

Accepted Manuscript

Title: Cell Phone Spectrometry: Science in Your Pocket?

Author: Alexander Scheeline

PII: S0165-9936(16)30001-2

DOI: <http://dx.doi.org/doi: 10.1016/j.trac.2016.02.023>

Reference: TRAC 14687

To appear in: *Trends in Analytical Chemistry*



Please cite this article as: Alexander Scheeline, Cell Phone Spectrometry: Science in Your Pocket?, *Trends in Analytical Chemistry* (2016), <http://dx.doi.org/doi: 10.1016/j.trac.2016.02.023>.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Cell Phone Spectrometry: Science in Your Pocket?

Alexander Scheeline

SpectroClick Inc.

60 Hazelwood Dr.

Champaign, IL 61820 USA

Highlights

- Explains why cell phone spectrometry is as yet rare
- Suggests ways that personal spectrometry may evolve
- Discusses trade offs among convenience, performance, portability, and cost

Abstract

While a number of applications for chemical analysis using cell phones as the readout module have come into common use, the characteristics of cell phone cameras and demands of precision spectrometry have prevented the development of a general use cell phone spectrometry platform. The paper reviews the basis for cell phone limitations and explores several approaches to developing such a general platform. Aspects of light sources, sample holders, dispersion, focusing, and camera behavior are discussed.

Keywords

Point-of-use Spectrometry; Absorption Spectrometry; Reflectance Spectrometry; Cell Phone Science; Portable Instrumentation; Citizen Science

Abbreviations

A Absorbance

CMOS Complementary metal oxide semiconductor

CCD Charge coupled array detector

Download English Version:

<https://daneshyari.com/en/article/5141801>

Download Persian Version:

<https://daneshyari.com/article/5141801>

[Daneshyari.com](https://daneshyari.com)