23 dBm, ±50 Vdc

* Input protection relay opens at >30 dBm with ≥10 dB input attenuation and at approximately 10 to 23 dBm with <10 dB attenuation.

**ESD Damage Level**: ≥10 dB attenuation, >10 kV

**External Reference Frequencies:** 1, 1.2288, 1.544, 2.4576, 4.8, 4.9152, 5, 9.8304, 10, 13 and 19.6608 MHz at –10 to +10 dBm

### Display

**Bright daylight-viewable color transmissive LCD:** Full SVGA, 8”

### Languages

Built-in English, Spanish, Italian, French, German, Japanese, Korean, and Chinese. The instrument also has the capability to have customized languages and soft key definitions installed from Master Software Tools.

### Marker Modes

**6 Markers, 7 Modes:** Normal, Delta, Marker to Peak, Marker to Center, Marker to Reference Level, Next Peak Left, Next Peak Right, All Markers Off, Noise Marker, Frequency Counter Marker (1 Hz resolution).

### Sweeps

Full span, Zero span, Span Up/Span Down

### Detection

Peak, Negative, Sample, RMS

### Memory

Trace and Setup storage is limited only by the capacity of the installed Compact Flash card. For a 64 MB card, storage is greater than 1000 traces and 1000 setups.

### Traces

Displayed Traces: Three Traces with trace overlay. One trace is always the live data; two traces can be either stored data or traces which have been mathematically manipulated.

### Interfaces

Type N female RF connector

BNC female connectors for ext. reference and ext. trigger

5-pin Mini-B USB 2.0 for data transfer to a PC

RJ45 connector for Ethernet 10/100 Base T

2.5 mm 3-wire headset connector

### Size & Weight

**Size:** 313 x 211 x 77 mm (12 x 8 x 3 in.)

**Weight:** 2.9 kg (<6.4 lbs.) typical

### Environmental

**MIL-PRF-28800F class 2**

**Operating:** –10 C to 55 C, humidity 85% or less

**Storage:** –51 C to 71 C

**Altitude:** 4600 meters, operating and non-operating

### Safety

Conforms to EN 61010-1 for Class 1 portable equipment

### Electromagnetic Compatibility

Meets European Community requirements for CE marking.

# Ordering Information

## Model

**MS2721A Handheld Spectrum Analyzer**
100 kHz to 7.1 GHz

### Standard Accessories Include:

| | |
|---|---|
| 10580-00103 | User's Guide |
| 61382 | Soft Carrying Case |
| 40-168 | AC – DC Adapter |
| 806-62 | Automotive Cigarette Lighter/12 Volt DC Adapter |
| 2300-498 | CD ROM containing Master Software Tools |
| 2000-1360 | USB A-mini B cable |
| 2000-1371 | Ethernet Cable |
| 633-44 | Rechargeable battery, Li-Ion |
| 2000-1358 | 64 MB Compact Flash |
| 1091-27 | Type-N male to SMA female adapter |
| 1091-172 | Type-N male to BNC female adapter |
| | One Year Warranty |
| 64343 | Tilt Bale Stand Accessory |

### Optional Accessories:

| | |
|---|---|
| 42N50A-30 | 30 dB, 50 watt, Bi-directional, DC to 18 GHz, N(m) to N(f) Attenuator |
| 34NN50A | Precision Adapter, DC to 18 GHz, 50Ω, N(m) to N(m) |
| 34NFNF50C | Precision Adapter, DC to 18 GHz, 50Ω, N(f) to N(f) |
| 15NNF50-1.5B | Test port cable, armored, 1.5 meter N(m) to N(f) 18 GHz |
| 15NN50-1.5C | Test port cable armored, 1.5 meter, N(m) to N(m), 6 GHz |
| 15NN50-3.0C | Test port cable armored, 3.0 meter, N(m) to N(m), 6 GHz |
| 15NN50-5.0C | Test port cable armored, 5.0 meter, N(m) to N(m), 6 GHz |
| 15NNF50-1.5C | Test port cable armored, 1.5 meter, N(m) to N(f), 6 GHz |
| 15NNF50-3.0C | Test port cable armored, 3.0 meter, N(m) to N(f), 6 GHz |
| 15NNF50-5.0C | Test port cable armored, 5.0 meter, N(m) to N(f), 6 GHz |
| 15ND50-1.5C | Test port cable armored, 1.5 meter, N(m) to 7/16 DIN(m), 6.0 GHz |
| 15NDF50-1.5C | Test port cable armored, 1.5 meter, N(m) to 7/16 DIN(f), 6.0 GHz |
| 510-90 | Adapter, 7/16 DIN (f) to N(m), DC to 7.5 GHz, 50Ω |
| 510-91 | Adapter, 7/16 DIN (f)-N(f), DC to 7.5 GHz, 50Ω |
| 510-92 | Adapter, 7/16 DIN(m)–N(m), DC to 7.5 GHz, 50Ω |
| 510-93 | Adapter, 7/16 DIN(m)-N(f), DC to 7.5 GHz, 50Ω |
| 510-96 | Adapter 7/16 DIN (m) to 7/16 DIN(m), DC to 7.5 GHz, 50Ω |
| 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) |
| 510-97 | Adapter 7/16 DIN(f) to 7/16 DIN(f), 7.5 GHz |
| 61382 | Spare soft carrying case |
| 64343 | Tilt Bale Stand Accessory |
| 40-168 | Spare AC/DC adapter |
| 806-62 | Spare automotive cigarette lighter/12 Volt DC adapter |
| 760-235 | Transit case for Anritsu MS2721A Handheld Spectrum Analyzer |
| 2300-498 | Anritsu Master Software Tools |
| 10580-00103 | Anritsu HHSA User's Guide, Model MS2721A (spare) |
| 10580-00104 | Anritsu HHSA Programming Manual, Model MS2721A |
| 10580-00105 | Anritsu HHSA Maintenance Manual, Model MS2721A |
| 663-44 | Rechargeable battery, Li-Ion |
| 2000-1374 | Battery charger, Li-Ion with universal power supply |
| 2000-1030 | Portable antenna, 50Ω, SMA(m) 1.71-1.88 GHz |
| 2000-1031 | Portable antenna, 50Ω, SMA(m) 1.85-1.99 GHz |
| 2000-1032 | Portable antenna, 50Ω, SMA(m) 2.4-2.5 GHz |
| 2000-1035 | Portable antenna, 50Ω, SMA(m) 896-941 MHz |
| 2000-1200 | Portable antenna, 50Ω, SMA(m) 806-869 MHz |
| 2000-1361 | Portable Antenna, 50Ω SMA(m) 5725-5825 MHz |
| 2000-1358 | 64 MB Compact Flash Memory Module |

SALES CENTERS:
United States (800) ANRITSU
Canada (800) ANRITSU
South America 55 (21) 2527-6922
Europe 44 (0) 1582-433433
Japan 81 (46) 223-1111
Asia-Pacific (852) 2301-4980
Microwave Measurements Division
490 Jarvis Drive, Morgan Hill, CA 95037-2809
http://www.us.anritsu.com

Anritsu

Discover What's Possible®



11410-00331 Rev. C