Firmware Note

HP 8560 Series, HP 85620A, and HP 85629B

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HP 8560 Series, HP 85620A, and HP 85629B Firmware Note

Most of the HP 8560 Series, HP 85620A, and HP 85629B operation is controlled by firmware contained in read-only memory (ROM). The firmware is updated periodically to introduce new features and fix known bugs. The date code is displayed in the form YYMMDD.

This document lists the various firmware revisions for the following instruments:

Instrument	Firmware Information
HP 8560E HP 8561E HP 8562E HP 8563E	Table 1-1
HP 8564E HP 8565E	Table 1-2
HP 8560A HP 8561B HP 8563A	Table 1-3 Table 1-4
HP 8561B HP 8562A HP 8562B	Table 1-5
HP 85620A	Table 1-6 Table 1-7
HP 85629B	Table 1-8 Table 1-9

This firmware note also indicates which versions of the HP 85620A mass memory module and the HP 85629B test and adjustment module (TAM) can be used with the different portable spectrum analyzers.

Mass memory module compatibility information is found in Table 1-10 and test and adjustment module compatibility information is found in Table 1-11 and Table 1-12. This compatibility information updates and supersedes similar information found in spectrum analyzer installation and verification manuals.

This note should be filed with either the HP 85620A documentation, HP 85629B documentation, or with the *HP 8560 E-Series Spectrum Analyzer Calibration Guide.*

HP 8560E, HP 8561E, HP 8562E, HP 8563E, HP 8564E, and HP 8565E Firmware Revisions

The firmware revision date code installed in the HP 8560E, HP 8561E, HP 8562E, HP 8563E, HP 8564E, and HP 8565E is indicated in the active function block after turning the instrument on. The date code can also be found by pressing (CONFIG), then DATECODE &OPTIONS. The firmware revision date code will be displayed on the spectrum analyzer screen.

Table 1-1.

HP 8560E, HP 8561E, HP 8562E, and HP 8563E Firmware Revision History

Firmware	ROM Part Number						
Date Code	U306	U307	U308	U309	U310*	U311*	Revision History
960830†‡§	08564-80038	08564-80039	08564-80040	08564-80041	08564-80011	08564-80012	AC/DC coupling bug fix, weighting bug fix, linear log 0 bug fix, and sample unlock error bug fix.
960401†§	08564-80027	08564-80028	08564-80029	08564-80030	08564-80011	08564-80012	Adds the HP 85620A memory module firmware to the main firmware in the spectrum analyzer and corrects some firmware errors. First revision to support HP 8562E and Option EMI.
941028†	08564-80023	08564-80024	08564-80025	08564-80026	08564-80011	08564-80012	Eliminates intermittent sweep generator failures being reported by the TAM AFI routines.
941027†	08564-80019	08564-80020	08564-80021	08564-80022	08564-80011	08564-80012	Improves amplitude repeatability.
940622†	08564-80013	08564-80014	08564-80015	08564-80016	08564-80011	08564-80012	Eliminates intermittent sweep generator failures being reported by the TAM AFI routines. Fixes battery problem, error 718, routine. Eliminates tracking generator problems (power level offset at IP and low-noise Frequency Control compatibility) for HP 8560E Option 002.
940210†	08564-80007	08564-80008	08564-80009	08564-80010	08564-80011	08564-80012	Provides additional power and adjacent channel power measurements and allows for amplitude correction to be added to the displayed signal. Also corrected were some firmware errors in remote power bandwidth.

* Refer to Table 1-8 for the date code of U310 and U311.

† When upgrading to these firmware revisions, some spectrum analyzers require additional hardware changes:

> If the CPU clock is 8 MHz, the A2 Controller Board Kit (08563-60058) must be ordered and installed. The A2 Controller Board Kit contains the A2/firmware upgrade software and has the latest firmware ROMS installed on the A2 controller assembly. To determine the CPU clock speed, press (PRESET), (SPAN), 1 kHz. If the annotated sweep time is 477 ms, the CPU clock is 16 MHz. If the annotated sweep time is 740 ms, the CPU clock is 8 MHz.
> If the CPU clock is 16 MHz, the EEROM Upgrade Kit (5063-0669) must be ordered and installed.
> Prefixes ≤3329A (for HP 8561E only) require a new A14 Frequency Control board. This is in addition to the above EEROM or controller board change requirements.

‡ The HP part number for the firmware upgrade kit is 08560-60084.

§ Firmware revisions 960401 and later are compatible only with HP 85620A Mass Memory Modules with internal firmware revision C (date code 910116).

Table 1-1.

**HP 8560E, HP 8561E, HP 8562E, and HP 8563E Firmware Revision History
(continued)**

Firmware	ROM Part Number						
Date Code	U306	U307	U308	U309	U310*	U311*	Revision History
930809	08563-80072	08563-80073	08563-80074	08563-80075	08563-80076	08563-80077	This revision changes gain limits and eliminates unnecessary errors. It is also the latest revision that will function with an 8 MHz processor.
930715	08563-80066	08563-80067	08563-80068	08563-80069	08563-80070	08563-80071	This revision eliminates unnecessary 500 series errors which appear during power-on in the HP 8560E and HP 8561E.
930226	08563-80059	08563-80060	08563-80061	08563-80062	08563-80063	08563-80064	This revision supports Option 008 and the fast ADC (Option 007). It also supports 16 MHz controller operation.
920528	08563-80032	08563-80033	08563-80034	08563-80035	08563-80036	08563-80037	First version.
* Refer to Table 1-8 for the date code of U310 and U311.							

Table 1-2. HP 8564E and HP 8565E Firmware Revision History

Firmware Date Code	ROM Part Number						Revision History
	U306	U307	U308	U309	U310*	U311*	
960830	08564-80038	08564-80039	08564-80040	08564-80041	08564-80011	08564-80012	AC/DC coupling bug fix, weighting bug fix, linear log 0 bug fix, and sample unlock error bug fix.
960401†‡	08564-80027	08564-80028	08564-80029	08564-80030	08564-80011	08564-80012	Adds the HP 85620A mass memory module firmware to the main firmware in the spectrum analyzer.
941028	08564-80023	08564-80024	08564-80025	08564-80026	08564-80011	08564-80012	Eliminates intermittent sweep generator failures being reported by the TAM AFI routines.
941027	08564-80019	08564-80020	08564-80021	08564-80022	08564-80011	08564-80012	Improves amplitude repeatability.
940622	08564-80013	08564-80014	08564-80015	08564-80016	08564-80011	08564-80012	Eliminates intermittent sweep generator failures being reported by the TAM AFI routines. Fixes battery problem, error 718, routine.
940210	08564-80007	08564-80008	08564-80009	08564-80010	08564-80011	08564-80012	This revision changes the sequence of events in the LO/IF alignment routine to improve flatness repeatability.
931216	08564-80003	08564-80004	08564-80005	08564-80006	08563-80076	08563-80077	First version.

* Refer to Table 1-8 for the date code of U310 and U311.

† The HP part number for the firmware upgrade kit is 08560-60079.

‡ Firmware revision 960401 is only compatible with HP 85620A Mass Memory Modules with internal firmware revision C (date code 910116).

HP 8560A, HP 8561B, and HP 8563A Firmware Revisions

The firmware revision date code installed in the HP 8560A, HP 8561B, and HP 8563A is indicated in the active function block after turning the instrument on. The date code can also be found by pressing (CONFIG), then DATECODE &OPTIONS. The firmware revision date code will be displayed on the spectrum analyzer screen.

Starting with serial prefix 3207A for the HP 8560A, 3206A for the HP 8561B, and 3216A for the HP 8563A, the set of PROMS in each instrument consists of two 2 MBit PROMS instead of four 1 MBit PROMS (which shipped with earlier instruments).

Table 1-3 lists firmware revisions compatible with current instruments. Table 1-4 lists firmware revisions compatible with earlier instruments requiring a set of four 1 MBit PROMS.

Table 1-3.
HP 8560A, 8561B, and 8563A Firmware Revision History
(2 PROM Sets)

Firmware		ROM Part Number		Firmware
Rev	Date Code	U306	U307	Revision History
H*	920504	08563-80041	08563-80040	This version fixes the tuning voltage problem, related to HP 11974A compatibility.
G	920122	08563-80026	08563-80027	This is the first version of firmware that is compatible with the new configuration of the A4 assembly found in current instruments. This version has the same feature set, however, as firmware revision 911108. The PROMS are simply 2 MBit instead of 1 MBit. This firmware revision has a compatibility problem relating to the HP 11974A.

* The HP part number for the firmware upgrade kit is 5063-0270.

Note   Instruments using A2 controller assembly 08560-60013 also require RAM Expansion Kit 5062-7714.

Table 1-4.
HP 8560A, 8561B, and 8563A Firmware Revision History
(4 PROM Sets)

Firmware		ROM Part Number				Firmware
Rev	Date Code	U306	U307	U308	U309	Revision History
H*	920504	08563-80043	08563-80042	08563-80044	08563-80045	This version fixes the tuning voltage problem related to HP 11974A compatibility. This is the last version of software that is compatible with the old A4/A16 configuration found in HP 8560A's serial prefixed below 3207A, HP 8561B's serial prefixed below 3206A, and HP 8563A's serial prefixed below 3216A.
F	911108	08563-80016	08563-80017	08563-80018	08563-80019	Fixes Meas. Uncal bug and adds adjacent channel power softkey. This version of firmware has a compatibility problem relating to the HP 11974A.
E	900301	08563-80006	08563-80007	08563-80008	08563-80009	Fixes unnecessary OCXO error messages 905-907, Q band, U band flip for external mixers, MKBW command, and 3 dB and 6 dB BW keys.
D	891201	08560-80023	08560-80024	08560-80025	08560-80026	Span change bug fix.
C	890930	08563-80002	08563-80003	08563-80004	08563-80005	Oven controlled oscillator. (OCXO), HP 8563A, and HP 11974 series compatibility.
B	890720	08560-80015	08560-80016	08560-80017	08560-80018	Completely compatible with HP 85620A, revision 890524.
A	890704	08560-80002	08560-80003	08560-80004	08560-80005	First version.
* The HP part number for the firmware upgrade kit is 5063-0271.						

HP 8561A, HP 8562A, and HP 8562B Firmware Revisions

The firmware revision date code installed in your particular HP 8561A, HP 8562A, or HP 8562B is indicated in the active function block after turning the instrument on.

Table 1-5. HP 8561A, 8562A, and HP 8562B Firmware Revision History

Firmware	ROM Part Number, 08562-						Firmware
Date Code	U306	U307	U308	U309	U310	U311	Revision History
910415*	80198	80199	80200	80201	N/A	N/A	Fixed unnecessary error messages 336 and 499.
900901	80182	80183	80184	80185	N/A	N/A	Fixed unnecessary OCXO errors.
891012	80157	80158	80159	80160	80161	80162	Oven controlled oscillator (OCXO) compatibility.
881031	80136	80137	80138	80139	80140	80141	HP 8561A compatibility, FFT, 99% power BW, and full span in single sweep.
880201	80120	80121	80122	80123	80124	80125	Printer dump fix, add 2 MHz RBW and Option 026 compatibility.
871115	80106	80107	80108	80109	80110	80111	Fixed roller oscillator/tuning range bug.
870824	80090	80091	80092	80093	80094	80095	Fixed cal-to-cal span variation bug.
870728	80077	80078	80079	80080	80081	80082	HP 85620A compatibility, 26.5 GHz and 2.5 kHz x N span upgrade (N = band #).
870312	80048	80049	80050	80051	80056	80057	Bug fixes only, first customer version.
861218	80001	80002	80003	80004	80020	80021	First version.

* The HP part number for the firmware upgrade kit is 08562-60163 for a four ROM set, and 5063-0241 for a six ROM set. Six ROM sets should be used with a controller board assembly with part number 08562-60110 or earlier.

HP 85620A Firmware Revisions

Mass memory module operation is controlled by ROM (read-only memory) firmware. The module firmware version is displayed after pressing the (MODULE) key on the spectrum analyzer. Refer to Table 1-10 for firmware versions of the module that are compatible with the different portable spectrum analyzers.

It is possible to get a different set of functions from a given mass memory module with revision C firmware, depending on the firmware revision of the host spectrum analyzer. In spectrum analyzers with firmware revision 960401 and later, the firmware that controls the mass memory module actually resides in the host spectrum analyzer and contains a more recent set of features and functionality. If that same mass memory module is installed on a host spectrum analyzer with firmware revision 941028 or earlier, the firmware that resides in the mass memory module (revision A, B, or C) will control the features and functionality of the module.

Mass memory modules with revision A or B firmware are incompatible with host spectrum analyzers with firmware revision 960401 and later.

Note	DLPs, traces, and limit-lines stored on memory cards using a mass-memory module with firmware date code 910116 or later cannot be read into a module with an earlier firmware date code (for example 890524). However, DLPs, traces, and limit-lines stored on cards using modules with firmware date code 890524 or earlier can be read into a module with firmware date code 910116 or later.

Table 1-6.
HP 85620A Firmware Revisions Shipped with Serial Prefix 3143A
and above

Firmware		ROM Part Number	Firmware
Rev	Date Code	U7	Revision History
	950829	Firmware is in spectrum analyzer.†	Adds the menu for formatting the memory card. Down-loadable program execution time is improved.
C*	910116	85620-80021	CATALOG command, LIMIFAIL predefined variable, and sorted directories added. Real arrays >75 elements now useable. EP can be used to change the value of a user-defined variable.

* Any HP 85620A, no matter what serial prefix or internal firmware revision, will exhibit the most recent set of features and functionality when used with a host spectrum analyzer that has firmware revision 960401 or later.

† Refer to Table 1-1 and Table 1-2 for HP 856x E-Series Spectrum Analyzer upgrade information.

Table 1-7.
HP 85620A Firmware Revisions Shipped with Serial Prefix 3003A
and below

Firmware		ROM Part Number			Firmware
Rev	Date Code	U1	U2	U3	Revision History
	950829	Firmware is in the spectrum analyzer*			Adds the menu for formatting the memory card. Down-loadable program execution time is improved.
C†‡	910116	85620-80023	85620-80024	85620-800 25	CATALOG command, LIMIFAIL predefined variable, and sorted directories added. Real arrays >75 elements now useable. EP can be used to change the value of a user-defined variable.
B§	890524	85620-80014	85620-80015	85620-80016	First revision fully compatible with HP 8560A, HP 8561B, and HP 8563A.
A§	890214	85620-80005	85620-80007	85620-80009	First version.

* Refer to Table 1-1 and Table 1-2 for HP 856x E- Series Spectrum Analyzer upgrade information.

† The HP part number for the firmware upgrade kit is 85620-60013.

‡ Any HP 85620A, no matter what serial prefix or internal firmware revision, will exhibit the most recent set of features and functionality when used with a host spectrum analyzer that has firmware revision 960401 or later.

§ An HP 85620A with internal firmware revision A or B is incompatible with host spectrum analyzers with firmware revision 960401 and later.

HP 85629B Firmware Revisions

The firmware revision for the HP 85629B test and adjustment module (TAM) can be checked, when connected to an HP 8560 Series spectrum analyzer, by pressing (MODULE) on the spectrum analyzer front panel. The firmware revision date code for the module will be listed at the top of the spectrum analyzer display. Each firmware revision is designed to test a specific version of spectrum analyzer. Table 1-9 lists TAM firmware revisions A through E. Table 1-8 lists TAM firmware revisions 920123 (F) and later. TAM firmware revisions A through E reside in the TAM. TAM firmware revisions 920123 and later are installed in the HP 8560 Series spectrum analyzer.

When testing a spectrum analyzer with TAM firmware revision 920123 or above, the TAM firmware installed in the spectrum analyzer will override the firmware in the TAM. When testing an earlierHP 8560 Series spectrum analyzer without TAM firmware installed, the firmware in the TAM will control the TAM. The firmware revision that is controlling the TAM can be easily identified using the procedure described above.

Table 1-8.
ROM Part Numbers for TAM Firmware Revisions 920123 and Later

Firmware	ROM Part Number		Firmware
Date Code	U310	U311	Revision History
940314*	08564-80011	08564-80012	Compatible with controller board (08564-60010) and the new Frequency Control board.
920504	08563-80046	08563-80047	Bug fix relating to automatic fault isolation linear amplitude test.
920327	08563-80038	08563-80039	Fixes Preselector peak and YTO endpoint adjustment. Previous version incompatible with HP 436A and HP 8902A power meters.
920123	08563-80030	08563-80031	PROMS upgraded from 1 MBit to 2 MBit and TAM firmware now resides in the HP 8560 spectrum analyzer. This version is also compatible with new A4 log amp/cal osc.

* The HP part number for the firmware upgrade kit is 5063-0260.

Table 1-9.
ROM Part Numbers for TAM Firmware Revisions A through E

Firmware		ROM Part Number			Firmware
Rev	Date Code	U1	U3	U4	Revision History
E*	900301	85629-80079	85629-80080	85629-80081	Compatible with new solid state switch and new CRT.
D	890930	85629-80075	85629-80076	85629-80077	Compatible with HP 8563A, new A7 LO distribution amplifier adjustment, and new low end mixer.
C	890704	85629-80071	85629-80072	85629-80073	Compatible with HP 8560A/61B and new oven controlled oscillator (OCX0).
B	890621	85629-80067	85629-80068	85629-80069	Compatible with changes for A2 (-60010), A4 (-60109), and A14 (-60055).
A	881031	85629-80048	85629-80049	85629-80050	First version.

* The HP part number for the firmware upgrade kit is 85629-60009.

Compatibility of the HP 85620A and HP 8560 Series Spectrum Analyzers

The following table indicates the revisions of spectrum analyzer firmware that are compatible with each revision of HP 85620A mass memory module firmware.

Table 1-10. HP 85620A and HP 8560 Series Firmware Compatibility

Spectrum Analyzer	HP 85620A Firmware Revision			
	890214 (Rev A)	890524 (Rev B)	910116 (Rev C)	950829 and later
HP 8560A	Not supported	890720 and later firmware revisions	890720 and later firmware revisions	Not supported
HP 8560E	Not supported	941028 and earlier firmware revisions	All revisions of firmware	960401 and later firmware revisions
HP 8561A	All revisions of firmware	All revisions of firmware	All revisions of firmware	Not supported
HP 8561B	Not supported	890720 and later firmware revisions	890720 and later firmware revisions	Not supported
HP 8561E	Not supported	941028 and earlier firmware revisions	All revisions of firmware	960401 and later firmware revisions
HP 8562A	870728 and later firmware revisions	870728 and later firmware revisions	870728 and later firmware revisions	Not supported
HP 8562B	870728 and later firmware revisions	870728 and later firmware revisions	870728 and later firmware revisions	Not supported
HP 8562E	Not supported	Not supported	All revisions of firmware	960401 and later firmware revisions
HP 8563A	Not supported	All revisions of firmware	All revisions of firmware	Not supported
HP 8563E	Not supported	941028 and earlier firmware revisions	All revisions of firmware	960401 and later firmware revisions
HP 8564E	Not supported	941028 and earlier firmware revisions	All revisions of firmware	960401 and later firmware revisions
HP 8565E	Not supported	941028 and earlier firmware revisions	All revisions of firmware	960401 and later firmware revisions

Compatibility of the HP 85629B and HP 8560 Series Spectrum Analyzers

The following two tables indicate the range of spectrum analyzer serial-number prefixes that are compatible with each revision of HP 85629B firmware. The TAM can be used with spectrum analyzers that have serial-number prefixes outside the range indicated in the following tables, but the TAM may not be fully compatible with the spectrum analyzer. The HP 8562E TAM interface software, available with HP 8562E Option 915, is required to use the TAM with the HP 8562E.

In general, firmware revisions are compatible with spectrum analyzers having lower serial-number prefixes than those shown (unless otherwise noted). The level of compatibility can be improved by replacing the TAM firmware with the latest version.

The TAM is not compatible with the HP 8564E or HP 8565E spectrum analyzer.
The HP 8562E/TAM Interface Software is required to use the TAM with the HP 8562E. This software is provided with the HP 8562E Option 915.

Table 1-11.
HP 85629B and HP 8560 Series Compatibility
(TAM Firmware A through E)

Spectrum Analyzer	HP 85629B Firmware Revisions A through E*				
	881031 (Rev A)†	890621 (Rev B)†	890704 (Rev C)†	890930 (Rev D)†	900301 (Rev E)
HP 8560A	Not supported	Not supported	2925A	2925A and below	3147A and below
HP 8560E	All serials*	All serials*	All serials*	All serials*	All serials*
HP 8561A‡§	2841A to 2912A	2923A and below	2927A†† and below	2929A and below	3147A and below
HP 8561B‡	Not supported	Not supported	2925A	2925A and below	3147A and below
HP 8561E	All serials*	All serials*	All serials*	All serials*	All serials*
HP 8562A	2912A and below	2923A and below	2927A†† and below	2929A and below	3147A and below
HP 8562B	2842A to 2912A	2923A and below	2927A†† and below	2929A and below	3147A and below
HP 8562E#	All serials*	All serials*	All serials*	All serials*	All serials*
HP 8563A	Not supported	Not supported	Not supported	2925A	3147A and below
HP 8563E	All serials*	All serials*	All serials*	All serials*	All serials*
HP 8564E	Not supported	Not supported	Not supported	Not supported	Not supported
HP 8565E	Not supported	Not supported	Not supported	Not supported	Not supported

* When the HP 85629B TAM is installed on an HP 8560 E-Series spectrum analyzer, the TAM firmware date code will be 920504 or above, even though the same TAM might use date code 920327 or below (in the TAM) when installed on an earlier (non-E-Series) spectrum analyzer.

† The sampler bias manual probe test using TAM firmware revision D and earlier, may cause an error message, Manual probe revision code of board is NOT known by this module, when testing any instrument with serial prefix 3017A and above. Press Current Rev. then More Info , for the actual voltage levels and compare the readings to the current specification of >1.2 V and <3.0 V.

‡ The manual probe check of A7J16 using TAM firmware revision D and earlier has incorrect test limits for testing an HP 8561A/B serial prefix 3009A and above. Press More Info for the actual voltage levels and compare the readings to the specification of −1.95 V and ±0.25 V.

§ When testing an HP 8561A spectrum analyzer and attempting to execute test 9 immediately after test 8, testing stops with no warning or error indication. These two tests should not be performed in this sequence. If this condition exists, press abort to return to the Test Menu, where a different sequence of tests can be selected. For example, after completing test 8, select test 10 and after it is completed go back and select test 9.

†† Except Option 003.

The HP 8562E/TAM Interface Software is required to use the TAM with the HP 8562E. This software is provided with the HP 8562E Option 915.

Table 1-12.
HP 85629B and HP 8560 Series Compatibility
(TAM Firmware in Spectrum Analyzer)

Spectrum Analyzer	HP 85629B Firmware (in Spectrum Analyzer)*			
	920123	920327	920504	940314
HP 8560A	3207A and below	3221A and below	All serials	Not supported
HP 8560E	N/A	N/A	3410A and below	All serials
HP 8561A	Not supported	Not supported	Not supported	Not supported
HP 8561B	3207A and below	3221A and below	All serials	Not supported
HP 8561E	N/A	N/A	3410A and below	All All serials
HP 8562A	Not supported	Not supported	Not supported	Not supported
HP 8562B	Not supported	Not supported	Not supported	Not supported
HP 8562E†	N/A	N/A	3410A and below	All serials
HP 8563A	3207A and below	3221A and below	All serials	Not supported
HP 8563E	N/A	N/A	3410A and below	All serials
HP 8564E	Not supported	Not supported	Not supported	Not supported
HP 8565E	Not supported	Not supported	Not supported	Not supported

* When the HP 85629B TAM is installed on an HP 8560 E-Series spectrum analyzer, the TAM firmware date code will be 920504 or above, even though the same TAM might use date code 920327 or below (in the TAM) when installed on an earlier (non-E-Series) spectrum analyzer.

† The HP 8562E/TAM Interface Software is required to use the TAM with the HP 8562E. This software is provided with the HP 8562E Option 915.

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