



Approved by the CIPM in October 2006

RECOMMENDED VALUES OF STANDARD FREQUENCIES FOR APPLICATIONS INCLUDING SECONDARY REPRESENTATIONS OF THE DEFINITION OF THE SECOND

RUBIDIUM ($f \approx 6.8$ GHz)

Unperturbed ground-state hyperfine quantum transition of ^{87}Rb

1. CIPM recommended value [1] of the frequency

$$f(^{87}\text{Rb}) = 6\,834\,682\,610.904\,324 \text{ Hz}$$

with a relative standard uncertainty of 3×10^{-15} .

2. Source data

$$\text{Adopted value} \quad f(^{87}\text{Rb}) = 6\,834\,682\,610.904\,324 \text{ Hz} \quad u/y = 3 \times 10^{-15}$$

was calculated from a series of frequency measurements over several years with the double caesium-rubidium fountain FO2 at LNE-SYRTE [2].

$f(^{87}\text{Rb}) / \text{Hz}$	u	source data
6 834 682 610.904 324	1.2×10^{-15}	[2]

As this value was issued from only one laboratory, the CIPM following a recommendation of the CCTF [3] and the CCL-CCTF Joint Working Group of Frequency Standards [4] considered it prudent to assume a 2.5 times enlarged relative standard uncertainty of 3×10^{-15} .

3. References

[1] Procès-Verbaux des Séances du Comité International des Poids et Mesures, 95th meeting (2006) 2007, Recommendation 1 (CI-2006): Updates to the list of standard frequencies, page 249 -250 (see e.g. <http://www.bipm.org/utis/en/pdf/CIPM2006-EN.pdf#page=115>).

[2] Contribution to the CCL/CCTF 2004, Response of the BNM-SYRTE: working document: CCL-CCTF/04-06, available starting with the: www.bipm.org and choosing: Committees, CCTF, Open access, CCL-CCTF Documents, Meetings 2004 as a Word file CCL-CCTF/04-06. Caution: The URL Address of the document <http://www.bipm.org/wg/AllowedDocuments.jsp> is not valid if you use it directly in your browser.

[3] Report of the 12th meeting of the CCL (15-16 September 2005); available at: <http://www.bipm.org/utis/common/pdf/CCL12.pdf>.

[4] Report to the 16th meeting of the CCTF (1-2 April 2004); available at: <http://www.bipm.org/cc/CCTF/Allowed/16/cctf04-28.pdf>.