In this directory we share the update version of the catalogue presented by Bondi et al. (2024) and derived from 72 h of observations of the EDFN obtained with the LOFAR High Band Antenna (HBA) at 144 MHz. :
lofar_10sqdeg_edfpos_v4.1_gt5.fits

We then also share the catalogue with the multi-wavelength informations:
LOFAR_EDFN.fits
The detailed description of the UV, optical and NIR cross-matches are described in Bisigello et al. (in prep.) and it is based on the likelihood ratio.

When using this paper please cite:

- Bisigello L., Giulietti M., Prandoni I., Bondi M., et al. in prep.
- Bondi M., Scaramella R., Zamorani G., Ciliegi P., Vitello F., Arias M., Best P.N., et al., 2024, A&A, 683, A179. doi:10.1051/0004-6361/202348333

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Below we report the list of columns present in the catalogue. When a column is not available for a specific source, the value is fixed to -99.9.

COLUMNS:

1. Source_id: ID of the radio source.
2. RA: Original radio radio right ascension [deg]
3. E_RA: uncertainties of the right ascension [deg]
4. RA_new: radio right ascension after astrometry correction (see Sec. 3.3 in Bisigello et al. in prep.) [deg]
5. DEC: original radio declination [deg]
6. E_DEC: uncertainties of the radio declination [deg]
7. RA_new: radio declination after astrometry correction (see Sec. 3.3 in Bisigello et al. in prep.) [deg]
8. Total_flux: total radio flux [Jy]
9. E_Total_flux: uncertainties on the total radio flux [Jy]
10. Peak_flux: peak radio flux [Jy/beam]
11. E_Peak_flux: uncertainties on the peak radio flux [Jy/beam]
12. Maj: major axis[deg]
13. E_Maj: uncertainties on the major axis [deg]
14. Min: minor axis [deg]
15. E_Min: uncertainties on the minor axis [deg]
16. PA: position angle[deg]
17. E_PA: uncertainties on the position angle[deg]
18. S_Code: classification from PyBDSF
19. mask: if the radio source is inside the star mask
20. ID_IRAC: ID of the IRAC source
21. RA_IRAC: IRAC right ascension [deg]
22. DEC_IRAC: IRAC declination [deg]
23. MAG_AUTO_CH1: Kron AB magnitude in the [3.6] filter
24. MAGERR_AUTO_CH1: error of the Kron AB magnitude in the [3.6] filter
25. MAG_AUTO_CH2: Kron AB magnitude in the [4.5] filter
26. MAGERR_AUTO_CH2: error of the Kron AB magnitude in the [4.5] filter
27. MAG_AUTO_CH3: Kron AB magnitude in the [5.8] filter
28. MAGERR_AUTO_CH3: error of the Kron AB magnitude in the [5.8] filter
29. MAG_AUTO_CH4: Kron AB magnitude in the [8.0] filter

30. MAGERR_AUTO_CH4: error of the Kron AB magnitude in the [8.0] filter
31. ID_opt: ID of the optical source, as taken from Taylor et al.(2023)
32. RA_opt: optical right ascension [deg]
33. DEC_opt: optical declination [deg]
34. g_kron_mwc: Kron AB magnitude in the g filter, corrected for galactic extinction
35. g_kronerr: error of the Kron AB magnitude in the g filter
36. r_kron_mwc: Kron AB magnitude in the r filter, corrected for galactic extinction
37. r_kronerr: error of the Kron AB magnitude in the r filter
38. i_kron_mwc: Kron AB magnitude in the i filter, corrected for galactic extinction
39. i_kronerr: error of the Kron AB magnitude in the i filter
40. z_kron_mwc: Kron AB magnitude in the z filter, corrected for galactic extinction
41. z_kronerr: error of the Kron AB magnitude in the z filter
42. y_kron_mwc: Kron AB magnitude in the y filter, corrected for galactic extinction
43. y_kronerr: error of the Kron AB magnitude in the y filter
44. n921_kron_mwc: Kron AB magnitude in the NB921 filter, corrected for galactic extinction
45. n921_kronerr: error of the Kron AB magnitude in the NB921 filter
46. n816_kron_mwc: Kron AB magnitude in the NB816 filter, corrected for galactic extinction
47. n816_kronerr: error of the Kron AB magnitude in the NB816 filter
48. mask_optnir: if the optical or NIR source is inside the star mask
49. multi-opt: is true if multiple matches were possible between optical and NIR
50. LR_mc: colour-magnitude LR. Reliable matches have values larger than the threshold LRth = 0.0079.
51. LR_ID: if the sources has been selected only based on the LR, without visual inspection
52. PACS_70: AB magnitude of the PACS blue filter at 70μm
53. PACS_70_err: AB magnitude error of the PACS blue filter at 70μm
54. PACS_100: AB magnitude of the PACS green filter at 100μm
55. PACS_100_err: AB magnitude error of the PACS green filter at 100μm
56. PACS_160: AB magnitude of the PACS red filter at 160μm
57. PACS_160_err: AB magnitude error of the PACS red filter at 160μm
58. SPIRE_250: AB magnitude of the SPIRE short filter at 250μm
59. SPIRE_250_err: AB magnitude error of the SPIRE short filter at 250μm
60. SPIRE_350: AB magnitude of the SPIRE medium filter at 250μm
61. SPIRE_350_err: AB magnitude error of the SPIRE medium filter at 350μm
62. SPIRE_500: AB magnitude of the SPIRE long filter at 500μm
63. SPIRE_500_err: AB magnitude error of the SPIRE long filter at 500μm
64. ID_DAWN: ID of the source in the Cosmic Dawn Survey catalogue by Euclid Collaboration: Zalesky et al. 2024
65. RA_DAWN: right ascension from the Cosmic Dawn Survey [deg]
66. DEC_DAWN: declination from the Cosmic Dawn Survey [deg]
67. CFHT_u_mwc: AB magnitude of the u band, corrected for galactic extinction
68. CFHT_u_err: error of AB magnitude of the u band
69. z_phot_bayesian: photometric redshift, is the Bayesian estimation from CIGALE
70. z_phot_bayesian_err: uncertainties on the photometric redshift, is the Bayesian estimation from CIGALE
71. z_phot_best: photometric redshift, is the estimation from the template with the minimum χ2 from CIGALE
72. educed_chi_square: reduced χ2 from CIGALE, corresponding to the z_phot_best photometric redshift
73. z_spec: spectroscopic redshift from DESI

74. z_spec_err: uncertainties on the spectroscopic redshift from DESI