GSM Mobile Test Solutions

Agilent 83212D Mobile Station Test Software

Ensure consistent quality . . . quickly!

Agilent Technologies
Innovating the HP Way

Ensure consistent quality . . . quickly!

The mobile test world moves fast. How can you strike the perfect balance between speed and thoroughness?
Automation is the answer - providing accurate, repeatable results in seconds. This increase in throughput lowers testing costs.

Ideal for Incoming Inspection
Supplying high quality mobiles to subscribers is top priority for any GSM mobile retailer or distributor. When performing incoming inspection, you need test equipment that makes accurate and repeatable measurements – fast!

Let the Agilent Technologies 83212D help you:

Verify performance – perform the same tests as the mobile manufacturer, thus ensuring consistency and eliminating false failures.

Save time – automatic mobile checkout means fewer operator errors, less technician training and no more manual check lists!

The Right Choice for Repair
Inevitably some mobiles will need to be repaired. The 83212D can help you at all stages of the repair process.

Verify the reported fault – by running the quick test.

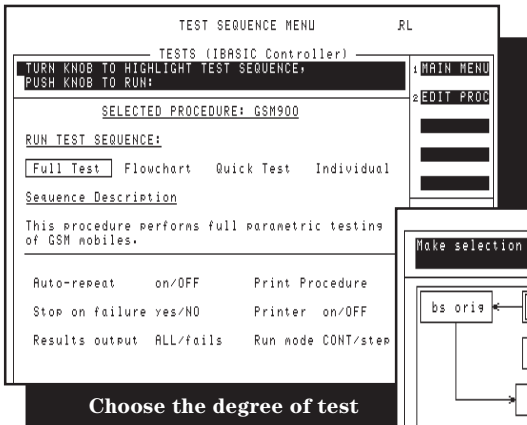
Troubleshoot – by running the individual tests as modules are swapped.

Verify performance – by running the full test before returning the mobile to your customer.

Perfect for Production Quality Assurance
The 83212D helps to assure the quality of mobiles because it:

- provides a stand-alone check of mobile quality.
- is consistent with equipment used in production but independent of production test code.
- emulates the incoming inspection done by retailers and distributors.

Comprehensive and easy-to-use software for automatic testing
The 83212D GSM MS Test Software is an easy-to-use solution for automatic testing of GSM900, DCS1800 and PCS1900 and Dual-band mobiles. To automate GSM900 MS testing, only an 8922M/S and 83212D are required. Add an 83220A/E for DCS1800 and PCS1900 testing. The 8922P/R are required for Dual-band mobiles. The autostart feature enables you to start running the software as soon as the 8922M/S is switched on.



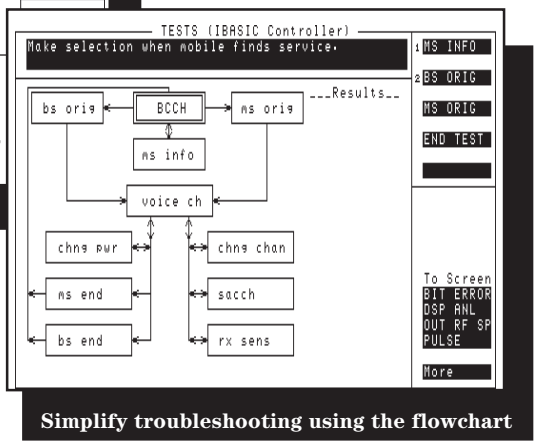
Choose the degree of test

Select from Flexible Testing Modes
Test as little or as much as you want to, with flexible test sequences. Choose one of the sequences from the menu or create one of your own!

You can also specify how you want the tests to be executed. The software can be configured to run repeatedly, continue or stop on a failure, output all results or just failures. All tests shown on the screen can be sent to the printer. The program can be run continuously, or can step through the tests - pausing after each result.

Full Parametric Testing
Full parametric testing is available for complete characterization of your GSM900, DCS1800, Dual-band and PCS1900 mobiles.

Flowchart
The 83212D also aids troubleshooting. Using the on-screen flowchart, you can troubleshoot a mobile by watching it gain access to a system and make measurements while it is on a traffic channel.



Simplify troubleshooting using the flowchart

Ensure consistent quality . . . quickly!

Quick Testing
A quick test is available for fast characterization of your mobiles. This performs a key set of receiver and transmitter tests and is optimized for throughput. When running on an 8922M, the quick test can typically be performed in less than 40 seconds, with documented pass/fail results (or 55 seconds on the 8922S).

Choose Your Own Test Parameters
Test parameters can be set up for your particular testing needs. You can select parameters such as test frequencies, power levels, frequency offsets, number of bits to test, network ID or cable loss of fixtures for your mobile. This gives you the flexibility to select the tests you want to run, along with specifying how they are performed.

Store Test Procedures
All test sequences, parameters, and specifications can be stored on a memory card. You can store these files using the model number of the mobile or any other text string. Later, this file can be recalled and the mobile tested again without any further data entry. The 83212D can be used to quickly develop test files for your GSM900, DCS1800 PCS1900 and Dual-band mobiles. No programming knowledge is necessary to set up and change these test files. Simply fill in the on-screen worksheets. You can create a full test procedure for each mobile model, with its own pass/fail limits or cable loss value for example. These can be shared with other technicians or with other offices.

Documented Test Results
With the 83212D it is easy to get a printout of your test results. The concise, easy-to-read printout can be used as hardcopy proof of performance for your customers. The test name is displayed along with measured values, test limits and a pass/fail statement.

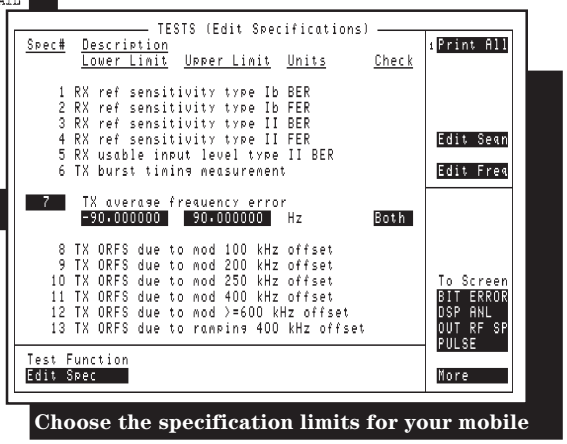
Date [YY/MM/DD] 96/09/02 Time [HH.MM) 12.04

Test conditions	Measured value	Lower limit	Upper limit	P/F
Quick Test				
Radio Freq Chan No (ARFCN)=62				
SACCH TX Level	7.0 pcl	6.5	7.5	
SACCH TX Tim Adv	0.0 T	-.5	.5	
SACCH RX Quality	0 Qual	-1	1	
SACCH RX Level error	-1.0 dB	-3.0	3.0	
TX phase error RMS	2.7 degrees		5.0	
TX phase error peak	7.9 degrees		20.0	
TX frequency error	-2.6 Hz	-90.0	90.0	
TX timing error	-.02 T	-1.00	1.00	
TX ampl neg peak flatness	-.12 dB	-1.00		
TX ampl pos peak flatness	.33 dB		1.00	
TX ampl envelope @ -28 us	-93.78 dB		-70.00	
TX ampl envelope @ -18 us	-41.76 dB		-30.00	
TX ampl envelope @ -10 us	-30.57 dB		-6.00	
TX ampl envelope @ +10 us	-10.44 dB		-6.00	
TX ampl envelope @ +18 us	-47.72 dB		-30.00	
TX ampl envelope @ +28 us	-90.78 dB		-70.00	
TX power error @ lvl 7	-2.5 dB	-2.0	2.0	FAIL
TX power error @ lvl 11	-1.9 dB	-3.0	3.0	
TX power error @ lvl 15	-1.1 dB	-3.0	3.0	
RX sens. BET resTypeII	.11 %		2.40	

Points passed= 19: Points failed= 1

Test time= 40 secs.

Get a hardcopy proof of performance



Choose the specification limits for your mobile

Individual
When performing a post-repair check, or verifying a suspect failure, it is useful to run a specific test. You can choose an individual test from the sixteen in the test list.

Set Your Own Pass/Fail Limits
With the comprehensive specifications file, you can define the test limits for each test sequence. The program automatically performs pass-fail testing according to the upper and lower limits you enter in the specifications table.

Compatibility
If you already own an 83212C, any procedures created are usable on the 83212D.

GSM Mobile Station Performance Tests

Test Specification Limits Derived From:

European Telecommunications Standards Institute (ETSI) Technical Specification
GSM 11.10 Mobile Station Conformity Specifications
Version 4.22.1 (May 1998).

Test List[1]

1 MS information
2 CP base station originate
3 CP mobile station originate
4 CP speech quality
5 TX in-channel test:
phase error (rms),
phase error (peak),
frequency error,
peak power,
amplitude envelope,
burst timing,
SACCH information
6 TX peak power
7 TX output RF spectrum due to modulation[2]
8 TX output RF spectrum due to ramping[2]
9 RX reference sensitivity (TCH/FS)
10 RX usable input level range
11 RX timebase tuning range
12 MS quick test
13 MS flow chart
14 TX RACH test
15 CP End Call
16 Dual-band Handover

Supported Printers and Power Supplies

The Agilent 83212D GSM MS Test Software supports the following Hewlett-Packard printers and power supplies.

Printers*

HP DeskJet Laserjet
HP Paintjet
HP Quietjet
HP Inkjet

* Both GPIB and RS-232 printer interfaces are supported by the 83212D. Centronics printer interface is also supported. See the 8922M/S technical data sheet for accessories required.

Power Supplies

The 83212D supports all power supplies that support SCPI programming mnemonics.

Memory Cards for Data Storage

85700A - 32 Kbytes SRAM
85702A - 128 Kbytes SRAM
85704A - 256 Kbytes SRAM
85705A - 512 Kbytes SRAM

Ordering Information

83212D GSM Mobile Station Test Software
or
8922 Option 012 GSM Mobile Station Test Software

[1] GSM Phase II power levels can only be tested using 8922S or 8922H (with firmware revision B.06.00) or on later instruments.

Dual-band Handover test requires 8922P/R.

EGSM frequency bands require 8922M/S or a later instrument.

[2] This test requires Option 006, spectrum analyzer.

For more information on the 8922M/S and the 8922P/R see the 8922M/P photocards (p/n 5966-1616E and 5966-4554E), and data sheet (p/n 5964-6586E).

Agilent Technologies' Test and Measurement Support, Services, and Assistance

Agilent Technologies aims to maximize the value you receive, while minimizing your risk and problems. We strive to ensure that you get the test and measurement capabilities you paid for and obtain the support you need. Our extensive support resources and services can help you choose the right Agilent products for your applications and apply them successfully. Every instrument and system we sell has a global warranty. Support is available for at least five years beyond the production life of the product. Two concepts underlie Agilent's overall support policy: "Our Promise" and "Your Advantage."

Our Promise

"Our Promise" means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you use Agilent equipment, we can verify that it works properly, help with product operation, and provide basic measurement assistance for the use of specified capabilities, at no extra cost upon request. Many self-help tools are available.

Your Advantage

"Your Advantage" means that Agilent offers a wide range of additional expert test and measurement services, which you can purchase according to your unique technical and business needs. Solve problems efficiently and gain a competitive edge by contracting with us for calibration, extra-cost upgrades, out-of-warranty repairs, and on-site education and training, as well as design, system integration, project management, and other professional services. Experienced Agilent engineers and technicians worldwide can help you maximize your productivity, optimize the return on investment of your Agilent instruments and systems, and obtain dependable measurement accuracy for the life of those products.

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