

Abstract Submitted
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Low-Frequency Noise in Top-Gate Graphene Transistors GUANXIONG LIU, Department of Electrical Engineering, University of California - Riverside, WILLIAM STILLMAN, SERGEY RUMYANTSEV, MICHAEL SHUR, Department of Electrical, Computer and Systems Engineering, Rensselaer Polytechnic Institute, ALEXANDER BALANDIN, Department of Electrical Engineering, University of California - Riverside — Electronic and sensor applications of graphene require low levels of the low-frequency noise. The unavoidable noise up-conversion results in serious limitations for practical use. Here we report results of our experimental investigation of flicker noise in the top-gate graphene field-effect transistors. We prepared graphene flakes by mechanical exfoliation and verified their quality with Raman spectroscopy. The hafnium-oxide top-gate dielectric was grown by the atomic layer deposition. The measurements revealed a low level of the noise with the spectrum close to $1/f$ [1-2]. The analysis of its gate dependence allowed us to identify the noise sources. The work at UCR was supported by DARPA – SRC FENA and IFC.

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[2] G. Liu, et al., *Appl. Phys. Lett.*, 95, 033103 (2009).

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