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SUPPLEMENTARY INFORMATION

I. Estimates for the Rate of Sub-energetic GRBs: To estimate the rate of sub-energetic events similar to GRB 980425 ($d = 36.1$ Mpc) and XRF 060218 ($d = 145$ Mpc), we consider only the satellite instruments with precise localization capability: *BeppoSAX* Wide Field Cameras (WFC), *High Energy Transient Explorer 2 (HETE-2)* Wide Field X-ray Monitor (WXM), and *Swift* Burst Alert Telescope (BAT). Inclusion of *INTEGRAL* would not significantly affect our results due to its low GRB detection rate. For these three instruments we adopt the detection threshold curves calculated by Band (2003, ApJ, 588, 945; 2006, ApJ, 644, 378) in units of peak photon flux per second ($F_{\rm peak}$; 1-1000 keV) as a function of the νF_ν spectral peak energy, $E_{\rm peak}$. We assume the shape of the prompt emission spectrum is fit by a broken power-law (Band *et al.* 1993, ApJ, 413, 281) such that $F_\nu \propto \nu^\alpha$ ($F_\nu \propto \nu^\beta$) for $h\nu < E_{\rm peak}$ ($h\nu > E_{\rm peak}$). Using the observed spectral parameters ($F_{\rm peak}$, $E_{\rm peak}$, α, β) we calculate the sensitivity of each instrument to each of the two events.

For GRB 980425, $F_{\rm peak} \approx 3 \times 10^{-7}$ erg cm^{-2} s^{-1} (24-1820 keV; Galama *et al.* 1998, Nature, 395, 670) $E_{\rm peak} \approx 160$ keV, $\alpha \approx -0.27$ and $\beta \approx -2$ (Jimenez, Band & Piran 2001, ApJ, 561, 171). Extrapolating to the 1-1000 keV band, we find that the peak photon flux is $F_p \approx 8.4$ ph cm^{-2} s^{-1} and thus the event could be detected to 120 (WFC), 60 (WXM) and 130 (BAT) Mpc.

For XRF 060218, $F_{\rm peak} \approx 5 \times 10^{-8}$ erg cm^{-2} s^{-1} (15-150 keV; Campana *et al.* 2006, Nature, submitted) $E_{\rm peak} \approx 4.9$ keV, $\beta \approx -1.5$ and α is not constrained (15-150 keV; Campana *et al.* 2006, Nature, submitted). We estimate $F_p \approx 1.9$ ph cm^{-2} s^{-1} and therefore XRF 060218 could be detected to 220 (WFC), 110 (WXM) and 180 (BAT) Mpc. We note that unlike other missions, the BAT detection threshold is significantly lower (factor of ~ 3) for unusually long duration events such as XRF 060218.

Next we estimate the effective monitoring time, T_m of each of the missions assuming their sky coverage, S and operation time, T. For the two Wide Field Cameras $S = 2 \times 0.123 = 0.246$ sr (Band, 2003, ApJ, 588, 945) and $T = 4$ yrs, and for WXM $S = 0.806$ sr and $T = 3$ yrs (Guetta *et al.*, 2004, ApJ, 615, L73). For BAT, $S = 2$ sr and $T = 1$ yr (S. Barthelmy, private communication). Thus we find monitoring times, $T_m = (T/4\pi)S$, of 0.08 (WFC), 0.19 (WXM), and 0.16 (BAT) yrs.

We estimate the sensitivity of these instruments to each of the events as $T_m \times V$; here V is the volume to which each event could be detected. Adopting the larger of the two sensitivities for each instrument we find 3.8×10^{-3} (WFC), 1.2×10^{-3} (WXM) and 3.7×10^{-3}

(BAT) Gpc^3 yr. Summing the sensitivities, we find that the rate of sub-energetic events is 230^{+490}_{-190} $\mathrm{Gpc}^{-3}\ \mathrm{yr}^{-1}$ where the errors are dominated by the 90% Poisson statistics for two detections (Gehrels, 1986, ApJ, 303, 336).

II. Estimates for the rate of Type Ibc supernovae like GRB 980425 and XRF 060218: To estimate the rate of SNe Ibc with strong, early radio emission comparable to that observed for sub-energetic bursts we only consider the 75 events (out of 144 optically-selected local SNe Ibc) with 3σ upper limits fainter than the observed GRB 980425 and XRF 060218 light-curves at that same epoch. We then assume various values for the true fraction of SNe Ibc with radio emission comparable (or higher) to that of XRF 060218 and GRB 980425 and determine the probability of finding null-detections for all 75 events for each assumed fraction. Larger fractions are ruled out with higher confidence. At 90% confidence, we rule out the scenario where $\gtrsim 3\%$ of SNe Ibc are as radio bright as XRF 060218 and GRB 980425. Adopting the local rate of SNe Ibc, $9^{+3}_{-5} \times 10^{-3}$ $\mathrm{Gpc}^{-3}\ \mathrm{yr}^{-1}$, as measured by Cappellaro *et al.* (1999, Astr. Astrophysics, 351, 459) and Dahlen *et al.* (2004, ApJ, 613, 189), we conclude that the volumetric rate of events like GRB 980425 and XRF 060218 is less than 3% of the local SNe Ibc sample, or $\lesssim 300$ $\mathrm{Gpc}^{-3}\ \mathrm{yr}^{-1}$.

Repeating this analysis for the subset of broad-lined SNe Ibc, we find that at 90% confidence we can rule out the scenario where $\gtrsim 30\%$ of local, optically selected BL SNe Ibc produce radio emission similar to that observed for GRB 980425 and XRF 060218.