



UvA-DARE (Digital Academic Repository)

Bright burst detections from FRB 20220912A at 332 MHz using the Westerbork-RT1 25-m telescope

Ould Boukattine, O.S.; Hermann, W.; Gawronski, M.; Gopinath, A.; Hessels, J.W.T.; Keane, E.F.; Blaauw, R.; Sluman, J.J.; Mulder, H.; McKenna, D.J.; Snelders, M.P.; Kirsten, F.; Nimmo, K.

Publication date

2022

Document Version

Final published version

Published in

The astronomer's telegram

License

Unspecified

[Link to publication](#)

Citation for published version (APA):

Ould Boukattine, O. S., Hermann, W., Gawronski, M., Gopinath, A., Hessels, J. W. T., Keane, E. F., Blaauw, R., Sluman, J. J., Mulder, H., McKenna, D. J., Snelders, M. P., Kirsten, F., & Nimmo, K. (2022). Bright burst detections from FRB 20220912A at 332 MHz using the Westerbork-RT1 25-m telescope. *The astronomer's telegram*, 15817. <https://www.astronomerstelegram.org/?read=15817>

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

UvA-DARE is a service provided by the library of the University of Amsterdam (<https://dare.uva.nl>)

ATel On

Patreon
Mastodon
Twitter

The Astronomer's Telegram

Post | Search | Policies
Credential | Feeds | Email

24 Feb 2023; 13:41 UT

This space for free for your conference.



The First
UVEX
Community Workshop
Synergies &
New Opportunities
March 13-15, 2023
Caltech, Pasadena, CA

Thanks to Patrons, The Astronomer's Telegram is free to read, free to publish and always will be. Thank you.

[[Previous](#) | [Next](#) | [ADS](#)]

Bright burst detections from FRB 20220912A at 332 MHz using the Westerbork-RT1 25-m telescope

ATel #15817; *O. S. Ould-Boukattine (ASTRON, UvA), W. Herrmann (Astropeiler Stockert e. V.), M. Gawronski (NCU, Torun), A. Gopinath (UvA), J. W.T. Hessels (UvA, ASTRON), E. F. Keane (TCD), R. Blaauw (ASTRON), J. J. Sluman (ASTRON), H. Mulder (ASTRON), D. J. McKenna (DIAS, TCD), M. P. Snelders (ASTRON, UvA), F. Kirsten (Chalmers), K. Nimmo (MIT)*

on 20 Dec 2022; 15:11 UT

Credential Certification: Jason W.T. Hessels (j.w.t.hessels@uva.nl)

Subjects: Radio, Fast Radio Burst

[Tweet](#)

We report the detections of bright fast radio bursts from FRB 20220912A using the Westerbork-RT1 25-m telescope at 332 MHz.

After the discovery of the highly active repeater FRB 20220912A by CHIME/FRB (ATel #15679), we started a high-cadence monitoring campaign using 25-m and 32-m class European radio telescopes. We have been observing the source almost daily at C-, L-, and P-band using the Stockert (Germany), Westerbork (Netherlands) and Torun (Poland) radio telescopes. Depending on availability of the telescopes we observe simultaneously at complementary wavelengths. Additionally we have had overlapping coverage with the LOFAR Core stations in the Netherlands and the international IE613 LOFAR station in Ireland.

Here we report the discovery of four bright bursts detected during 156 h of observing at P-band. Observations were conducted at a central frequency of 332 MHz with a bandwidth of 64 MHz using the Westerbork RT-1 radio telescope. We have a significant drop in sensitivity in the top 8 MHz and therefore mask these channels. The receiver has a system equivalent flux density (SEFD) of 2100 Jy.

The properties of the detected bursts are:

Related

- [15817](#) **Bright burst detections from FRB 20220912A at 332 MHz using the Westerbork-RT1 25-m telescope**
- [15806](#) uGMRT detection of more than a hundred bursts from FRB 20220912A in 300 - 750 MHz frequency range
- [15791](#) Detection of bursts from FRB 20220912A at 1.4 and 2.2 GHz
- [15758](#) Detection of FRB 20220912A at 750 MHz with the Tianlai Dish Pathfinder Array
- [15757](#) A descriptive title
- [15735](#) Bright radio bursts from the active FRB 20220912A detected with the Allen Telescope Array
- [15734](#) Detection of a bright burst from FRB 20220912A at 2.3 GHz with the Arecibo 12-m telescope
- [15733](#) FAST detection of high activity FRB 20220912A
- [15727](#) PRECISE detects high activity from FRB 20220912A at 1.4 GHz but no bursts at 5 GHz using the Effelsberg telescope
- [15723](#) Extreme activity at 1400 MHz from FRB 20220912A
- [15720](#) Redshift of the candidate host galaxy of FRB 20220912A
- [15716](#) Erratum to ATel #15693
- [15713](#) Detection of FRB 20220912A at 111 MHz with BSA radio telescope
- [15699](#) Simultaneous Optical Non-detections of FRB 20220912A with KeplerCam
- [15696](#) Detection of a burst from the newly discovered active repeater FRB20220912A with the Northern Cross radio telescope (CORRIGENDUM)
- [15695](#) Detection of a burst from the newly discovered active repeater FRB20220912A with the Northern Cross radio telescope
- [15693](#) Detection and localization of FRB 20220912A with DSA-110
- [15691](#) Bright Pulses at 1400 MHz from FRB20220912A
- [15679](#) Nine Bursts in Three Days from a Newly Discovered

Burst 1:

Fluence: 426 +/- 86 Jy ms

Arrival time (MJD, TDB): 59905.8871460520

Burst 2:

Fluence: 176 +/- 35 Jy ms

Arrival time (MJD, TDB): 59911.8835634820

Burst 3:

Fluence: 438 +/- 88 Jy ms

Arrival time (MJD, TDB): 59912.9809171292

Burst 4:

Fluence: 892 +/- 179 Jy ms

Arrival time (MJD, TDB): 59922.8202534060

The arrival time is referenced to infinite frequency at the solar system barycentre (in TDB) using a dispersion measure (DM) of 219.46 pc cm⁻³, as determined by CHIME/FRB in the discovery ATel (#15679), and DM constant of 1/2.41e-4 MHz² pc⁻¹ cm³ s.

Each of the four detected bursts had overlap with a subset of the following observations, where we found no counterparts: 151 MHz (VHF-band, IE613 LOFAR station), 1.37 GHz (L-band, Stockert), 1.41 GHz (L-band, Torun) and 4.6 GHz (C-band, Torun). We can place an upper limit on the fluence assuming an 8-sigma 1-ms detection threshold of 30 Jy ms, 7 Jy ms, 14 Jy ms and 11 Jy ms, respectively.

During our campaign we have also detected many tens of bursts at 1.4 GHz (L-band) ranging between 10-1000 Jy ms while no bursts were found at 4.6 GHz (C-band) in hundreds of observing hours, see also ATel #15727. The analysis of all detected bursts, in both L- and P-band, are currently in preparation as part of a forthcoming paper.

Dynamic spectrum of the brightest burst (Burst 4)

[[Telegram Index](#)]

R. E. Rutledge, Editor-in-Chief

rrutledge@astronomerstelegam.org

Derek Fox, Editor

dfox@astronomerstelegam.org