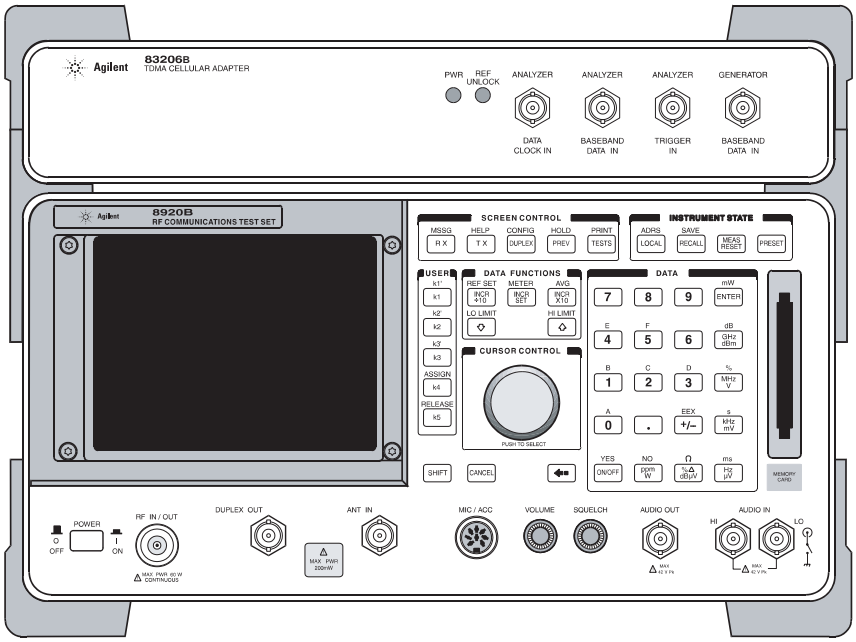
Agilent 8920B Options 800 and 801 for TDMA Test

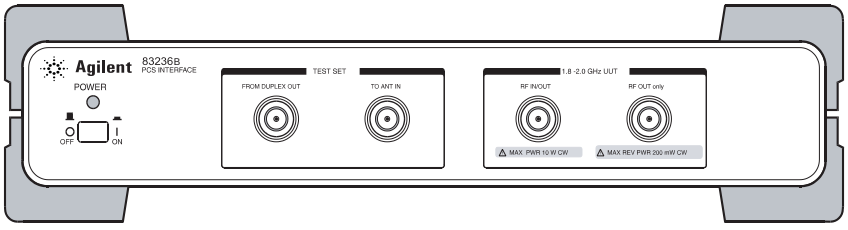
Agilent 11807E Radio Test Software Family

Configuration Guide

Agilent 8920B RF Communications Test Set



8920B with 83206A TDMA Cellular Adapter



83236B PCS Interface

Improve Throughput and Quality

The Agilent Technologies 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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Agilent Technologies

Innovating the HP Way

Options

RF Communications Test Set Options

8920B RF Communications Test Set

Options

001 High-stability timebase

004 Tone/digital signaling

006[1] 10 W to 50 µW power measurement range

007[1] Low-level RF power measurements

010[2] 400 Hz high-pass filter

011[2] CCITT weighting filter

012[2] 4 kHz bandpass filter

013[2] C-message weighting filter

014[2] 6 kHz bandpass filter

020 Radio interface card

031 Delete handle and cover

051 Dual-mode rear panel connectors

055 Mechanical attenuator input

102 Spectrum analyzer with track ing generator and ACP (adjacent channel power)

800 83206A TDMA cellular adapter (IS-54, IS-136)

016[1] High-level RF power measurements to 100 W continuous

Radio Test Software Options

11807E Radio Test Software for 8920B

Options

001 North American FM tests

003 AM tests

004 AMPS/EAMPS/NAMPS cellular phone tests

005 TACS/ETACS cellular phone tests

011 EDACS trunked radio tests

014 AMPS/NAMPS/DAMPS/DCCH mobile test software

024 AMPS/NAMPS/DAMPS/DCCH/PCS mobile test software

100 System support tests

Configuration Examples

The 8920B can be configured for land mobile, trunked, cordless, and cellular phone test applications. For flexibility in specifying a solution to meet your exact needs, use the recommendations in this configuration guide to determine the appropriate hardware, software, accessories, and support options for radio and phone testing with the Agilent 8920B.

AMPS Test Configuration Example

Sample order for AMPS cellular phone testing with software and 3-year return repair service.

8920B RF communications test set . . . . . qty. 1 ☐

Option 004 (required). . . . . qty. 1 ☐

Option W30 return repair service . . . . . qty. 1 ☐

11807E software. . . . . qty. 1 ☐

Option 004 AMPS/EAMPS/NAMPS . . . . . qty. 1 ☐

AMPS/NAMPS/DAMPS/DCCH

Test Configuration Example

Sample order for AMPS, NAMPS, DAMPS (TIA/EIA-628), and DCCH (IS-137) cellular phone testing with optional spectrum analyzer, 10 W to 50 µW power measurement range, C-message weighting filter, 6 kHz bandpass filter, and three-year return repair service.

8920B RF communications test set . . . . . qty. 1 ☐

Option 001 (required) high-stability timebase . . . . qty. 1 ☐

Option 004 (required) signaling . . . . . qty. 1 ☐

Option 006 (required) 10 W to 50 µW power range . . . . . qty. 1 ☐

Option 051 (required) dual-mode connector . . . . . qty. 1 ☐

Option 800 (required) TDMA adapter . . . . . qty. 1 ☐

Option 102 spectrum analyzer . . . . . qty. 1 ☐

Option 013 C-message weighting filter . . . . . qty. 1 ☐

Option 014 6 kHz bandpass filter . . . . . qty. 1 ☐

Option W30 return repair service . . . . . qty. 1 ☐

83206A (for return repair service) . . . . . qty. 0 ☐

Option W30 (for return repair service) . . . . . qty. 1 ☐

11807E software . . . . . qty. 1 ☐

Option 014 AMPS/NAMPS/DAMPS/DCCH . . . . . qty. 1 ☐

1. Only one input range option (Option 006, 007, or 016) can be ordered for each test set.
2. A maximum of two filter options (010 through 014) can be added to each 8920B.

Analog Cellular Phone Test

AMPS/EAMPS/NAMPS Cellular Phone Test

8920B RF communications test set . . . . . 8920B ☐

- Required:
  - Tone/digital signaling . . . . . Option 004 ☐

- Recommended:
  - High-stability timebase . . . . . Option 001 ☐
  - 10 W to 50 µW power measurement range [1] . . . . . Option 006 ☐
  - C-message weighting filter [2] . . . . . Option 013 ☐
  - 6 kHz bandpass filter [2] . . . . . Option 014 ☐

- Additional performance options:
  - Spectrum analyzer with tracking generator and adjacent channel power . . . . . Option 102 ☐
  - Radio interface card . . . . . Option 020 ☐

Software

11807E Radio Test Software . . . . . 11807E ☐

AMPS/EAMPS/NAMPS cellular phone test option . . . . . Option 004 ☐

Radios Supported:

- AMPS, EAMPS, and NAMPS cellular phones

Standard Derived From:

- Advanced mobile phone service (AMPS)
- Electronic Industries Association (EIA) [EIA/TIA-553 and EIA-IS-19B] cellular radio specifications with modifications for narrowband systems (NAMPS)[TIA/EIA-90]

AMPS/EAMPS/NAMPS Cellular Phone Performance Tests

CP call processing registration
CP call processing page
CP call processing release
CP call processing origination
CP call processing hook flash
CP flow chart (manual phone test)

TX frequency error
TX RF power output
TX modulation deviation limiting
TX audio frequency response
TX audio distortion
TX signaling tone/DST
TX FM hum and noise
TX SAT/DSAT
TX RVC data deviation
TX compressor response
TX current drain
TX DTMF frequency error
TX switch channels
TX quick general test
TX/RX quick functional test (no audio)

RX expandor response
RX audio frequency response
RX audio distortion
RX hum and noise
RX SINAD
RX FVC order message error rate
RX MRI
RX quick general test

1. Only one input range option (Option 006, 007, or 016) can be ordered for each test set.
2. A maximum of two filter options (010 through 014) can be added to each 8920B.

Analog Cellular Phone Test

TACS/ETACS Cellular Phone Test

8920B RF communications test set . . . . . 8920B ☐

- Required:
  - Tone/digital signaling . . . . . Option 004 ☐

- Recommended:
  - High-stability timebase . . . . . Option 001 ☐
  - 10 W to 50 µW power measurement range[1] . . . . . Option 006 ☐
  - CCITT weighting filter[2] . . . . . Option 011 ☐
  - 6 kHz bandpass filter[2] . . . . . Option 014 ☐

- Additional performance options:
  - Spectrum analyzer with tracking generator and adjacent channel power . . . . . Option 102 ☐
  - Radio interface card . . . . . Option 020 ☐

Radios supported:

- TACS and ETACS cellular phones

Standard derived from:

- Total access communication system (TACS)

TACS/ETACS Cellular Phone Performance Tests

CP call processing registration
CP call processing page
CP call processing release
CP call processing origination
CP call processing hook flash
CP TACS-2 page and release
CP flow chart (manual phone test)

TX frequency error
TX carrier power
TX peak frequency deviation
TX audio frequency response
TX audio distortion
TX signaling tone
TX FM hum and noise
TX SAT frequency error and deviation
TX wideband data deviation
TX compressor response
TX current drain
TX DTMF frequency error
TX switch channels
TX quick general test
TX/RX quick functional test (no audio)

RX expandor response
RX audio frequency response
RX audio distortion
RX hum and noise
RX SINAD
RX FVC order message error rate
RX quick general test

1. Only one input range option (Option 006, 007, or 016) can be ordered for each test set.
2. A maximum of two filter options (010 through 014) can be added to each 8920B.

Analog Cellular Phone Test

JTACS/NTACS Cellular Phone Test

8920B RF communications test set . . . . . 8920B ☐

- Required:
  - Tone/digital signaling . . . . . Option 004 ☐
- Recommended:
  - High-stability timebase . . . . . Option 001 ☐
  - 10 W to 50 µW power measurement range[1] . . . . . Option 006 ☐
  - CCITT weighting filter[2] . . . . . Option 011 ☐
- Additional performance options:
  - Spectrum analyzer with tracking generator and adjacent channel power . . . . . Option 102 ☐
  - Radio interface card . . . . . Option 020 ☐

Radios supported:

- JTACS and NTACS cellular phones

Standard derived from:

- Total access communications system for Japan (JTACS) mobile station compatibility specification, version five with modifications for narrowband systems (NTACS)

JTACS/NTACS Cellular Phone Performance Tests

CP call processing registration
CP call processing page
CP call processing release
CP call processing origination
CP call processing hook flash
CP flow chart (manual phone test)

TX frequency error
TX carrier power
TX peak frequency deviation
TX audio frequency response
TX audio distortion
TX DTMF frequency error
TX signaling tone/DST
TX FM hum and noise
TX SAT/DSAT
TX RVC data deviation
TX compressor response
TX current drain
TX switch channels
TX quick general test
TX/RX quick functional test (no audio)

RX expandor response
RX audio frequency response
RX audio distortion
RX hum and noise
RX SINAD
RX FVC order message error rate
RX quick general test

1. Only one input range option (Option 006, 007, or 016) can be ordered for each test set.
2. A maximum of two filter options (010 through 014) can be added to each 8920B.

Analog Cellular Phone Test

NMT Cellular Phone Test

8920B RF communications test set . . . . . 8920B ☐

- Required:
  - Tone/digital signaling . . . . . Option 004 ☐

- Recommended:
  - High-stability timebase . . . . . Option 001 ☐
  - CCITT weighting filter[2] . . . . . Option 011 ☐
  - 4 kHz bandpass filter[2] . . . . . Option 012 ☐

- Additional performance options:
  - Spectrum analyzer with tracking generator and adjacent channel power . . . . . Option 102 ☐
  - Radio interface card . . . . . Option 020 ☐

Radios supported:

- 450 and 900 MHz NMT cellular phones

Standard derived from:

- Nordic mobile telephone (NMT) [DOC.1.1980, DOC.3.1979, and DOC-900-3.1985]

NMT Cellular Phone Performance Tests

CP call MTX to MS
CP clearing from MTX
CP call MS to MTX
CP clearing from MS
CP switch channel
CP flow chart
CP all call processing

TX frequency error
TX carrier power
TX frequency deviation
TX limit characteristic of modulator
TX audio frequency response
TX harmonic distortion
TX residual modulation
TX audio muting
TX mic. sensitivity
TX supervisory signal deviation
TX quick test

RX RF sensitivity
RX amplitude characteristic of limiter
RX harmonic distortion
RX AM suppression
RX audio frequency response
RX noise and hum
RX quick test
RT current drain
RT quick functional audio

2. A maximum of two filter options (010 through 014) can be added to each 8920B.

Digital Cellular Phone Test

AMPS/EAMPS/NAMPS/DAMPS/DCCH Cellular Phone Test (800 MHz – 1900 MHz)

8920B RF communications test set . . . . . 8920B ☐

- Required:
  - High-stability timebase . . . . . Option 001 ☐
  - Tone/digital signaling . . . . . Option 004 ☐
  - 10 W to 50 µW power measurement range[1] . . . . . Option 006 ☐
  - Dual-mode rear panel connectors . . . . . Option 051 ☐
  - 83206A TDMA cellular adapter . . . . . Option 800 ☐
  - Add 83206A and 83236B PCS adapter for 1900 MHz[3] . . . . . Option 801 ☐
- Recommended:
  - C-message weighting filter[2] . . . . . Option 013 ☐
  - 6 kHz bandpass filter[2] . . . . . Option 014 ☐
- Additional performance options:
  - Spectrum analyzer with tracking generator and adjacent channel power. . . . . Option 102 ☐
  - Radio interface card . . . . . Option 020 ☐

Software

11807E Radio Test Software . . . . . 11807E ☐

AMPS/NAMPS/DAMPS/DCCH mobile test option for 800 MHz . . . . . Option 014 ☐

AMPS/NAMPS/DAMPS/DCCH/PCS mobile test option for 1900 MHz[4] . . . . . Option 024 ☐

Radios supported:

- AMPS, NAMPS, EAMPS, DAMPS (TIA/EIA-628), and DCCH (IS-137) cellular phones

Standard derived from:

- Electronic Industries Association (EIA) [EIA/TIA-553 and EIA-IS-19B] cellular radio specifications with modifications for narrowband systems (NAMPS) [TIA/EIA-90]
- TIA/EIA/IS-137 (For 800 and 1900 MHz) TDMA cellular radio interface, minimum performance standards for mobile stations
- TIA/EIA-628 recommended minimum performance standards of 800 MHz dual-mode mobile stations

AMPS/NAMPS/DAMPS/DCCH Cellular Phone Test (preliminary)

CP registration on analog control channel
CP registration on digital control channel
CP page
- Analog control channel to analog voice channel
- Analog control channel to digital traffic channel
- Digital control channel to analog voice channel
- Digital control channel to digital traffic channel

CP origination
- Analog control channel to analog voice channel
- Analog control channel to digital traffic channel
- Digital control channel to analog voice channel
- Digital control channel to digital traffic channel

CP release to analog control channel
CP release to digital control channel
CP call processing handoffs including:
- Digital to digital (D-D)
- Digital to analog (D-A)
- Analog to digital (A-D)
- Analog to analog (A-A)
- Analog to narrow analog (A-NA)
- Narrow analog to analog (NA-A)

CP call processing handoffs from 800 to 1900 MHz
CP hook flash

MISC battery life test, transmit
MISC battery life test, standby
MISC digital talk back
MISC no audio functional
MISC quick test

RXA audio distortion
RXA audio frequency response
RXA expandor
RXA FVC order message error rate
RXA hum and noise
RXA mobile reported interference (MRI)
RXA RF sensitivity (SINAD)
RXA RF sensitivity vs. channel (plotted)

RXD receiver sen. (channel quality BER, RSSI)
RXD receiver sensitivity (loopback), includes:
- BER
- FACCH WER
- SACCH WER
- Speech WER

TXA audio distortion
TXA audio frequency response
TXA compressor response
TXA current drain
TXA digital signaling tone (DST) deviation and code
TXA DTMF key pad and DTMF frequency error

TXA DSAT deviation, closure, and phase jitter
TXA FM hum and noise
TXA frequency error
TXA modulation deviation limiting
TXA RF power output
TXA RF power output vs. channel (plotted)
TXA signaling tone frequency and deviation
TXA SAT frequency and deviation
TXA wideband data deviation

TXD adjacent channel power
TXD calibrate RF power (non-Opt. 006 only)
TXD modulation accuracy including:
- Error vector magnitude (EVM)
- Peak error vector magnitude (EVM)
- Phase error
- Magnitude error
- Burst amplitude droop
- I/Q origin offset
- Carrier frequency error

TXD modulation accuracy (10 burst), including:
- Error vector magnitude (EVM)
- Peak error vector magnitude (EVM)
- Phase error
- Magnitude error
- Burst amplitude droop
- I/Q origin offset
- Carrier frequency error

TXD RF power output
TXD RF power output vs. channel (plotted)
TXD time alignment

1. Only one input range option (Option 006, 007, or 016) can be ordered for each test set.
2. A maximum of two filter options (010 through 014) can be added to each 8920B.
3. Option 801 includes 8920B, 83206A, and 83236B.
4. Option 024 software contains all tests in Option 014 plus 1900 MHz tests.

Digital Cellular Phone Test

AMPS/EAMPS/NAMPS/DAMPS Cellular Phone Test (800 MHz)

8920B RF communications test set . . . . . 8920B ☐

- Required:
  - High-stability timebase . . . . . Option 001 ☐
  - Tone/digital signaling . . . . . Option 004 ☐
  - Dual-mode rear panel connectors . . . . . Option 051 ☐
  - 83206A TDMA cellular adapter . . . . . Option 800 ☐

- Recommended:
  - 10 W to 50 µW power measurement range[1] . . . . . Option 006 ☐
  - C-message weighting filter[2] . . . . . Option 013 ☐
  - 6 kHz bandpass filter[2] . . . . . Option 014 ☐

- Additional performance options:
  - Spectrum analyzer with tracking generator and adjacent channel power . . . . . Option 102 ☐
  - Radio interface card . . . . . Option 020 ☐

Radios supported:

- AMPS/EAMPS/NAMPS/North American TDMA dual-mode (DAMPS, TIA/EIA-628) cellular phones

Standard derived from:

- Electronic Industries Association (EIA) [EIA/TIA-553 and EIA-IS-19B] cellular radio specifications with modifications for narrowband systems (NAMPS)[TIA/EIA-90]
- TIA/EIA-628 recommended minimum performance standards of 800 MHz dual-mode mobile stations

DAMPS Dual-Mode Cellular Phone Performance Tests

CP call processing handoffs including:
- Digital to digital (D-D)
- Digital to analog (D-A)
- Analog to digital (A-D)
- Analog to analog (A-A)
- Analog to narrow analog (A-NA)
- Narrow analog to analog (NA-A)

CP call processing registration

CP flow chart (manual phone test)

CPA call processing page

CPA call processing release

CPA call processing origination

CPA call processing hook flash

CPD call processing talkback

CPD quick digital test

CPD call processing page

CPD switch channel

CPD origination

CPD release

TXA frequency error

TXA RF power output

TXA modulation deviation limiting

TXA audio frequency response

TXA audio distortion

TXA signaling tone/DST

TXA FM hum and noise

TXA SAT/DSAT

TXA RVC data deviation

TXA compressor response

TXA current drain

TXA DTMF frequency error

TXA switch channels

TXA quick general test

TXA/RXA quick functional test (no audio)

TXD modulation accuracy including:
- Error vector magnitude
- 10 burst error vector magnitude
- Magnitude error
- Phase error
- Burst amplitude droop
- I/Q origin offset
- Carrier frequency error

TXD RF output power

TXD calibrate RF power

TXD adjacent channel power

RXA expandor response

RXA audio frequency response

RXA audio distortion

RXA hum and noise

RXA SINAD

RXA FVC order message error rate

RXA MRI

RXA quick general test

RXD receiver sensitivity (loop back)
- BER
- WER (FACCH, SACCH, speech data)

RXD receiver sensitivity (channel quality, RSSI)

1. Only one input range option (Option 006, 007, or 016) can be ordered for each test set.
2. A maximum of two filter options (010 through 014) can be added to each 8920B.

Digital Cellular Phone Test

AMPS/DAMPS Cellular Phone Test Using TIA Adapter (800 MHz)

8920B RF communications test set . . . . . 8920B ☐

- Required:
  - High-stability timebase . . . . . Option 001 ☐
  - Tone/digital signaling . . . . . Option 004 ☐
  - Dual-mode rear panel connectors . . . . . Option 051 ☐
  - 83206A TDMA cellular adapter . . . . . Option 800 ☐

- Recommended:
  - 10 W to 50 µW power measurement range[1] . . . . . Option 006 ☐
  - C-message weighting filter[2] . . . . . Option 013 ☐
  - 6 kHz bandpass filter[2] . . . . . Option 014 ☐

- Additional performance options:
  - Spectrum analyzer with tracking generator and adjacent channel power. . . . . Option 102 ☐
  - Radio interface card . . . . . Option 020 ☐

Radios supported:

- North American TDMA dual-mode (DAMPS, TIA/EIA-628) cellular phones

Standard derived from:

- Electronic Industries Association (EIA) [EIA/TIA-553 and EIA-IS-19B] cellular radio specifications
- TIA/EIA-628 recommended minimum performance standards of 800 MHz dual-mode mobile stations

TDMA Dual-Mode Cellular Phone Performance Tests

NAM numeric assignment module

CP call processing registration

CP call processing handoffs including:

- Digital to digital (D-D)
- Digital to analog (D-A)
- Analog to digital (A-D)
- Analog to analog (A-A)

CP manual flow chart (manual phone test)

CPA call processing page

CPA call processing origination

CPA call processing release

CPA switch channels

CPD quick digital test

CPD call processing page

CPD call processing talkback

CPD switch channel

CPD origination

CPD release

TXA frequency error

TXA RF output power

TXA modulation deviation limiting

TXA audio frequency response

TXA audio distortion FM hum, noise, and muting

TXA signaling tone

TXA SAT frequency error and deviation

TXA wideband data deviation

TXA compressor response

TXA current drain

TXA DTMF frequency error

TXA quick general test

TXA/RXA functional (no audio)

TXD RF output power

TXD modulation accuracy including:

- Error vector magnitude
- 10 burst error vector magnitude
- Magnitude error
- Phase error
- Burst amplitude droop
- I/Q origin offset
- Carrier frequency error

TXD calibrate RF power

TXD adjacent channel power

RXA expandor response

RXA audio frequency response

RXA audio distortion FM hum, noise and muting

RXA SINAD

RXA quick general test

RXD usable sensitivity including:

- BER
- WER on speech data
- FACCH, and SACCH

1. Only one input range option (option 006, 007, or 016) can be ordered for each test set.
2. A maximum of two filter options (010 through 014) can be added to each 8920B.

AM, FM, ΦM, Cordless Phone Test

AM Radio Test

8920B RF communications test set . . . . . 8920B ☐

- Recommended:
  - High-stability timebase . . . . . Option 001 ☐

- Additional performance options:
  - Spectrum analyzer with tracking generator and adjacent channel power . . . . . Option 102 ☐
  - Radio interface card . . . . . Option 020 ☐
  - High-level RF power measurements to 100 W continuous[1] . . . . . Option 016 ☐

Software

11807E radio test software . . . . . 11807E ☐

AM radio tests option . . . . . Option 003 ☐

Radios supported:

- Single and multiple channel AM radios

Standard derived from:

- Electronic Industry Association (EIA) AM radio test specifications [RS-382-A]

AM Transceiver Performance Tests

TX and RX standby current drain	RX hum and noise
TX frequency error	RX audio distortion
TX output power	RX audio frequency response
TX audio frequency response	RX sensitivity (signal to noise)
TX audio distortion	RX sensitivity (SINAD)
TX microphone sensitivity	RX audio squelch sensitivity
TX AM hum and noise	RX automatic gain control
TX quick general test	RX quick general test

1. Only one input range option (Option 006, 007, or 016) can be ordered for each test set.

AM, FM, ΦM, Cordless Phone Test

North American FM Radio Test

8920B RF communications test set . . . . . 8920B ☐

- Recommended:
  - High-stability timebase . . . . . Option 001 ☐
  - Tone/digital signaling . . . . . Option 004 ☐
  - 400 Hz high-pass filter[2] . . . . . Option 010 ☐
  - C-message weighting filter[2] . . . . . Option 013 ☐

- Additional performance options:
  - Spectrum analyzer with tracking generator and adjacent channel power . . . . . Option 102 ☐
  - Radio interface card . . . . . Option 020 ☐
  - High-level RF power measurements to 100 W continuous[1] . . . . . Option 016 ☐

Software

11807E radio test software . . . . . 11807E ☐

North American FM tests option . . . . . Option 001 ☐

Radios supported:

- Single and multiple channel FM radios, duplex FM radios, CTCSS squelched radios, CDCSS squelched radios

Standard derived from:

- Electronic Industry Association (EIA)
  FM test specifications EIA/TIA 603 land mobile ΦM or FM communications equipment measurement and performance standard

North American FM Transceiver Performance Tests

TX and RX standby current drain
TX frequency error
TX output power
TX modulation limiting
TX audio frequency response
TX audio distortion
TX microphone sensitivity
TX FM hum and noise
TX residual AM hum and noise
TX CTCSS/CDCSS deviation, freq./code
TX quick general test

RX hum and noise
RX audio distortion
RX frequency response
RX usable sensitivity
RX audio squelch sensitivity
RX squelch blocking
RX CTCSS/CDCSS opening
RX audio sensitivity
RX variation of sensitivity with frequency
RX quick general test

1. Only one input range option (Option 006, 007, or 016) can be ordered for each test set.
2. A maximum of two filter options (010 through 014) can be added to each 8920B.

AM, FM, ΦM, Cordless Phone Test

European ΦM Radio Test

8920B RF communications test set . . . . . 8920B ☐

- Recommended:
  - High-stability timebase . . . . . Option 001 ☐
  - Tone/digital signaling . . . . . Option 004 ☐
  - 400 Hz high-pass filter[2] . . . . . Option 010 ☐
  - CCITT weighting filter[2] . . . . . Option 011 ☐

- Additional performance options:
  - Spectrum analyzer with tracking generator and adjacent channel power . . . . . Option 102 ☐
  - Radio interface card . . . . . Option 020 ☐

Radios supported:

- Single and multiple channel FM radios
- Duplex FM radios
- CTCSS squelched radios
- CDCSS squelched radios

Standard derived from:

- Conference of European postal telecommunications (CEPT) ΦM tests T/RA-24-01
- European Telecommunications Standards Institute (ETSI) project team 8 final report (June 1990)

European ΦM Transceiver Performance Tests

TX and RX standby current drain
TX frequency error
TX output power error
TX modulation limiting
TX frequency deviation
TX audio frequency response
TX audio distortion
TX microphone sensitivity
TX residual modulation
TX CTCSS/CDCSS deviation, freq./code
TX quick general test

RX noise and hum
RX audio distortion
RX frequency response
RX usable sensitivity
RX amplitude characteristics
RX audio squelch sensitivity
RX CTCSS/CDCSS opening
RX quick general test

2. A maximum of two filter options (010 through 014) can be added to each 8920B.

AM, FM, ΦM, Cordless Phone Test

Cordless Phone Test

8920B RF communications test set . . . . . 8920B ☐

- Required:
  - Low-level RF power measurements[1] . . . . . Option 007 ☐

- Recommended:
  - High-stability timebase . . . . . Option 001 ☐
  - Tone/digital signaling . . . . . Option 004 ☐
  - CCITT weighting filter[2] . . . . . Option 011 ☐

- Additional performance options:
  - Spectrum analyzer with tracking generator and adjacent channel power . . . . . Option 102 ☐
  - Radio interface card . . . . . Option 020 ☐

1. Only one input range option (Option 006, 007, or 016) can be ordered for each test set.
2. A maximum of two filter options (010 through 014) can be added to each 8920B.

FM and Trunked Mobile Radio Test

LTR Trunked Mobile Radio Test

8920B RF communications test set . . . . . 8920B ☐

- Required:
  - Tone/digital signaling . . . . . Option 004 ☐
  - 400 Hz high-pass filter[2] . . . . . Option 010 ☐

- Recommended:
  - High-stability timebase . . . . . Option 001 ☐
  - CCITT weighting filter[2] . . . . . Option 011 ☐

- Additional performance options:
  - Spectrum analyzer with tracking generator and adjacent channel power . . . . . Option 102 ☐
  - Radio interface card . . . . . Option 020 ☐
  - High-level RF power measurements to 100 W continuous[1] . . . . . Option 016 ☐

Radios supported:

- Simplex and duplex FM radios, both conventional (carrier squelch, CTCSS, and CDCSS) and those using the LTR trunking protocol

Standard derived from:

- Electronic Industry Association (EIA) FM test specifications
- TIA/EIA-603 as modified to support the EF Johnson logic trunked radio (LTR) protocol

LTR Trunked Mobile Radio Performance Tests

TX and RX standby current drain
TX frequency error
TX output power
TX modulation limiting
TX audio frequency response
TX audio distortion
TX microphone sensitivity
TX FM hum and noise
TX residual AM hum and noise
TX signaling deviation and freq/code
TX quick test

RX hum and noise
RX audio distortion
RX frequency response
RX usable sensitivity
RX conv. audio squelch sensitivity
RX conv. squelch blocking
RX squelch opening with signaling
RX audio sensitivity
RX conv. variation to sensitivity with freq.
RX quick test
RT trunked manual test

1. Only one input range option (Option 006, 007, or 016) can be ordered for each test set.
2. A maximum of two filter options (010 through 014) can be added to each 8920B.

FM and Trunked Mobile Radio Test

EDACS Trunked Mobile Radio Test

8920B RF communications test set . . . . . 8920B ☐

- Required:
  - Tone/digital signaling . . . . . Option 004 ☐

- Recommended:
  - High-stability timebase . . . . . Option 001 ☐
  - 400 Hz high-pass filter[2] . . . . . Option 010 ☐

- Additional performance options:
  - Spectrum analyzer with tracking generator and adjacent channel power . . . . . Option 102 ☐
  - Radio interface card . . . . . Option 020 ☐
  - High-level RF power measurements to 100 W continuous[1] . . . . . Option 016 ☐

Software

11807E radio test software . . . . . 11807E ☐

EDACS trunked mobile radio tests option . . . . . Option 011 ☐

Radios supported:

- Simplex and duplex FM radios, both conventional (Carrier squelch, CTCSS, and CDCSS) and those using the EDACS trunking protocol

Standard derived from:

- Electronic Industry Association (EIA) FM test specifications
- TIA/EIA-603 as modified to support the Ericsson GE enhanced digital access communications system (EDACS) protocol

EDACS Trunked Mobile Radio Performance Tests

TX and RX standby current drain	RX hum and noise
TX frequency error	RX audio distortion
TX output power	RX frequency response
TX modulation limiting	RX usable sensitivity
TX audio frequency response	RX conv. audio squelch sensitivity
TX audio distortion	RX conv. squelch blocking
TX microphone sensitivity	RX squelch opening with signaling
TX FM hum and noise	RX audio sensitivity
TX residual AM hum and noise	RX conv. signal displacement bandwidth
TX signaling deviation and freq/code	RX quick test
TX quick test	RT manual test
TX transient frequency behavior	

1. Only one input range option (Option 006, 007, or 016) can be ordered for each test set.
2. A maximum of two filter options (010 through 014) can be added to each 8920B.

VSWR, Cable Fault Test

System Support Test Software

8920B RF communications test set . . . . . 8920B ☐

- Required:

  Spectrum analyzer with tracking generator and adjacent channel power. . . . . Option 102 ☐

  VSWR, cable fault kit[5]

Software

11807E radio test software . . . . . 11807E ☐

System support tests option . . . . . Option 100 ☐

RF tests
Swept gain
Swept insertion loss
Swept return loss
AMPS channel return loss
Cable fault
ERP calculator
Replot data files
Transfer stored data
SA self calibration on/off
Catalog memory card
Create/edit data collection labels

Field strength
Performs field strength measurements

Intermodulation products
Calculates intermodulation products

Scanner
Discrete frequency scanning
Swept frequency scanning

Save/Recall
Automate file transfer to RAM cards

5. For making VSWR and cable fault measurements external components are required. A kit containing these components (BKH-8920) can be ordered directly from Eagle, P.O. Box 4010, Sedona AZ 86340. Telephone: (520) 204-2597, FAX: (520) 204-2568.

Additional Options and Accessories

Software Support and Accessories

83224A IBASIC development tools

For creating or modifying radio test programs:

83224A IBASIC development tools	83224A	☐
IBASIC development tool kit (includes software, GPIB interface, cable)	Option 001	☐
IBASIC development tool kit (software only)	Option 002	☐

PCMCIA memory cards for IBASIC program and data storage

64 KB SRAM card with battery	83230A	☐
1 MB SRAM card with battery.	83231A	☐

Hardware Support

	8920B options	
3-year return repair service[6]	Option W30	☐
5-year return repair service[6]	Option W50	☐
Calibration certificate with test data	Option UK6	☐
3-year customer return calibration service[7]	Option W32	☐
5-year customer return calibration service[7]	Option W52	☐
3-year standards compliant calibration service	Option W34	☐
5-year standards compliant calibration service	Option W54	☐

6. For 3- or 5-year return repair service on 8920B Option 800, order Option W30 or W50 on the 8920B and Option W30 or W50 on a stand-alone 83206A. See example on page 2.
7. For 3- or 5-year customer return calibration service on 8920B Options 500 and 800, order Option W32 or W52 on the 8920B and Option W32 or W52 on a stand-alone 83206A.

Additional Options and Accessories

Rack mount

	8920B options	
Delete handle and cover from 8920B	Option 031	☐
8920B rack mount kit without handle (part no. 5061-4846)	Option 1CM	☐
8920B Option 800 rack mount kit (part no. 08921-61037)	Option AXK	☐

	83236B options	
83236B rack mount kit	Option AX4	☐

Manuals

	8920B options	
Delete manual set from 8920B.	Option 0B0	☐
Extra manual set for 8920B	Option 0B1	☐
Instrument BASIC user's handbook (included with 8920B)	E2083-90005	☐
8920 user's guide (included with 8920B)	08920-90221	☐
8920 applications handbook.	08920-90212	☐
8920, 8921 programmer's guide (included with 8920B)	08920-90222	☐
8920, 8921 assembly level repair manual (included with 8920B).	08920-90168	☐
83206A user's guide (included with 83206A).	83206-90002	☐
83206A assembly level repair manual (included with 83206A)	83206-90009	☐
83236B user's guide (included with 83236B)	83236-90102	☐

Transit cases

Hard shell transit case for 8920B	08920-90033	☐
Padded carrying case for 8920B.	1540-1130	☐
Hard shell transit case for 8920B, Option 800	08920-90141	☐
Padded carrying case for 8920B, Option 800	08920-61147	☐

Miscellaneous accessories

CRT sunshade	08920-61051	☐
Antenna	08920-61060	☐
Microphone for 8920B	08920-61059	☐
DC battery pack for 8920B (24 volt)	08920-80027	☐
Battery charger	08920-80028	☐
Connector kit (Contains dc power, mic/acc, RS-232 to RJ-11, and radio interface connectors)	08920-61061	☐
Oscilloscope probe (1 MΩ/7.5 pF 10:1 probe)	10435A	☐
Oscilloscope probe (High Z/40 pF 1:1 probe)	10438A	☐
Oscilloscope probe (High Z/64 pF 1:1 probe)	10439A	☐
RF detector probe for RF mV measurement (100 kHz to 700 MHz. Requires BNC to banana jack adapter, model number 10110B)	34301A	☐
Detector probe for RF mV measurement (Allows for RF mV measurements up to 1 GHz)	54006A	☐
Power splitter (dc to 3 GHz, 50 Ω)	11850C	☐

Upgrades and Retrofits

Upgrades of existing 8920Bs for DAMPS/DCCH and PCS

DAMPS/DCCH

Order 83206A — TDMA cellular adapter . . . . . 83206A ☐

Note: Requires 8920B with firmware revision ≥5.01 and Option 001, 004, 006, 051. Option 013 and 014 are recommended.

PCS Upgrade

Add the 83236B PCS Interface to 8920B configurations for AMPS, DAMPS, DCCH to translate measurements to the 1710 to 1990 MHz PCS band.

83236B . . . . . 83236B ☐
Rack flange kit without handles (for 83236B only) . . . . . Option AX4 ☐

Retrofit kits for 8920B options (8920BRT)

	8920BRT options	
Retrofit kit for Option 001	R01	☐
Retrofit kit for Option 004	R04	☐
Retrofit kit for Option 006[1]	R06	☐
Retrofit kit for Option 007[1]	R07	☐
Retrofit kit for electronic input attenuator	R09	☐
Retrofit kit for Option 010[2]	R10	☐
Retrofit kit for Option 011[2]	R11	☐
Retrofit kit for Option 012[2]	R12	☐
Retrofit kit for Option 013[2]	R13	☐
Retrofit kit for Option 014[2]	R14	☐
Retrofit kit for Option 016[1]	R16	☐
Retrofit kit for Option 020	R20	☐
Retrofit kit for Option 051	R51	☐
Retrofit kit for Option 102	R02	☐
Firmware feature upgrade kit	R58	☐

Ordering Example:

To order a retrofit kit for Option 001 you would order:
8920BRT Option R01

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Product specifications and descriptions in this document subject to change without notice.

Printed in U.S.A. 11/00
5968-5919E

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