

Abstract Submitted  
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**Wavelength metrology with  
a color sensor integrated chip**<sup>1</sup> JAROM JACKSON, TYLER JONES, NILS  
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versity — We have developed a method of wavelength sensing using the TCS3414  
from AMS, a color sensor developed for use in cell phones and consumer electronics.  
The sensor datasheet specifies 16 bits of precision and 200ppm/C temperature de-  
pendence, which preliminary calculations showed might be sufficient for picometer  
level wavelength discrimination of narrow linewidth sources. We have successfully  
shown that this is possible by using internal etalon effects in addition to the filters  
wavelength responses, and recently published our findings in OpticsExpress. Our de-  
vice demonstrates sub picometer precision over short time periods, with about 10pm  
drift over a one month period. This method requires no moving or delicate optics,  
and has the potential to produce inexpensive and mechanically robust devices.

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