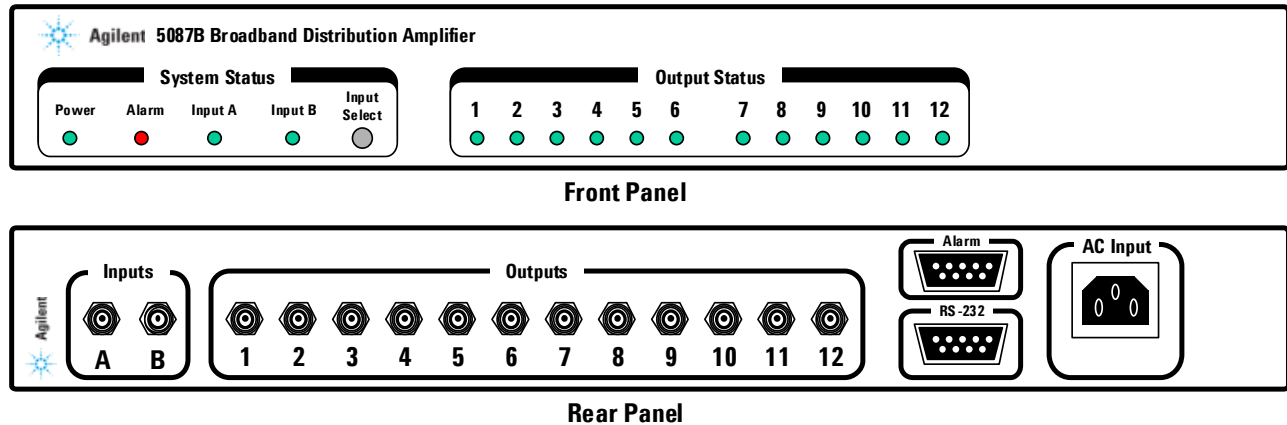


Agilent Primary Standard

Issue 2, November 2001



Inside: • Tribute to Robin Giffard • Frequently Asked Questions



New Distribution Amplifier Coming Soon

The Agilent 5087B broadband distribution amplifier is an economical solution for distributing signals from various frequency standards such as caesium, rubidium, quartz or GPS receivers. The new distribution amplifier will be introduced early next year. At introduction, it will be very similar to the previous HP 58502A distribution amplifier and will feature:

- 12 channel broadband (0.1 to 10 MHz) sine wave distribution
- +13 dBm output power
- Accepts +7 to +15 dBm inputs
- Input AGC maintains output level with varying input level
- Two inputs with auto switching provides redundancy

- Internal 10 MHz oscillator option for backup or use as a stand-alone frequency source
- High input isolation reduces beat notes
- High isolation/low cross-talk between outputs
- Low output phase noise
- Front panel status indicators for health monitoring at a glance
- RS-232 port for remote control and monitoring
- Fault alarm

Can You Spell Cæsius?

The new IATA regulations require the element caesium (Cs) to now be spelled the Latin way "caesium". All shipment documents must now have the new spelling, otherwise your shipment may be rejected. Please visit our web site at www.agilent.com/find/frequecystandards to obtain complete international and domestic shipping information, including the most recent revision of the DOT-E 11401 exemption (revision 6 dated October 24, 2001) for shipments within the USA.



Agilent Technologies

Robin P. Giffard – Innovator and Architect of Atomic Frequency Standards

The time and frequency control community lost one of its most innovative leaders on Sunday, May 6, 2001, when Robin Giffard died while hiking in the Palo Alto, California area.

Dr. Giffard was born on February 6th, 1941, in Shrewsbury, U.K. He received a B.A. Physics (1st Class Honors), M.A. Physics, and D-Phil, all from the University of Oxford. His doctoral work was done at the Clarendon Laboratory and addressed measurement problems in the study of nuclear magnetism at low temperatures.

Following his work at Oxford, Robin also held positions at UC San Diego, Clarendon Laboratories Oxford, and Stanford University.

During this period his work included studies on cryogenic gravitational wave detectors, noise thermometry at ultra-low temperatures, and SQUID-Magnetometers.

In 1980 Robin joined the technical staff at Hewlett-Packard Laboratories (now Agilent Laboratories). At the time of his death, Robin was the Department Scientist for the Precision Instrumentation Laboratory. His specialties included low noise electronics, atomic frequency standards, time-transfer using GPS, high-stability oscillators, digital filtering, and precision measurement techniques.

While at Agilent, Robin was heavily involved in the development and design of the Mercury Ion standard, and was one of the principal architects of the Agilent 5071A Primary Frequency Standard. In recent years, his work involved development of time-transfer techniques that are effective over wide areas using GPS SPS. Working with other scientists at NIST and USNO, Robin was the principal investigator of the limitations, including ionospheric effects, to achieving wide-area time synchronization over continental distances.

For his work on atomic frequency standards, Robin shared the AIP Industrial Physics Award with his colleagues Dr. Len Cutler, and Dr. Curt Flory. He was also the co-winner of 3 IR&D 100 awards. He was the inventor or co-inventor on 6 US patents. Robin authored or co-authored over 55 technical papers and review articles.

Robin was active in both the IEEE and ION as a frequent contributor to technical symposia in both organizations. He was also a member of the Technical Program Committee of the IEEE International Frequency Control Symposium.

Robin is survived by his wife Rona, their two children, and his brother and sister.

Those who worked with Robin will remember him as a quiet, gentle man with a dry British sense of humor, and technical brilliance.

Time On Display

Agilent recently donated non-operating CBTs to both the Museum of Time in the City of Besançon, France and the Paris Observatory.

Visit the Museum of Time web site at: www.besancon.com. Click on Culture, Museums, Musee Du Temps. The Museum is sure to delight all comers with its rich and diverse collection of exceptional and miniature articles ranging from the sundial to the atomic clock, not forgetting the instruments and research techniques used from the 16C to the 20C (the 18C perpetual clock, electronics applied to watches and telecommunications, hydrogen atomic clock, etc.). You can also contact the Museum at Musee du Temps, Palais Granvelle, 96 Grande Rue, 25000 Besançon, France, Tel +33 (3) 81 81 45 14.

On the unique occasion of entering the Third Millenium, the Laboratoire Primaire du Temps et des Frequences of the Paris Observatory presented an exhibition about Time on January 13th to March 31st, 2001. The exhibition was open to the public.

Frequently Asked Questions

Q: What is in the commercial certificate of calibration for the 5071A, and what does it look like?

A: The commercial certificate of calibration for the 5071A certifies that the instrument was calibrated (in compliance with ISO 9001/2) and met its published specifications at the time of shipment. The document is included with every instrument. It does not include any test data. If you need test data or a military calibration, contact your local Agilent representative for a quote on the cost. Visit our web site at www.agilent.com/find/frequencystandards for a sample certificate.

Q: Is the 5071A on a GSA (Government Services Administration) contract?

A: Yes. The 5071A primary frequency standard and all its options are on a GSA contract. The related replacement caesium beam tubes (CBT) listed in the table below are also on a GSA contract.

For detailed information and the ability to search for additional Agilent products on GSA, visit this web site: www.agilent.com/gsa.

NSN	Agilent Model - Option Number
5071A	
6625-01-359-6628	5071A
6625-01-407-6269	5071A-001
6625-01-467-2621	5071A-001-913
6625-01-466-8971	5071A-048
6625-01-466-8970	5071A-270
6625-01-467-2621	5071A-H31
6626-01-410-7453	5071A-001-H10-913
5071A CBTs	
5960-01-473-9203	10890A
5960-01-407-1350	10891A
5061A/B CBTs	
5998-01-056-9055	05061-6077
5960-01-022-6922	05061-6101

Q: What is the US Government National (NATO) Stock Number (NSN) for the 5071A and replacement caesium beam tubes (CBT)?

A: The table above lists the NSNs as of November 2001.

For current (and more) information, and the ability to look up other Agilent products, visit the Agilent Logistics Data Book web site: www.agilent.com/ldb.

Q: Does the 5071A carry the CE mark?

A: Yes. The 5071A has been tested and carries the CE marking. See the 5071A Declaration of Conformity for more information. You can get a copy of the declaration at our web site at: www.agilent.com/find/frequencystandards.

Q: Is the 5071A UL or CSA approved? If so, what are the reference numbers?

A: We test our products to both UL and CSA specifications. The product is certified to the CSA safety standard and is labeled accordingly. This safety certification is accepted both in Canada and in the United States, per 29CFR 1910.2(g) and 1907.10. We do not apply for UL marking.

Model Number	Description
10890A	Standard performance CBT for 5071A
10891A	High performance CBT for 5071A
05061-6077	Standard performance CBT for 5061A/B
05061-6101	High performance CBT for 5061A/B

Q: Where can I find the latest BIPM clock data?

A: BIPM (Bureau International de Poids et Mesures) data shows the performance level of clocks within the international timekeeping organization. BIPM is an international organization based in France that keeps track of International Atomic Time. Around 230 clocks are stationed at various timekeeping and national standards labs throughout the world. This data is maintained in a public database at www.bipm.fr. Figures 1, 2 and 3 show some of the data as of August 28, 2001. You can find the complete slide set on our web site at: www.agilent.com/find/frequencystandards.

Each clock is assigned a weight based on its historic stability relative to the ensemble of clocks in the system and how long it has been part of the system. The higher the weight, the better the clock. Agilent clocks, primarily the 5071A, make up more than 85% of the international atomic time scale by weight.

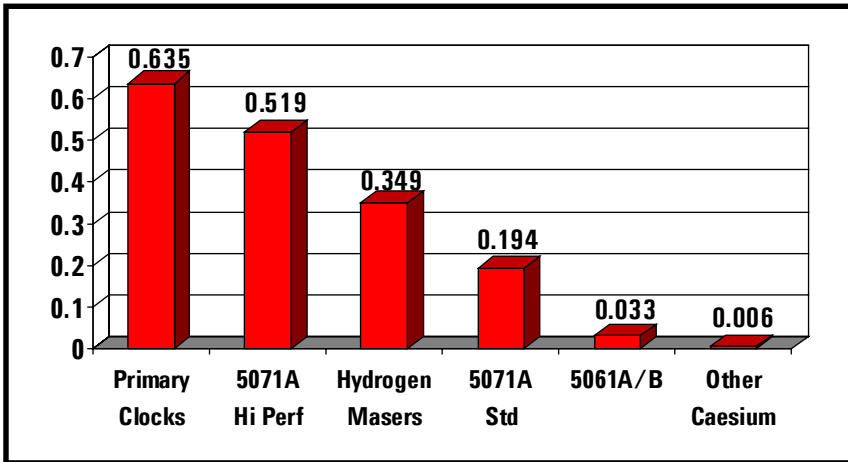


Figure 1 – Average weights of the BIPM clocks by clock type.

Figure 2 – Weight of each BIPM clock category.

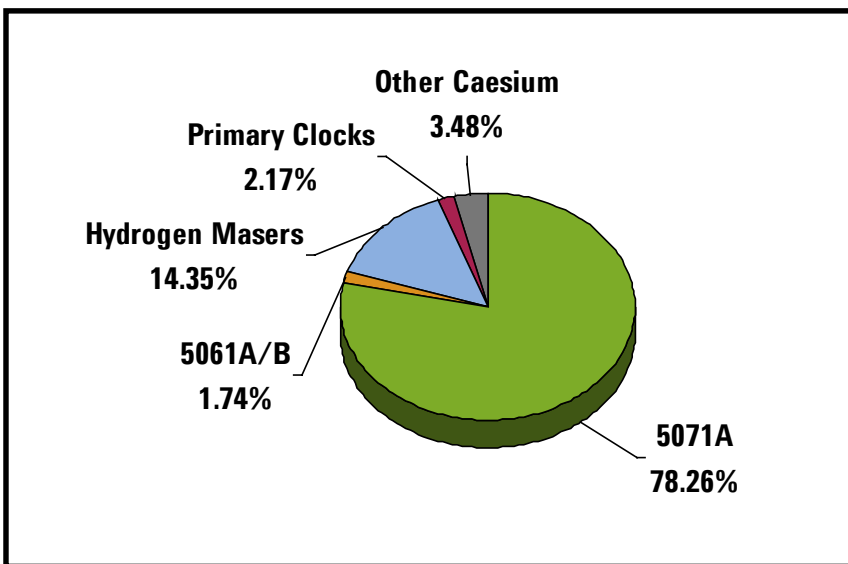
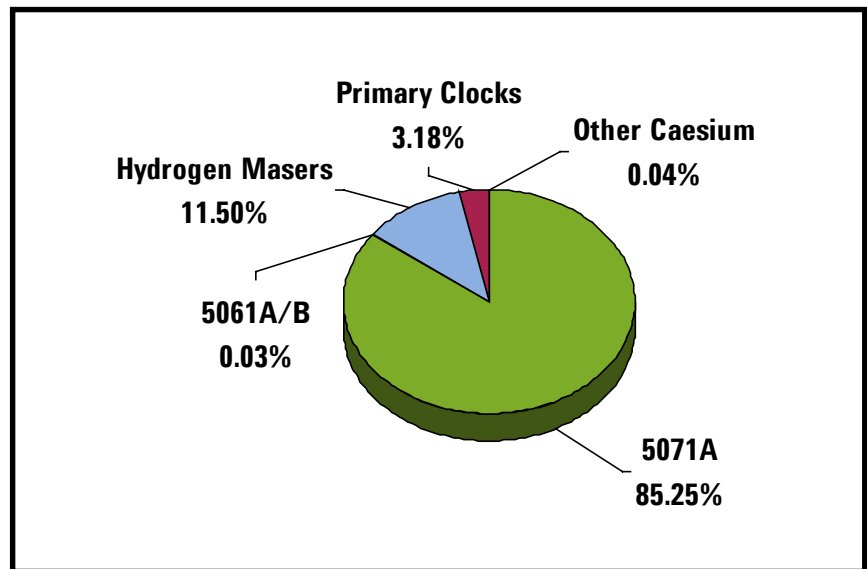


Figure 3 – Number of clocks in each BIPM clock category.

5061A/B Repair Alternative

If you are having difficulty in obtaining parts or getting repairs done on a 5061A/B, a third party may be able to help you out. Contact Chuck Norton at Frequency Standards and Services, P.O. Box 9941, Colorado Springs, CO 80932. Phone +1 (719) 228-0540. E-mail:

service@frequencystandards.com. Or visit them on their web site at www.frequencystandards.com.

New Manuals

The following manuals have been revised and are now available electronically on our web site at: www.agilent.com/find/frequencystandards.

- 5071A Operating and Programming Manual (p/n 05071-90041, printed December, 2000)
- 5071A Operating and Programming Manual Change Sheet (dated May 30, 2001)
- 5071A Telecommunications Options Supplemental Manual (p/n 05071-90042, printed December 2000)
- 5071A Telecommunications Options Supplemental Manual Change Sheet (dated May 30, 2001)

Year 2001 and 2002 Trade Shows

We plan to attend the following trade shows:

Precise Time and Time Interval (PTTI) 33rd Annual Systems and Applications Meeting
Hyatt Regency Hotel, Long Beach, California, U.S.A.
November 27 - 29, 2001

The objectives of the PTTI are to:

- Disseminate and coordinate PTTI information at the user level
- Review present and future PTTI requirements
- Inform government and industry engineers, technicians, and managers of precise time and frequency technology and its problems
- Provide an opportunity for an active exchange of new technology associated with PTTI.

For more information, visit the PTTI 2001 web site at <http://tycho.usno.navy.mil/ptti.html>.

16th European Frequency and Time Forum (EFTF)
Hotel Pulkovskaya, St. Petersburg, Russia
March 12-14, 2002

The EFTF is an international conference and exhibition, providing information on recent advances and trends of scientific research and industrial development in the fields of Frequency and Time.

For more information, visit the EFTF 2002 web site at www.eftf.org or go directly to the St. Petersburg site at www.cl.spb.ru/~weconf.

Frequency Control Symposium (FCS) and PDA Exhibition
New Orleans Riverside Hilton, New Orleans, Louisiana, U.S.A.
Tutorials June 1, 2002 – Symposium May 29 - 31, 2002

This Symposium is the leading international technical forum for research and development directed towards frequency control, precision timekeeping, and resonant sensors. For more information, visit the IEEE UFFC web site at www.ieee-uffc.org and click on Meetings.

Precise Time and Time Interval (PTTI) 34th Annual Systems and Applications Meeting
Hyatt Regency Hotel, Reston Town Center, Reston, Virginia, U.S.A.
December 3 - 5, 2002

New on the Web

If you haven't visited our web site in awhile, please come back. We have added a lot of new material and links. We've also updated the entire Agilent site. Visit us at www.agilent.com/find/frequencystandards.

Among other things, you will find:

- Brochures
- Manuals
- Software/Firmware updates
- Technical papers and notes
- Frequently asked questions (FAQs)
- Declaration of Conformity
- Primary Standard newsletter
- Application notes
- How to ship the 5071A
- DOT-E 11401 shipping exemption
- How to dispose of a CBT
- Material Safety Data Sheet (MSDS) for caesium
- BIPM clock data
- GSA contract information

Who's Who in PTF

Our business manager remains Jack Kusters. Mike Meyer is in charge of manufacturing for PTF. Errol Shanklin remains our product marketing engineer. Our factory sales and service engineer is still Dave Carlson. Chris Franks is the backup engineer for Dave. John Berberian is our chief physicist working with Agilent labs to generate new products. Hagop Stephanian is our senior engineer designing our new distribution amplifier. He previously worked on quartz oscillator design.

Trade-Up Promotion Ends

Our promotion 4.32 Caesium Standard Trade-Up Program ended March 31, 2001. This promotion gave a 15% discount on a new 5071A when customers returned a used caesium standard (any make) to Agilent.

New Name

In case you hadn't noticed, we've changed the name of this newsletter from "the Standard" to "Agilent Primary Standard". It's part of our program to present a more unified look for all Agilent literature. We hope you continue to enjoy the newsletter. You can contact us, or subscribe or unsubscribe to the electronic mailing of the newsletter at frequency_standards@agilent.com.

How to Keep Informed

Our email notification program is a great way to allow Agilent to automatically keep you up to date on a wide variety of subjects. For example:

Support Information – such as firmware updates, manuals, training courses and **What's New In Test & Measurement** – such as new product announcements, technology information, application and product notes, webcasts, seminars, and tradeshow.

To sign up, visit our web site at www.agilent.com/find/emailupdates.

There is a wide variety of product, application and technology interests to choose from. To specifically sign up for updates about frequency and time standards, select **Frequency and Time Standards** in the **Specialty Measurement** part of the product interest drop-down list. Then, whenever we make a significant update to the content of the frequency and time part of our web site, you will receive an email notifying you of the changes.

This information is subject to change without notice.

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