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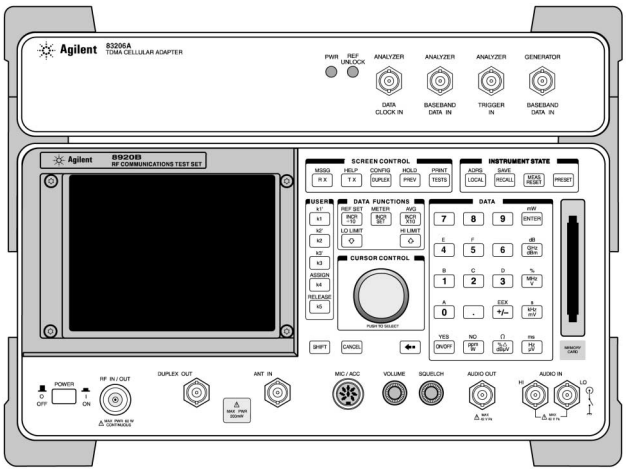
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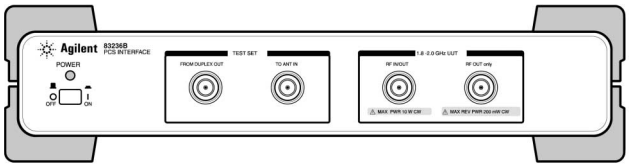
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Find the *Keysight / Agilent 8920B* at our website: ***Click HERE***

Agilent 8920B
RF Communications Test Set
Technical Specifications



8920B with 83206A TDMA Cellular Adapter



83236B PCS Interface

Test Features

- Call processing and on-call parametric test interface.
- High-level GPIB commands simplify call processing programmability.
- DCCH (TIA/EIA-136) phone test with 83206A TDMA Cellular Adapter for 800 and 1900 MHz bands.
- Accurate digital power measurements, with true-average TDMA power measurements.
- VEE support with 8920B drivers.
- PCS (1710 to 1990 MHz) phone test upgrade path with the 83236B PCS interface.

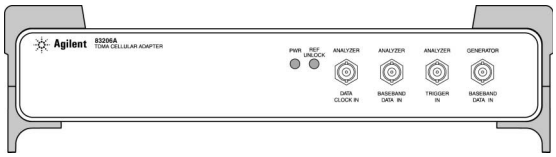
Improve throughput and quality

The 8920B is a full-function RF test set with accuracy, speed, and flexibility for testing land mobile radios, cellular telephones, and other communications systems while improving throughput and quality in manufacturing.

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83206A* (800 to 900 MHz)

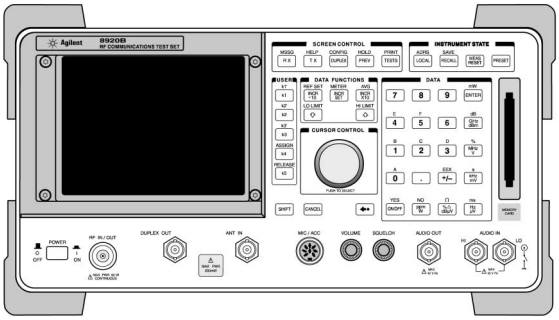


* Supercedes the 83201B TDMA cellular adapter for DAMPS (IS-54) test, adding DCCH (TIA/EIA-136) measurement capability.

TDMA Cellular Adapter for DAMPS (IS-54) and DCCH (TIA/EIA-136) Test

- p/4 DQPSK signal generator
- p/4 DQPSK modulation analyzer
- Data source
- BER analyzer

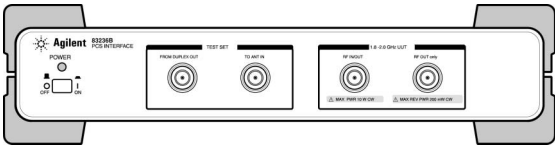
8920B (30 MHz to 1GHz)



RF Communications Test Set

- RF/AF signal generators
- AM/FM modulation analyzer
- RF/AF power meter
- Spectrum analyzer
- Tracking generator
- Adjacent channel power meter
- Oscilloscope
- IBASIC controller
- Signaling encoder/decoder
- Function generator
- AC/DC voltmeter
- SINAD/SNR meters
- DC current meter
- High stability reference
- IEEE 488.2/RS-232 interface
- Centronics port

83236B (1710 to 1990 MHz)



PCS Interface

- Frequency translator for PCS-band measurements
- For more information on the 83236B, refer to literature number 5964-9655E.

- Accuracy as good as stand alone instruments
- Test speed lowers your cost per test
- Flexibility meets more of your testing needs
- Front-panel upgrades and built-in test simplifies upgrades and maintenance

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8920B Specifications

Specifications describe the instrument's warranted performance and are valid over the entire operating/environmental range unless otherwise noted.

Supplemental Characteristics are intended to provide additional information useful in applying the instrument by giving typical, but non-warranted, performance parameters. These characteristics are shown in italics or labeled as "typical," "usable to," or "nominal."

Note: The 8920B standard configuration and Options 006, 007, and 016 configurations can be ordered as a variable attenuator and a fixed attenuator. For fixed attenuators, see table below. For wider frequency and power ranges, Option 055 has a mechanical variable attenuator available.

Configuration	Fixed Attenuator
Standard	14 dB
Option 006	6 dB
Option 007	0 dB
Option 016	16 dB

Signal Generator Specifications

RF Frequency

Range:

Standard and Options 006, 007, and 016: 30 MHz to 1 GHz
Option 055: (mechanical atten.) 250 kHz to 1 GHz
Accuracy and Stability: Same as reference oscillator ±0.015 Hz

Reference Oscillator Specifications

TCXO (8920B Standard)

Temperature: ±1 ppm (0 to +55 °C)

Aging: <2 ppm/year

Warm-Up Time: <30s to be within ±2 ppm of final frequency. For higher stability reference, see Opt. 001.

Supplemental Characteristics
Switching Speed: *<150 ms to be within 100 Hz of carrier frequency*
Rear Panel BNC connectors:
Input Frequency: *1, 2, 5, and 10 MHz*
Input Level: *>0.15 Vrms*
Output Frequency: *10 MHz*
Output Level: *>0.5 Vrms*
Resolution: *1 Hz displayed*

Output

RF IN/OUT Connector:

Level Accuracy: ±1.2 dB (level ≥–127 dBm)
If RF analyzer is also connected add ±0.1 dB
Typically ±1.0 dB for all levels.

Standard:
Level Range: –137 to –20.5 dBm into 50 W
Reverse Power: 60 watts continuous, 100 watts for 10 seconds per minute.

W/Option 006 (cellular power option):
Level Range: –137 to –12.5 dBm into 50 W
Reverse Power: 5.0 watts continuous, 7.5 watts for 10 seconds per minute.

W/Option 007 (low power option):
Level Range: –137 to –6.5 dBm into 50 W
Reverse Power: 1.2 watts continuous, 2.0 watts for 10 seconds per minute.

W/Option 016 (high power option):
Level Range: –137 to –22.5 dBm into 50 W
Reverse Power: 100 watts continuous, 125 watts for 10 seconds per minute.

Option 055:
Level Range: –137 to –19 dBm into 50 W
Reverse Power: 60 watts continuous, 100 watts for 10 seconds per minute.

W/Option 006 (cellular power option):
Level Range: –137 to –12.5 dBm into 50 W
Reverse Power: 5.0 watts continuous, 7.5 watts for 10 seconds per minute.

W/Option 007 (low power option):
Level Range: –137 to –6.5 dBm into 50 W
Reverse Power: 1.2 watts continuous, 2.0 watts for 10 seconds per minute.

W/Option 016 (high power option):
Level Range: –137 to –22.5 dBm into 50 W
Reverse Power: 100 watts continuous, 125 watts for 10 seconds per minute.

DUPLEX OUT Connector:
Level Accuracy: ±1 dB
Level Range:
Standard and Options 006, 007, 016: –127 to +3.5 dBm into 50 W
Option 055: –127 to +7 dBm into 50 W
Reverse Power: 200 mW max.

SWR:
RF IN/OUT: <1.5:1
DUPLEX OUT: <2.0:1 (level <–4 dBm)

Supplemental Characteristics
Resolution: *0.1 dB*

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Spectral Purity

Spurious Signals:

Fixed Attenuator Configuration	Output port signal amplitude conditions to meet spurious specifications: output signal must be ≤ to below value	
Elect. Variable	**Duplex Port**	**RF IN/OUT Port**
Standard	1 dBm	–27 dBm
Option 006	–2.5 dBm	–20.5 dBm
Option 007	–2.5 dBm	–14.5 dBm
Option 016	1 dBm	–29 dBm
Mech. Variable	**Duplex Port**	**RF IN/OUT Port**
Option 055	1 dBm	–25 dBm
Option 055 w/016	1 dBm	–27 dBm

Harmonics: <–30 dBc
Non-Harmonic Spurious: <–60 dBc (at >5 kHz from carrier)

Residual FM (rms, CCITT):
250 kHz ≤ f_c <249 MHz <7 Hz
249 MHz ≤ f_c <501 MHz <4 Hz
501 MHz ≤ f_c ≤1000 MH <7 Hz

Supplemental Characteristics
Residual AM: *<0.1% in a 50 Hz to 15 kHz BW*
SSB Phase Noise (for >20 kHz offsets at 1 GHz): *<–116 dB/Hz*

FM

FM Deviation Maximum (for rates >25 Hz):
Standard and all Options:
100 kHz: for 501 MHz ≤f_c<1000 MHz
50 kHz: for 249 MHz ≤f_c<501 MHz

Standard and Options 006, 007, 016:
100 kHz: for 30 MHz ≤f_c<249 MHz

Option 055 (mechanical variable attenuator):
100 kHz: for 250 kMHz ≤f_c<249 MHz
(FM not specified for [f_c minus FM dev.] <250 kHz)

FM Rate (1 kHz reference):
Internal: DC to 25 kHz (1 dB BW)
External:
AC Coupled: 20 Hz to 75 kHz
DC Coupled: DC to 75 kHz

FM Accuracy (1 kHz rate):
≤10 kHz dev: ±3.5% of setting ±50 Hz
>10 kHz dev: ±3.5% of setting ±500 Hz

FM Distortion (THD + Noise, in a 0.3 to 3 kHz BW):
<0.5% at >4 kHz deviation and 1 kHz rate

Center Frequency Accuracy in DC FM Mode:
(External source impedance <1 kW): ±500 Hz (after DC FM zero), *typically ±50 Hz.*

Supplemental Characteristics
Ext. Mod. Input Impedance: *600 W nominal*
Resolution: *50 Hz for <10 kHz deviation*
500 Hz for ≥10 kHz deviation

AM

Standard:
Frequency Range: 30 MHz to 1000 MHz
AM Depth: 0 to 90% *(usable to 99%)* for DUPLEX OUT level ≤–2.5 dBm, for RF IN/OUT level depending on option.
Standard: ≤–26.5 dBm
Option 006: ≤–18.5 dBm
Option 007: ≤–12.5 dBm
Option 016: ≤–28.5 dBm
0 to 70% *(usable 90%)* with 8920B Option 051 rear panel connectors for TDMA testing.

Options 055 (mechanical variable attenuator):
Frequency Range: 1.5 MHz to 1000 MHz
AM Depth: 0 to 90% *(usable to 99%)*
for DUPLEX OUT level ≤1 dBm
for RF IN/OUT level depending on option:
Standard: ≤–2.5 dBm
Option 016: ≤–27 dBm
AM Depth: 0 to 70% *(usable to 90%)* with 8920B Option 051 rear panel connectors for TDMA testing.

AM Rate: 20 Hz to 25 kHz (3 dB BW)

AM Accuracy (1 kHz rate):
≤10% AM: ±5% of setting, ±1.0% AM
>10% AM: ±5% of setting, ±1.5% AM

AM Distortion (THD+Noise 0.3 to 3 kHz BW):
<2% at 1 kHz rate, <30% AM
<3% at 1 kHz rate, ≤90% AM

Supplemental Characteristics
Ext. Mod. Input Impedance: *600 W nominal*
Resolution: *<0.1%*

TDMA Signal Generator Specifications

8920B Opt. 001, 004, 051, 800 (8920B + 83206A)

Frequency Range: 824 MHz to 894 MHz

Output Level Range:
Standard:
DUPLEX OUT: +0.5 dBm to –127 dBm
RF IN/OUT range by option:
Standard: –23.5 dBm to –127 dBm
Option 006: –15.5 dBm to –127 dBm
Option 007: –9.5 dBm to –127 dBm
Option 016: –25.5 dBm to –127 dBm

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Option 055 (mechanical variable attenuator):
DUPLEX OUT: +4.0 dBm to –127 dBm
RF IN/OUT range by option:
Standard: –22 dBm to –127 dBm
Option 016: –24 dBm to –127 dBm

Residual Error Vector Magnitude: <3.0%

Residual Phase Error: <2.0%

Residual Magnitude Error: <2.6%

IQ Origin Offset: <–30 dBc within 15 °C drift of last calibration

Frequency Error: ±4 Hz plus reference error

Audio Source Specifications

(Applicable to both internal sources)

Frequency

Range: dc to 25 kHz

Accuracy: 0.025% of setting

Supplemental Characteristics
Resolution: *0.1 Hz*

Output Level

Range: 0.1 mVrms to 4 Vrms

Maximum Output Current: 20 mA peak

Output Impedance: <1 Ω (≤1 kHz rate)

Accuracy: ±2% of setting plus resolution

Residual Distortion: 0.125%
(THD plus noise, for amplitudes >200 mVrms), for tones 20 Hz to 25 kHz measured in an 80 kHz BW.

Supplemental Characteristics
Resolution: *Level ≤0.01 V: ±50 µV*
Level ≤0.1 V: ±0.5 mV
Level ≤1 V: ±5 mV
Level >1 V: ±50 mV
Offset in DC Coupled Mode: *<50 mV*

RF Analyzer Specifications

RF Frequency Measurements

Measurement Range:
Standard: 10 MHz to 1 GHz
Option 055 (mechanical variable attenuator):
400 kHz to 1 GHz

Level Range (with or without Option 055 mechanical variable attenuator):
Standard: 0 to 48 dBm (1 mW to 60 W continuous)
50 dBm (100 W for 10 seconds per minute)

Option 006: –13 to 40 dBm (50 µW to 10 W continuous)
42 dBm (to 7.5 W for 10 seconds per minute)

Option 007: –14 to 34 dBm (40 µW to 2.4 W continuous)
36 dBm (2 W for 10 seconds per minute)

Option 016: 2 dBm to 50 dBm (1.6 mW to 100 W continuous)
51 dBm or (125 W for 10 seconds per minute)

Ant In: –36 dBm to +20 dBm in auto-tune mode

Accuracy: ±1 Hz plus timebase accuracy

Supplemental Characteristics
Frequency Resolution: *1 Hz*

RF Power Measurements

Frequency Range:
Standard: 10 MHz to 1 GHz
Option 055 (mechanical variable attenuator): 400 kHz to 1 GHz

SWR: RF IN/OUT port <1.5:1

RF IN/OUT Measurement Range:
To achieve the specified accuracy when measuring power at the RF In/Out port, the internal signal generator level must be 60 dB below the measured power or less than –20 dBm at the Duplex outport.

Standard: 1 mW to 60 W continuous (0 to 48 dBm)
or to 100 W for 10 seconds per minute (to 50 dBm)

Accuracy: ±5% of reading ±0.01 mW ±1 count for temperature range of 25 ±10 °C.
Accuracy: ±10% of reading for operating temperature range.

Option 006: 50 µW to 10 W continuous (–13 to 40 dBm), 15 W for 10 seconds per minute (to 42 dBm)
Frequency Range: 30 MHz to 1 GHz
Accuracy: ±5% of reading ±0.5 µW ±1 count for temperature range of 25 ±10 °C.
Accuracy: ±10% of reading for operating temperature range.

Option 007 (low power option): 40 µW to 2.4 W continuous (–14 to 34 dBm) to 4 W for 10 seconds per minute (36 dBm)
Accuracy: ±5% of reading ±400 nW ±1 count for temperature range of 25 ±10 °C.
Accuracy: ±10% of reading for operating temperature range.

Option 016 (high power option): 1.6 mW to 100 W continuous (2 to 50 dBm), 125 W for 10 seconds per minute (to 51 dBm)
Accuracy: ±5% of reading ±0.01 mW ±1 count for temperature range of 25 ±10 °C.
Typical accuracy: ±6% of reading for operating temperature range.

Supplemental Characteristics
Resolution: *P >10W: 10 mW, P <10W: 10 mW, P <100 mW: 0.1 mW, P <10 mW: 0.01 mW, P <100 W: 100 mW, P >100 W: 1 W*

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FM Measurement

Frequency Range:
Standard, Options 006, 007, and 016: 30 MHz to 1 GHz
(usable to 400 kHz)
Option 055: 10 MHz to 1 GHz
(usable to 5 MHz)

Deviation: 20 Hz to 75 kHz

Sensitivity: *2 µV, typically <1 µV (15 kHz IF BW, high sensitivity mode, 0.3 to 3 kHz BW, 12 dB SINAD for f_c >10 MHz)*

Accuracy: ±4% of reading plus residual FM and noise contribution (20 Hz to 25 kHz rates, deviation ≤25 kHz).

Bandwidth (3 dB): 2 Hz to 70 kHz (DC FM measurements also available)

THD+Noise: <1% distortion rms (for deviation ≥5 kHz and at a rate of 1 kHz in a 0.3 to 3 kHz BW)

Input Level Range for Specified Accuracy:
ANT IN: –50 to +14 dBm (0.01 µW to 24 mW)
RF IN/OUT:
Standard: –14 to 48 dBm (40 µW to 60 W)
Option 006: –22 to 40 dBm (6.3 µW to 10 W)
Option 007: –28 to 34 dBm (1.6 µW to 2.4 W)
Option 016: –12 to 50 dBm (6.3 µW to 100 W)

Residual FM and Noise: <7 Hz (0.3 to 3 kHz, rms)

Supplemental Characteristics
Resolution: *1 Hz, f <10 kHz; 10 Hz, f ≥10 kHz*

AM Measurement

Frequency Range:
Standard, Option 016: 10 MHz to 1 GHz (usable to 400 kHz)
Options 006, 007: 30 MHz to 1 GHz

Depth: 0 to 95%

Accuracy: ±5% of reading ±1.5% AM (50 Hz to 10 kHz rates, modulation ≤80%)

THD+Noise: <2% rms for modulation ≤80% AM (at 1 kHz rate in a 0.3 to 3 kHz BW)

Input Level for Specified Accuracy (levels in PEP):
Antenna: ANT IN:
–50 to +14 dBm (0.01 µW to +14 dBm)
RF IN/OUT:
Standard: –14 to 48 dBm (40 µW to 60 W)
Option 006: –22 to 40 dBm (6.3 µW to 10 W)
Option 007: –28 to 34 dBm (1.6 µW to 2.4 W)
Option 016: –12 to 50 dBm (63 µW to 100 W)

Residual AM: <0.2% in a 0.3 to 3 kHz BW

Supplemental Characteristics
Resolution: *0.05% AM for 0 to 10% AM*
0.5% AM for 10 to 100% AM

SSB Measurement

Standard Frequency Range: 300 MHz to 1 GHz

Bandwidth (3 dB): 20 Hz to 70 kHz supplemental characteristics

Distortion and Noise: <3% (at 1 kHz rate in a 0.3 to 3 kHz BW)

TDMA Analyzer Specifications

8920B Opt. 001, 004, 051, 800 (8920B + 83206A)

Frequency Range: 824 MHz to 894 MHz

Input Level Range:
RF IN/OUT:
Standard: 1 mW to 60 W continuous (0 to 48 dBm),
100 W (to 50 dBm) for 10 seconds per minute

Option 006: 50 µW to 10 W continuous (–13 to 40 dBm),
15 W (42 dBm) for 10 seconds per minute

Option 007: 40 µW to 2.4 W continuous (–14 to +34 dBm),
4 W (36 dBm) for 10 seconds per minute

Option 016: 1.6 mW to 100 W continuous (2 to 50 dBm),
125 W (+51 dBm) for 10 seconds per minute

Input Frequency Setting Error: ±1 kHz

RX DSP Level Setting Range: –23 to 0 dB full scale

Residual Error Vector Magnitude: <1.3%

Error Vector Magnitude Measurement Accuracy: ±0.4% plus 2% of reading

Residual Phase Error: <1.0°

Residual Magnitude Error: <0.9%

I/Q Origin Offset Accuracy: ±0.5 dB for values to –40 dBc

Frequency Error Accuracy: ±2.5 Hz plus reference accuracy

AF Analyzer Specifications

Frequency Measurement

Measurement Range: 20 Hz to 400 kHz

Accuracy: ±0.02% plus resolution plus reference accuracy

External Input: 20 mV to 30 Vrms

Supplemental Characteristics
Resolution: *0.01 Hz, f <10 kHz; 0.1 Hz, f <100 kHz; and 1 Hz for f ≥100 kHz*

AC Voltage Measurement

Measurement Range: 0 to 30 Vrms

Accuracy: ±3% rms of reading (20 Hz to 15 kHz, inputs ≥1 mV rms)

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Residual Noise: 150 µV (15 kHz BW), *<136 µV typical*

Supplemental Characteristics
3 dB Bandwidth: *Typically 2 Hz to 100 kHz*
Nominal Input Impedance: *Switchable between 1 MΩ in parallel with 95 pF or 600 Ω floating*
Resolution: *For inputs ≥100 mV; 0.1 mV for inputs <100 mV; 0.01 mV*

DC Voltage Measurement

Voltage Range: 100 mV to 42 V

Accuracy: ±1.0% of reading plus ±45 mV

Supplemental Characteristics
Resolution: *1 mV*

Distortion Measurement

Tone Frequency Range: 300 Hz to 10 kHz

Tone Accuracy: ±5%

Input Level Range: 30 mV to 30 Vrms

Display Range: 0.1% to 100%

Accuracy: ±1 dB (0.5 to 100% distortion) for tones from 300 to 1500 Hz measured with the 15 kHz LPF.

±1.5 dB (1.5 to 100% distortion) for tones from 300 Hz to 10 kHz measured with >99 kHz LPF.

Residual THD+Noise: –60 dBc or 150 µV, whichever is greater, for tones from 300 to 1500 Hz measured with the 15 kHz LPF.

–52 dBc or 450 µV, whichever is greater, for tones from 300 Hz to 10 kHz measured with >99 kHz LPF.

Supplemental Characteristics
Resolution: *0.1% Distortion*

SINAD Measurement

Tone Frequency Range: 300 Hz to 10 kHz

Tone Accuracy: ±5%

Input Level Range: 30 mV to 30 Vrms

Display Range: 0 to 60 dB

Accuracy: ±1 dB (0 to 46 dB SINAD) for tones from 300 to 1500 Hz measured with the 15 kHz LPF.

±1.5 dB (0 to 36 dB SINAD) for tones from 300 Hz to 10 kHz measured with >99 kHz LPF.

Residual THD+Noise: –60 dBc or 150µV, whichever is greater, for tones from 300 to 1500 Hz measured with the 15 kHz LPF.

–52 dBc or 450 µV, whichever is greater, for tones from 300 Hz to 10 kHz measured with >99 kHz LPF.

Supplemental Characteristics
Resolution: *0.01 dB*

Audio Filters

Standard: <20 Hz HPF, 50 Hz HPF, 300 Hz HPF, 300 Hz LPF, 3 kHz LPF, 15 kHz LPF, >99 kHz LPF, 750 µs de-emphasis

Optional: C-Message, CCITT, 400 Hz HPF, 4 kHz BPF, 6 kHz BPF

Variable Frequency Notch Filter

Frequency Range: 300 Hz to 10 kHz

Notch Depth: >60 dB

Notch Width: *Typically ±5%*

Audio Detectors

RMS, RMS*SQRT2, Pk+, Pk–, Pk+hold, Pk–hold, Pk±/2, Pk±/2 hold, Pk±max, Pk±maxhold

Oscilloscope Specifications

Frequency Range: 2 Hz to 50 kHz (3 dB BW)

Amplitude Accuracy: ±1.5% of reading ±0.1 div. (20 Hz to 10 kHz)

Scale/Division: 10 mV to 10 V, settable 20 µV to 20 V

Time/Division: 10 µs to 100 ms, settable

Trigger Delay Range: 20 µs to 3.2 seconds

Supplemental Characteristics
3 dB Bandwidth: *Typically >100 kHz*
Internal DC Offset: *≤0.1 div. (≥50 µV/div. sensitivity)*

Standard User Memory, RAM

Approximately 928 KB of RAM are available for nonvolatile save/recall of settings. This typically will allow you to save greater than 500 sets of instrument settings, depending on the type of information saved.

Standard Rear Panel Interfaces

Current Sensing and I/O: GPIB/RS-232/Parallel (Centronics)

DC Current Meter

Measurement Range: 0 to 15 A *(usable to 20 A)*

Accuracy: The greater of ±10% of reading after zeroing or ±30 mA (levels >100 mA)

Remote Programming

GPIB: A general purpose implementation of IEEE Standard 488.2

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Functions Implemented: SH1, AH1, T6, L4, SR1, RL1, LE0, TE0, PP0, DC1, DT1, C4, C11, E2

RS-232: Two serial ports through RJ-11 connector used for serial data in and out.

Baud Rates: 150, 300, 600, 1200, 2400, 4800, 9600, and 19200 Hz

Memory Card Specifications

Card Compatibility: Single industry standard PCMCIA slot accepts Type I or Type II SRAM and ROM memory cards.

Storage Capability: Allows for the storage and retrieval of IBASIC program parameter and results data, input of new calibration data, and long-term storage of Store/Recall information.

Firmware Upgrades: Accepts PCMCIA flash memory cards (4 MB) to allow automatic loading of new firmware for the host CPU from the front panel. Upgrade time is about two minutes.

8920B Options

Option 001, High Stability Timebase

OCXO: (Oven controlled crystal oscillator)

Temperature Drift: 0.05 ppm per year (0 to +55 °C)

Aging: 0.05 ppm per year (<1 ppm in first year)

Warm-up Time: <15 minutes to be within ±0.1 ppm of final frequency

Supplemental Characteristics
Rear Panel BNC connectors:
Input Frequency: *1, 2, 5, and 10 MHz*
Input Level: *>0.15 Vrms*
Output Frequency: *10 MHz*
Output Level: *>0.5 Vrms*

Option 004, Tone/Digital Signalling

Capability for generating and analyzing the formats listed here: CDCSS, DTMF, 1-TONE, 2-TONE, 5/6 TONE SEQUENTIAL, RPC1, (POCSAG), EIA, CCITT, CCIR, ZVEI, DZVEI, GOLAY, EEA, NMT-450, NMT-900, LTR, AMPS/EAMPS/NAMPS, TACS/ETACS, JTACS/NTACS, EDACS, MPT 1327, and TDMA dual-mode.

A general purpose function generator with: Sine, square, triangle, ramp, dc, Gaussian white noise, uniform white noise.

Frequency range/level: Same as audio source

Option 006, 10 W to 50 µW Power Measurement Range

Option 006 was designed to optimize the measurement range for cellular mobile station test. This option has a 6 dB attenuator at the RF IN/OUT port. It increases the dynamic range of the instrument by 2 dB and enables true-average power measurements on TDMA signals using the 83206A (8920B Option 800). Option 006 is recommended for TIA/EIA-136 testing. The RF frequency range for Option 006 power measurement is 10 MHz to 1GHz, and the RF source range is 30 MHz to 1 GHz RF.

Option 007, Low-level RF Power Measurements

Allows lower-level, higher sensitivity measurements. This option reduces the maximum continuous input power of the 8920B from 60 watts to 2.4 watts. The RF frequency for Option 007 power measurement is 10 MHz to 1 GHz and the RF source range is 30 MHz to 1 GHz.

Option 010, 400 Hz High Pass Audio Filter

Option 011, CCITT Weighting Audio Filter

Option 012, 4 kHz Bandpass Audio Filter

Option 013, C-Message Weighted Audio Filter

Option 014, 6 kHz Bandpass Audio Filter

Option 016, High-Level RF Power Measurements to 100 W Continuous

Option 016 tests high power transmitters (up to 100 W continuous, 125 W intermittently with a 10 seconds per minute duty cycle). It has a 16 dB fixed attenuator at the RF IN/OUT port.

Option 020, Radio Interface Card

The Option 020 for the 8920B is a built-in radio interface card for automating module and radio test. It contains 16 parallel data lines, two interrupts, and brings the audio in/out lines and a relay closure out from the MIC/ACC connector on the front panel. These are controlled by the 8920B IBASIC control language.

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Option 051, Rear Panel Connectors for TDMA Measurements for TDMA Option 800/801

This option provides the necessary rear panel connectors to work with the 83206A TDMA cellular adapter (8920B Option 800/801).

Option 055, Mechanical Variable Input Attenuator

This option replaces the standard electronic input attenuator with a mechanical version. Option 055 extends the RF source frequency range to 250 kHz to 1 GHz, and the RF analyzer measurement range to 400 kHz to 1 GHz. This option can be ordered with all options except Options 006 and 007.

Option 102, Spectrum Analyzer with Tracking Generator and ACP

Frequency Range:

Standard: 10 MHz to 1 GHz
Option 055 (mechanical variable attenuator): 400 kHz to 1 GHz

Frequency Span/Resolution Bandwidth (coupled):

Span	Bandwidth
<50 kHz	300 Hz
<200 kHz	1 kHz
<1.5 MHz	3 kHz
<18 MHz	30 kHz
≥18 MHz	300 kHz, plus full span capability

Display: Log with 1, 2, and 10 dB/div.

Display Range: 80 dB

Reference Level Range: +50 to –50 dBm

Residual Responses: <–70 dBm (no input signal, 0 dB attenuation for reference level ≤–20 dBm)

Image Rejection: >50 dBm for reference level ≤30 dBm

Non-harmonic Spurious Responses: >60 dBc (for input signals ≤–30 dBm at ANT IN port)

Supplemental Characteristics
Level Accuracy: *±2.5 dB*
ANT IN Displayed Average Noise Level:
<–114 dBm for <50 kHz spans at reference level of –50 dBm
Log Scale Linearity: *±2 dB (for input levels ≤–50 dBm and/or 60 dB range)*

Tracking Generator (In Option 102)

Frequency Range:

Standard and Options 006, 007, and 016: 10 MHz to 1 GHz
Option 055 (mechanical variable attenuator): 400 kHz to 1 GHz

Frequency Offset: Frequency span endpoints ± frequency offset cannot be <400 kHz or ≥1 GHz

Output Level Range: Same as signal generator

Sweep Modes: Normal and inverted

Adjacent Channel Power (in Option 102)

Relative Measurements:

Level Range:

Antenna In: –40 dBm to +20 dBm

RF IN/OUT:
Standard: 1 mW to 60 W continuous or to 100 W for 10 seconds per minute

Option 006 (cellular power option): 50 µW to 10 W continuous, 7.5 W for 10 seconds per minute

Option 007 (low power option): 40 µW to 2.4 W continuous, 2.0 W for 10 seconds per minute

Option 016 (high power option): 1.6 mW to 100 W continuous, 125 W for 10 seconds per minute

Option 055:

Level Range: –137 to –19 dBm into 50 W
Reverse Power: 60 watts continuous, 100 watts for 10 seconds per minute.

W/Option 006 (cellular power option):
Level Range: –137 to –12.5 dBm into 50 W
Reverse Power: 5.0 watts continuous, 7.5 watts for 10 seconds per minute.

W/Option 007 (low power option):
Level Range: –137 to –6.5 dBm into 50 W
Reverse Power: 1.2 watts continuous, 2.0 watts for 10 seconds per minute.

W/Option 016 (high power option):
Level Range: –137 to –21 dBm into 50 W
Reverse Power: 100 watts continuous, 125 watts for 10 seconds per minute.

Dynamic Range: *Typical values for channel offsets*

Channel offset	Channel BW	Dynamic range
12.5 kHz	*8.5 kHz*	*–65 dBc*
20 kHz	*14 kHz*	*–68 dBc*
25 kHz	*16 kHz*	*–68 dBc*
30 kHz	*16 kHz*	*–68 dBc*
60 kHz	*30 kHz*	*–65 dBc*

Relative Accuracy: *Typically ±2.0 dB*

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Absolute Level Measurements

Level: Results of absolute power in watts or dBm are calculated by adding the ACP ratio from the spectrum analyzer to the carrier power from the input section RF power detector.

Level Range:

Ant In: N/A

RF IN/OUT:

Standard: 1 mW to 60 W continuous or to 100 W for 10 seconds per minute.

Option 006 (cellular power option): 50 µW to 10 W continuous, 15 W for 10 seconds per minute.

Option 007 (low power option): 40 µW to 2.4 W continuous, 4.0 W for 10 seconds per minute.

Option 016 (high power option): 1.6 mW to 100 W continuous, 125 W for 10 seconds per minute.

Option 055:

Level Range: –137 to –19 dBm into 50 W
Reverse Power: 60 watts continuous, 100 watts for 10 seconds per minute.

W/Option 006 (cellular power option):

Level Range: –137 to –12.5 dBm into 50 W
Reverse Power: 5.0 watts continuous, 7.5 watts for 10 seconds per minute.

W/Option 007 (low power option):

Level Range: –137 to –6.5 dBm into 50 W
Reverse Power: 1.2 watts continuous, 2.0 watts for 10 seconds per minute.

W/Option 016 (high power option):

Level Range: –137 to –21 dBm into 50 W
Reverse Power: 100 watts continuous, 125 watts for 10 seconds per minute.

Dynamic Range: *Typical values for channel offsets*

Channel Offset	Channel BW	Dynamic Range
12.5 kHz	*8.5 kHz*	*–65 dBc*
20 kHz	*14 kHz*	*–68 dBc*
25 kHz	*16 kHz*	*–68 dBc*
30 kHz	*16 kHz*	*–68 dBc*
60 kHz	*30 kHz*	*–65 dBc*

Absolute Accuracy: Equals the sum of RF power measurement accuracy found in the RF analyzer section and the ACP typical relative accuracy of ±2.0 dB.

Option 800, Dual-mode TDMA Cellular Adapter – TIA/EIA-136 DCCH, IS-54 DAMPS

The 8920B Option 800 includes the 83206A TDMA cellular adapter attached, tested, and calibrated with the 8920B communications test set.

Option 801, Dual-Mode Adapter and PCS Interface

For TIA/EIA 136 testing in 800 and 1900 MHz bands. This option is for ordering convenience. It includes the 8920B with the 83206A attached and pretested together plus the additional unit 83236B PCS interface shipped together.

General Specifications

Dimensions

8920B: 7.5 in.H x 13 in.W x 19 in.D (188 x 330 x 456 mm)

8920B Option 800 (83206A attached): 9.8 in.H x 13 in.W x 19 in.D (250 x 330 x 456 mm)

Weight (fully optioned)

8920B: 37 lb net (16.8 kg)
Shipping Weight: 61 lb net (27.7 kg)

8920B Option 800: (83206A attached) 50 lb net (22.7 kg)
Shipping Weight: 80 lb net (36.3 kg)

Power

8920B:
AC: 100 V to 240 V ±10%, 48 to 440 Hz, *nominally 100 watts*
DC: 11 V to 28 V, *nominally 120 watts*

8920B Option 800 (83206A attached):
AC: 100 V to 240 V ±10%, 48 to 440 Hz, *nominally 140 watts*

General

CRT Size: 7 x 10 cm

Operating Temperature: 0 to +55 °C

Storage Temperature: –55 to +75 °C

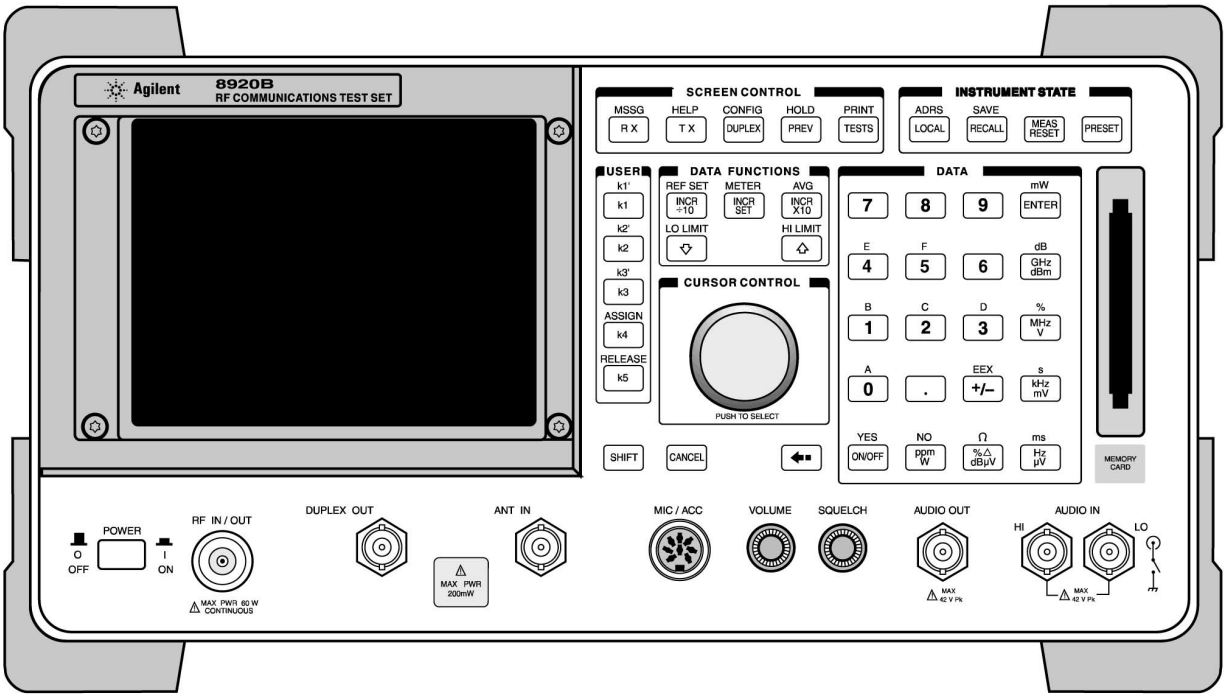
Calibration Interval: Two years

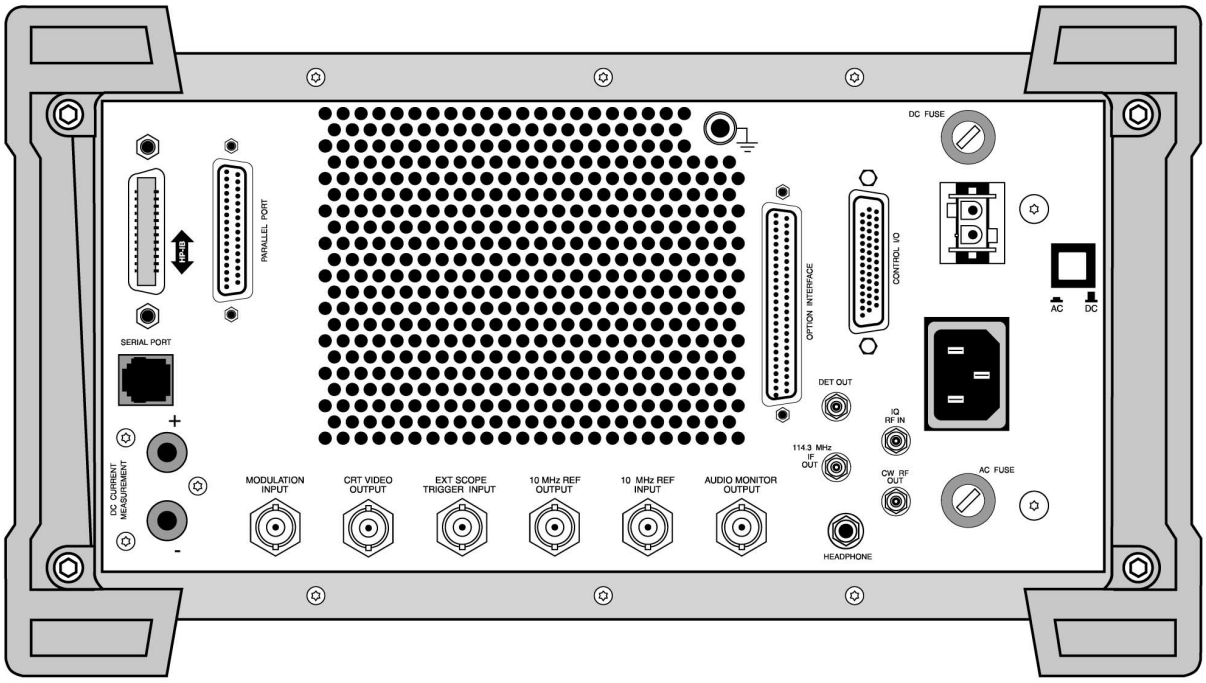
Supplemental Characteristics

Leakage: *At signal generator output frequency and level <–40 dBm, typical 8920B leakage is <1.0 µV (2.0 mV for 8920B Option 800) induced in a resonant dipole antenna one inch from any surface except the rear panel. Spurious leakage levels are typically <1 µV in a resonant dipole antenna.*

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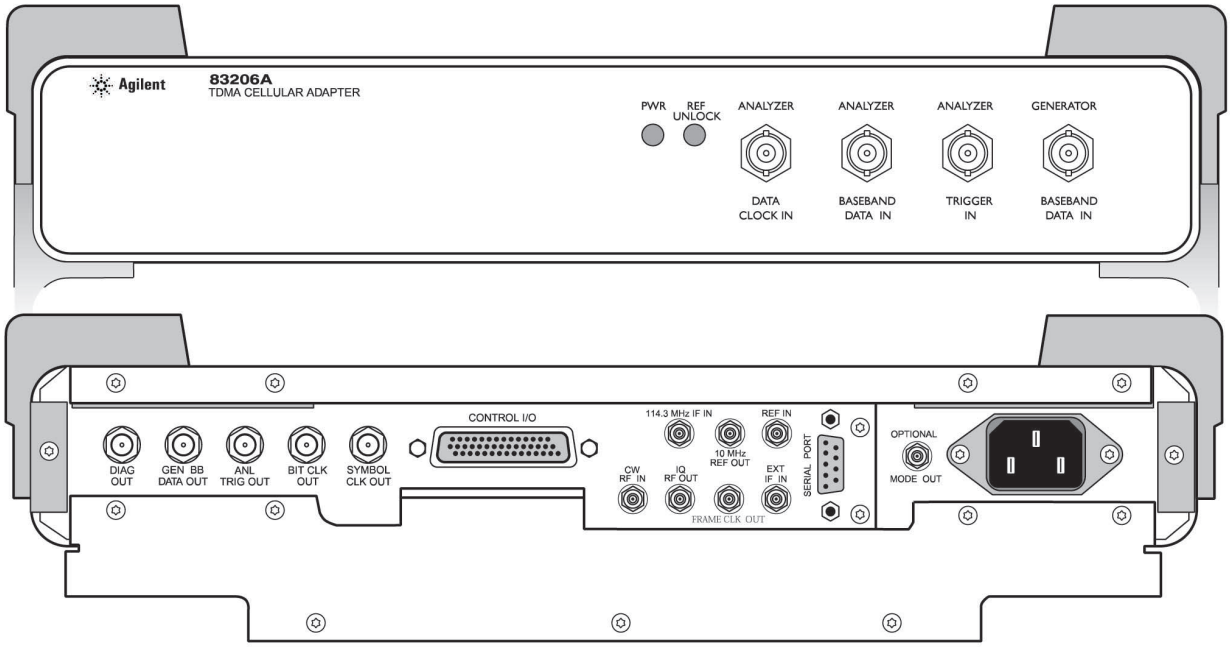
8920B front and rear panels





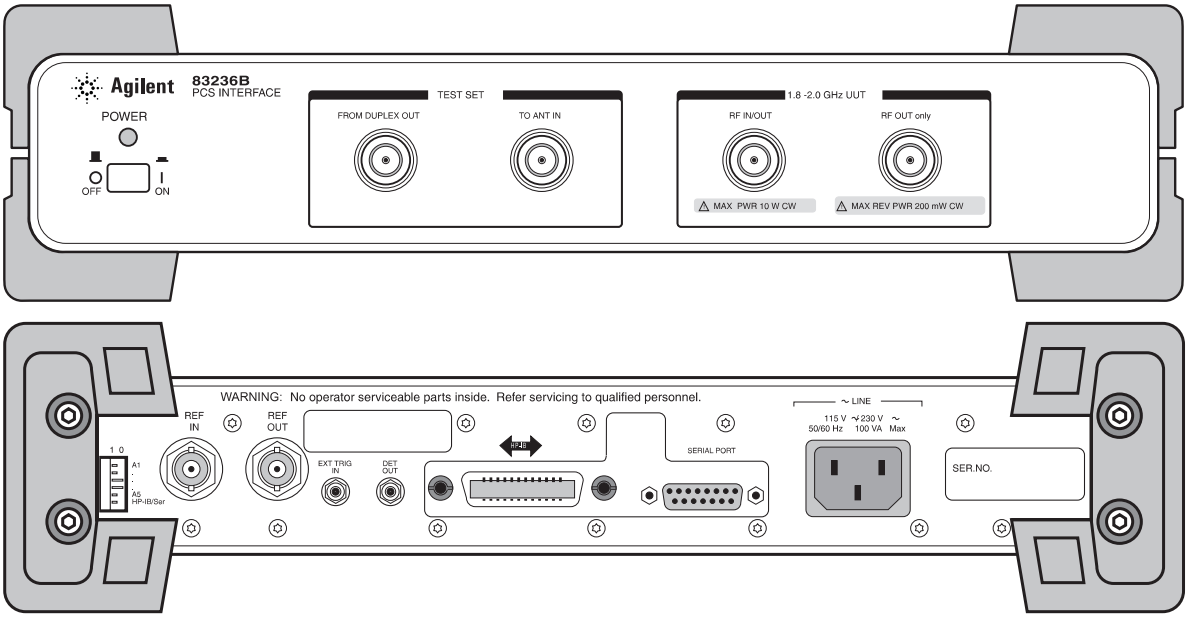
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83206A front and rear panels



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83236B front and rear panels



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