

## 1 Introduction

SuperAGILE and AGILE/MCAL detected GRB 080514B on 2008 May 14 at 09:55:56 UT (Rapisarda *et al.*, 2008, GCN Circ. 7715). The observed duration of the burst in the 20–60 keV band was  $\sim 6.3$  s (Hanabata *et al.*, GCN Circ. 7752), with a multi-peaked structure. The *Konus-Wind* spectrum is best fit by a Band function with  $E_{\text{peak}} = 224_{-22}^{+23}$  keV (Golenetskii *et al.*, 2008 GCN Circ. 7751). There is a possible AGILE GRID detection at energies  $E > 50$  MeV (Giuliani *et al.*, 2008, GCN Circ. 7716).

The IPN localized the burst to a  $100 \square'$  error box, and *Swift* started observing this field  $\sim 37$  ks after the detection. A fading source was detected inside the IPN error box by the XRT (Page *et al.*, 2008, GCN Circ. 7723), and a UVOT source was seen (Holland 2008, GCN Circ. 7759). An infrared afterglow was detected by Updike *et al.* (2008, GCN Circ. 7725), and the redshift is constrained to  $1.9 < z < 3.7$  (Malesani *et al.*, 2008 GCN Circ. 7734, Holland 2008, GCN Circ. 7759). Our best position is the UVOT location at RA, Dec (J2000.0) =  $322^{\circ}84463$  ( $21^{\text{h}}31^{\text{m}}22^{\text{s}}.71$ ),  $+0^{\circ}70789$  ( $+00^{\circ}42'28''.4$ ), with an estimated uncertainty of  $0''.60$  (radius, 90% containment).

The Burst Advocate for this burst is Stephen Holland (Stephen.T.Holland@nasa.gov). Please contact the Burst Advocate by e-mail if you require additional information regarding *Swift* follow-up observations of this burst. In extremely urgent cases, after trying the Burst Advocate, you can contact the *Swift* PI by phone (see the *Swift* ToO Web site for information: <http://www.swift.psu.edu/too.html>).

## 2 XRT Observations and Analysis

The *Swift*/XRT began observing GRB 080514B at 20:12 UT on 2008 May 14,  $\sim 37$  ks after the initial detection. The UVOT-enhanced position is RA, Dec (J2000.0) =  $322^{\circ}84426$ ,  $+0^{\circ}70843$ , which is

$$\text{RA(J2000.0)} = 21^{\text{h}}31^{\text{m}}22^{\text{s}}.62$$

$$\text{Dec(J2000.0)} = +00^{\circ}42'30''.3$$

with an estimated uncertainty of  $1''.6$  (radius, 90% containment).

The light curve shows a power-law slope of  $\alpha = -1.6_{-0.2}^{+0.3}$  (see Figure 1). The Photon Counting spectrum from the first 3 orbits can be fit with an absorbed power law with  $\Gamma = 2.06_{-0.31}^{+0.35}$  and a total absorbing column of  $N_{\text{H}} = 1.2_{-0.6}^{+0.8} \times 10^{21}$   $\text{cm}^{-2}$ , which exceeds the Galactic value of  $3.75 \times 10^{20}$   $\text{cm}^{-2}$ . The 0.3–10 keV observed (unabsorbed) flux is  $2.34 \times 10^{-12}$  ( $3.14 \times 10^{-12}$ )  $\text{erg cm}^{-2} \text{ s}^{-1}$ , which is a count rate to flux conversion of  $1 \text{ count s}^{-1} = 3.96 \times 10^{-11}$   $\text{erg cm}^{-2} \text{ s}^{-1}$ .

## 3 UVOT Observation and Analysis

*Swift*/UVOT began settled observations of the field of GRB 080514B starting at  $T + 37005$  s. The optical afterglow reported by de Ugarte Postigo *et al.*, (2008 GCN Circ. 7719) is detected in the *b*, *u*, *uvw1*, and *uvm2* filters. The UVOT source position is RA, Dec (J2000.0) =  $322^{\circ}84463$ ,  $+0^{\circ}70789$ , which is

$$\text{RA(J2000.0)} = 21^{\text{h}}31^{\text{m}}22^{\text{s}}.71$$

$$\text{Dec(J2000.0)} = +00^{\circ}42'28''.4$$

with an estimated uncertainty of  $0''.60$  (radius, 90% confidence).

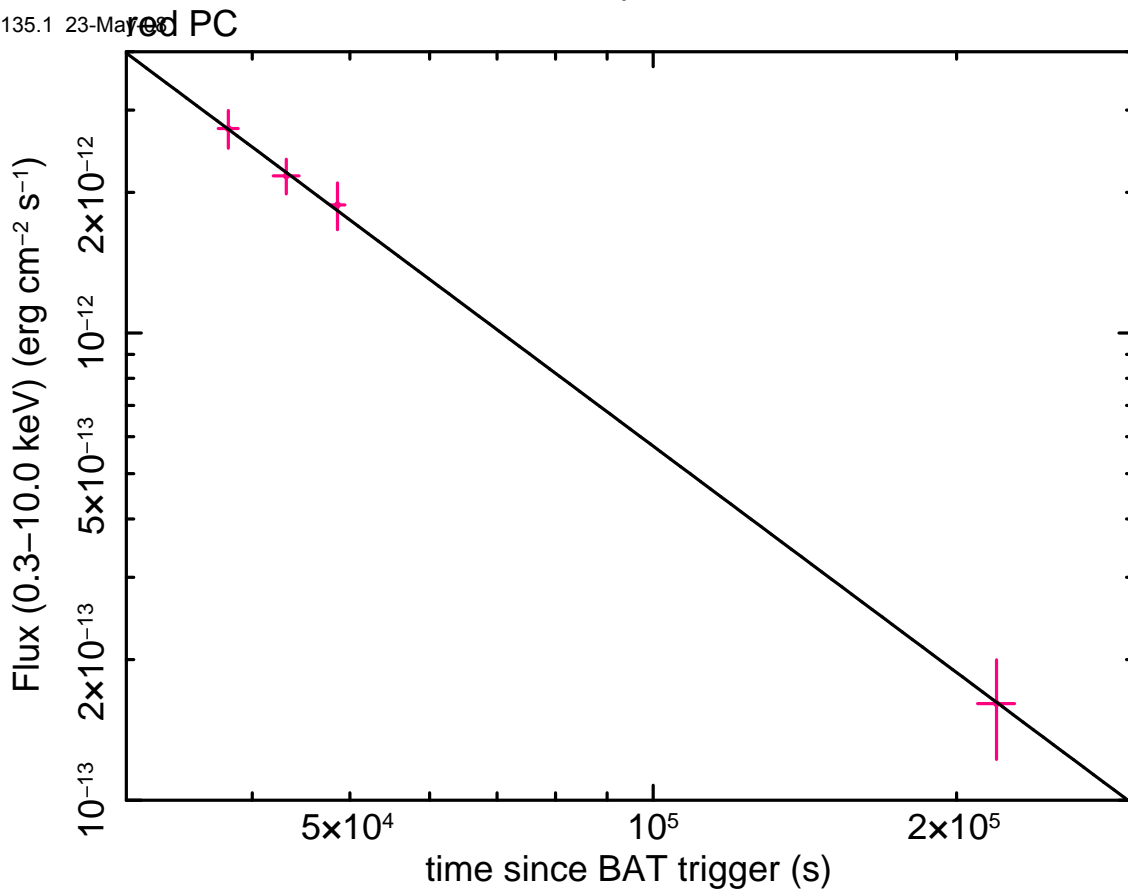


Figure 1: XRT light curve in  $\text{erg cm}^{-2} \text{s}^{-1}$  in the 0.3–10 keV band: Photon Counting mode (red).

The magnitudes and upper limits are given in Table 1 and are not corrected for the Galactic extinction along the line of sight corresponding to a reddening of  $E_{B-V} = 0.06$  mag (Schlegel *et al.*, 1998, ApJS, 500, 525). The photometry is on the UVOT flight system described in Poole *et al.* (2008, MNRAS, 383, 627). The non-detection in the uvw2 filter may indicate that the redshift is  $z \gtrsim 1.9$ .

Filter	$T_{\text{start}}$	$T_{\text{stop}}$	Exp(s)	Mag	Err
<i>v</i>	38 184	43 906	352	> 20.1	3-sigma UL
<i>b</i>	37 449	48 630	559	20.92	0.27
<i>u</i>	37 229	48 415	559	19.97	0.17
uvw1	37 005	48 198	1118	20.74	0.24
uvm2	38 333	44 537	1030	20.83	0.32
uvw2	37 601	49 441	2199	> 22.1	3-sigma UL
white	209 879	228 394	5360	> 23.3	3-sigma UL

Table 1: UVOT magnitudes and 3- $\sigma$  upper limits.