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

RUBIDIUM 87 ($f \approx 6.8 \text{ GHz}$)

Unperturbed ground-state hyperfine transition of $^{87}\text{Rb}$

1. **Recommended value** [1] of the frequency

\[
f^{(87}\text{Rb)} = 6\ 834\ 682\ 610.904\ 312 \text{ Hz}
\]

with a relative uncertainty of $1.3 \times 10^{-15}$.

This radiation was already endorsed as a secondary representation of the definition of the second.

2. **Source data**

<table>
<thead>
<tr>
<th>Adopted value $f^{(87}\text{Rb)} = 6\ 834\ 682\ 610.904\ 312 \text{ Hz}$</th>
<th>$u/\nu = 1.3 \times 10^{-15}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$f^{(87}\text{Rb)} / \text{Hz}$</td>
<td>$u / \text{Hz}$</td>
</tr>
<tr>
<td>6\ 834\ 682\ 610.904\ 314</td>
<td>$4 \times 10^{-6}$</td>
</tr>
<tr>
<td>6\ 834\ 682\ 610.904\ 312</td>
<td>$3 \times 10^{-6}$</td>
</tr>
</tbody>
</table>

Only the last data [3] was used based on the Rb/Cs comparisons over the February 2012 to August 2012 period which was independently evaluated by the CCTF Working Group on Primary Frequency Standards [4]. As this value was issued from only one laboratory, the CCTF considered it prudent to estimate a relative standard uncertainty of $1.3 \times 10^{-15}$.

3. **References**


[3] Report to the 19th meeting of the CCTF, CCTF/12-18; September 2012, LNE-SYRTE.