



<b>Publication Year</b>	2019
<b>Acceptance in OA @INAF</b>	2024-02-28T09:15:20Z
<b>Title</b>	LIGO-Virgo S190512at: AGILE GRID observations
<b>Authors</b>	PITTORI, Carlotta; Ursi, A.; TAVANI, Marco; Casentini, C.; PIANO, Giovanni; et al.
<b>Handle</b>	<a href="http://hdl.handle.net/20.500.12386/34835">http://hdl.handle.net/20.500.12386/34835</a>
<b>Journal</b>	GRB Coordinates Network
<b>Number</b>	24519

TITLE: GCN CIRCULAR  
NUMBER: 24519  
SUBJECT: LIGO-Virgo S190512at: AGILE GRID observations  
DATE: 19/05/13 15:40:22 GMT  
FROM: Carlotta Pittori at ASI SSDC, INAF-OAR <carlotta.pittori@ssdc.asi.it>

C. Pittori(SSDC, and INAF/OAR), A. Ursi(INAF/IAPS), M. Tavani (INAF/IAPS, and Univ. Roma Tor Vergata), C. Casentini, G. Piano, M. Cardillo (INAF/IAPS), F. Lucarelli, F. Verrecchia(SSDC, and INAF/OAR), A. Bulgarelli, N. Parmiggiani (INAF/OAS-Bologna), M. Pilia(INAF/OA-Cagliari), F. Longo (Univ. Trieste, and INFN Trieste), report on behalf of the AGILE Team:

In response to the LIGO-Virgo GW event S190512at  $T_0 = 2019-05-12 18:07:14.422$  UTC (GCN #24503), analysis of AGILE data shows that the satellite at  $T_0$  was in the South Atlantic Anomaly (SAA). Scientific telemetry was inhibited during the time interval ( $T_0 - 13$  s;  $T_0 + 834$  s).

We performed a preliminary analysis of the AGILE Gamma-Ray Imaging Detector (GRID) in the first interval available after the SAA, between  $T_0 + 840$ s and  $T_0 + 940$ s. In this time interval, due to Earth occultation and Solar Panel constraints, the GRID exposure covered only about 1% of the LIGO/Virgo 90% c.l. localization region (LR), observed at off-axis angles of about 60 deg.

An analysis of the data in the energy range 50 MeV - 10 GeV in this integration time was performed, and preliminary 3-sigma upper limits (UL) values within the small accessible LIGO/Virgo localization region are: from  $8.9e-7$  erg  $cm^{-2}$   $s^{-1}$  to  $1.0e-6$  erg  $cm^{-2}$   $s^{-1}$  for an integration time of 100s.

We also performed a search for a transient counterpart in the time window from  $T_0 + 1$  ks to  $T_0 + 10$  ks. In this time interval due to Solar Panel constraints, the GRID exposure covered about 40% of the LR, observed at off-axis angles from about 55 to 100 deg. Preliminary 3-sigma upper limits values are: from  $2.8e-9$  erg  $cm^{-2}$   $s^{-1}$  to  $1.0e-8$  erg  $cm^{-2}$   $s^{-1}$  for an integration time of 9 ks.

An image of the AGILE-GRID exposure of S190512at in the time window from  $T_0 + 1$  ks to  $T_0 + 10$  ks is available at the site:

[https://tools.ssdsc.asi.it/ImgView/Agile/AGILE\\_exp\\_T0p1k-T0p10k\\_S190512at9](https://tools.ssdsc.asi.it/ImgView/Agile/AGILE_exp_T0p1k-T0p10k_S190512at9)

These measurements were obtained with AGILE observing a large portion of the sky in spinning mode.