

Erratum to: Mobile source of high-energy single-cycle terahertz pulses

A. G. Stepanov · S. Henin · Y. Petit ·
L. Bonacina · J. Kasparian · J.-P. Wolf

Received: 26 June 2013 / Accepted: 14 August 2013 / Published online: 4 April 2014
© Springer-Verlag Berlin Heidelberg 2014

Erratum to: Appl Phys B (2010) 101:11–14 DOI 10.1007/s00340-010-4186-4

In 2010, we reported [1] on a demonstration of a mobile source of high-energy near-single-cycle THz pulses based on a tilted pulse front optical rectification set-up, pumped by a mobile terawatt laser (*Teramobile*). The absolute value of the THz pulse energy was measured with a pyroelectric detector (Coherent Molelectron J4-05). The company does not provide a spectral sensitivity dependence for this detector below 3.3 THz. In the reported experiments, generated THz pulses had broad spectra centred at 0.2 THz [1]. Previously, this detector was used for measuring the energy of near-single-cycle THz pulses with an average frequency of 0.9 THz generated by an accelerator-based source [2]. Afterwards, it was reported that the sensitivity of the Coherent pyroelectric detector at 1 THz was approximately 1.8 times less than the specified sensitivity at 1.06 μm [3], and this difference has been taken into account in a following publication [7].

Recently, we compared the sensitivity of the Coherent Molelectron J4-05 detector with that of another widely used pyroelectric THz detector (Microtech Instruments) [3–6]. The latter detector is provided with a calibration curve of the spectral dependence of the sensitivity in the frequency range of 0.12–3 THz. As a result, we found that at frequencies of 0.2–0.5 THz, the Coherent Molelectron J4-05 detector underestimates the THz pulse energy by a factor of about 3.5 with regard to the Microtech Instruments detector. This finding evidences an additional drop of the Coherent Molelectron J4-05 detector sensitivity for THz wave frequencies below 1 THz. By this comparison, we conclude that the THz pulse energy in Ref. [1] should significantly be re-estimated, up to 175 μJ (instead of the initially published value of 50 μJ), which is to the best of our knowledge the highest energy of near-single-cycle THz pulses generated by tabletop sources.

References

1. A.G. Stepanov, S. Henin, Y. Petit, L. Bonacina, J. Kasparian, J.-P. Wolf, Appl. Phys. B **101**, 11 (2010)
2. Y. Shen, T. Watanabe, D.A. Arena, C.-C. Kao, J.B. Murphy, T.Y. Tsang, X.J. Wang, G.L. Carr, Phys. Rev. Lett. **99**, 043901 (2007)
3. F. Blanchard, L. Razzari, H.-C. Bandulet, G. Sharma, R. Morandotti, J.-C. Kieffer, T. Ozaki, M. Reid, H.F. Tiedje, H.K. Haugen, F.A. Hegmann, Opt. Express **15**, 13212 (2007)
4. A.G. Stepanov, L. Bonacina, S.V. Chekalin, J.-P. Wolf, Opt. Lett. **33**, 2497 (2008)
5. H. Hirori, A. Doi, F. Blanchard, K. Tanaka, Appl. Phys. Lett. **98**, 091106 (2011)
6. J.A. Fülöp, L. Pálfalvi, S. Klingebiel, G. Almási, F. Krausz, S. Karsch, J. Hebling, Opt. Lett. **37**, 557 (2012)
7. F. Blanchard, G. Sharma, X. Ropagnol, L. Razzari, R. Morandotti, T. Ozaki, Opt. Express **17**, 6044 (2009)

The online version of the original article can be found under doi:[10.1007/s00340-010-4186-4](https://doi.org/10.1007/s00340-010-4186-4).

A. G. Stepanov (✉) · S. Henin · Y. Petit · L. Bonacina ·
J. Kasparian · J.-P. Wolf
GAP-Biophotonics, Université de Genève, Chemin de Pinchat
22, 1211 Geneva 4, Switzerland
e-mail: andrey.stepanov@unige.ch

J.-P. Wolf
e-mail: jean-pierre.wolf@unige.ch

Present Address:

Y. Petit
CNRS, University Bordeaux, ICMCB, UPR 9048, 33600 Pessac,
France