LAT PROJECT DOCUMENT CHANGE NOTICE (DCN)

DCN No. LAT-XR-09053-01

SHEET 1 **OF** 1

ORIGINATOR: D. Smith/D. Thompson	**PHONE:**	**DATE:** March 21, 2008
CHANGE TITLE: New Release		**ORG:**

DOCUMENT NUMBER	TITLE	NEW REV.
LAT-MD-09047	MOU for a Pulsar Timing Consortium	01

Release 1.0

REASON FOR CHANGE:

ACTION TAKEN: ☒ **Change(s) included in new release** ☐ **DCN attached to document(s), changes to be included in next revision**
☐ **Other (specify):**

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SAFETY, COST, SCHEDULE, REQUIREMENTS IMPACT? ☐ **YES** ☒ **NO**
If yes, CCB approval is required. Enter change request number:

APPROVALS	DATE	OTHER APPROVALS (specify):	DATE
Peter Michelson (on file) David Thompson (on file) D.A. Smith (on file) Steve Thorsett (on file) Simon Johnston (on file) Michael Kramer (on file) Ismael Cognard (on file) Fernando Camilo (on file) Paulo Friere (on file) Eric Gotthelf (on file) Vicky Kaspi (on file) Frank Marshall (on file) Cristobal Espinoza (on file) George Hobbs (on file) Margaret Anne Livingston (on file) Andrew Lyne (on file) Dick Manchester (on file) Maura McLaughlin (on file) Mallory Roberts (on file) Aris Noutsos (on file) Scott Ransom (on file) G. Theureau (on file) Patrick Weltevrede (on file)			

DCN No: LAT-XR-

PULSAR TIMING CONSORTIUM	Document # **LAT-MD-09047-01**	Date 21 March 2008
	Author(s) D.A. Smith D.J. Thompson	Supersedes
	Subsystem/Office Multi-wavelength coordination	
Document Title **Memo of Understanding for a Pulsar Timing Consortium**		

Gamma-ray Large Area Space Telescope (GLAST)

Large Area Telescope (LAT)

Memo of Understanding for a

Pulsar Timing Consortium

DOCUMENT APPROVAL

Date	Approved by	Name, role or affiliation
		Peter J. Michelson, LAT PI
		David J. Thompson, LAT multi-wavelength coordinator
		David A. Smith, LAT pulsar timing campaign coordinator
		Stephen Thorsett, GLAST pulsar interdisciplinary scientist
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		Michael Kramer, Jodrell Bank, Jodrell timing PI
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		Paulo Friere, NAIC, Arecibo timing PI
		Eric Gotthelf, Columbia Univ., RXTE timing PI
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		Scott Ransom, NRAO
		G. Theureau, Nançay
		Patrick Weltevrede, ATNF

CHANGE HISTORY LOG

Revision	Effective Date	Description of Changes
00	11 February 2008	Initial draft by David Smith
01	12 February 2008	Comments/additions by Dave Thompson
02	19 February 2008	Integrated remarks from the timing community (das,djt)
03	23 February 2008	Add signature page and template of timer's letter of intent, as per LAT PI's request. Define L&EO ; Cycle 1 ; Cycle 2 mission epochs as per timers' request.
04	5-6 March 2008	Revise wording about public release of data; include explicit wording about timing scientist participation in paper preparation; add clause for non-exclusive data use. Change number of pulsars to 225.
05	13 March 2008	Clarify working relationship of timing consortium to LAT team, including confidentiality note. Clean up wording. Remove duplicate listing of consortium members.

1. Purpose

The GLAST Large Area Telescope (LAT) is a long-awaited opportunity to increase the understanding of pulsars significantly. Gamma-ray pulsar studies are enhanced by the availability of contemporaneous timing ephemerides from other wavelengths. Up to hundreds of known pulsars are viable candidates for gamma emission, justifying a large, coordinated timing campaign over several years. LAT data analysis is complex and members of the instrument team provide high quality gamma ray measurements. LAT photon data are available only to team members during Cycle 1.

[The Cycle 1 mission epoch is the approximately one-year period beginning at the end of the 60-day satellite and instrument commissioning period ("L&EO", for Launch & Early Operations). The end of Cycle 1 is when NASA makes the first year photon data public. Cycle 2 is the period following Cycle 1. If the commissioning process goes smoothly then LAT data useful for pulsar searches will be acquired during L&EO.]

We believe that combining our efforts will bring a scientific return whose sum is richer than if we worked apart. This document describes an agreement between radio, X-ray, and gamma

astronomers to share expertise and resources, specifically pertaining to issues such as the authorship of articles and the sharing of unpublished data. Those signing this agreement will be referred to as the "timing consortium" in the rest of this document.

2. Overview of the pulsar timing campaign

The timing campaign is described in an article to be submitted to A&A in Spring 2008 and co-authored by many, but not necessarily all, of the members of the timing consortium. It contains a list of 225 pulsars with spindown energy $dE/dt > 1 \times 10^{34}$. Those with $dE/dt < 3 \times 10^{34}$ erg/s are considered to be "worthwhile" candidates for GLAST. Those with $dE/dt > 3 \times 10^{34}$ erg/s are called "must-do". Alternate schemes to select gamma candidates mostly overlap this list – the candidate selection details are beyond the scope of this document. A copy of that list is attached as an appendix.

This MoU concerns only these pulsars. Sharing of timing solutions and LAT results for other known pulsars, or pulsars discovered subsequently, can be arranged outside of the consortium, as described in section 7.

Amongst the justifications for such a long list of gamma candidates is the LAT field-of-view of ~20% of the sky. During Cycle 1 data will be acquired mainly in "survey mode", where the entire sky will be surveyed every two orbits (3 hours). LAT's sensitivity is such that the Vela pulsar is detected well enough in 6 hours to consistently determine the pulsar peak position to better than 800 microseconds. For weaker pulsars, however, LAT data will have to be accumulated for an extended time interval – years in some cases – before a gamma-ray signal will emerge.

It is trivial to add additional timing solutions for any pulsar beyond those on the target list. Because the gamma-ray data are being accumulated continuously, the key requirement on any timing solution is that it be phase-locked over a long enough time interval to make a gamma-ray analysis worthwhile.

3. Telescope time allocation

The majority of the high dE/dt pulsars are being timed with the Parkes, Jodrell, and Nançay telescopes. The Green Bank and Arecibo telescopes are timing a smaller number of radio-faint pulsars. The RXTE X-ray satellite is also timing a few radio-quiet pulsars.

Access to these instruments is highly competitive, and there is competition for the funding necessary to analyze and interpret the data. Amongst the criteria valued by time allocation and funding committees is the number and quality of refereed publications produced from resources previously granted. One goal of the consortium is to ensure recognition of results obtained from the timing campaign, in order to assure the continuity of the timing campaign over the life of the GLAST mission. The long-term health of the consortium will enhance the overall scientific return from the LAT instrument.

The efficient use of instrument time requires organization of who-monitors-which pulsar. Patrick Weltevrede (ATNF) will coordinate the timing campaign. He will maintain a table showing which observatories are monitoring the different pulsars, to assure that none are neglected.

4. Pulsar Ephemerides on the Bordeaux and NASA GSFC Data Servers

Timing ephemerides are the product of significant expertise applied to difficult-to-obtain data, and are essential for the study of gamma ray pulsations in most cases. To maximize the scientific return from the GLAST mission, a balance must be found between the need to sustain repeated timing over several years, and the need to open the data to the broadest scrutiny possible.

Timing solutions provided to the LAT team (".par files" and ancillary files such as templates, when provided) will be stored at the CENBG (Centre d'Etudes Nucléaires de Bordeaux-Gradignan). A web-interface will allow LAT and consortium members to create "D4.fits" files, the file format used by the LAT "Science Tools". The timing solutions remain the intellectual property of their creators at this step, to be shared outside the LAT collaboration only with the consent of their owners. David Smith is the point-of-contact between the LAT and consortium members. Data portal users will be invited to contact members of the consortium to obtain ephemerides not available on the public servers. Later in the mission, the intent is for the CENBG archive and/or the web functionality to migrate to the GSSC (GLAST Science Support Center) at the Goddard Space Flight Center in Greenbelt, Maryland.

At the end of the Cycle 1 all-sky survey, LAT photon data will be posted on the public data portals at the GSSC. New data will be made public as processed (typically a few days after detection). It is the intention of the LAT team to work with the timing consortium to publish primary pulsar results during Cycle 1, so that a public release of timing information will serve primarily to allow other scientists to confirm the gamma-ray pulsar results.

ARTICLE I

Consortium members agree to make a best effort to:

- *publish a large fraction of the timing solutions acquired in this campaign by the end of Cycle 1;*
- *put Cycle 1 timing solutions into the GLAST public database for those pulsars for which LAT detects pulsed emission, with the submission to occur at the time the paper is accepted; and*
- *put the Cycle 1 timing solutions for all 225 pulsars into the public database 6 months after the end of Cycle 1.*

The public database documentation will encourage users to cite the timing parameter authors for published results or to work with the timing scientists directly. Users interested in timing solutions not in the database will be directed to the astronomers monitoring those objects.

A large number of high dE/dt pulsar rotation ephemerides will be updated regularly in the years following. The timing consortium is not obligated to make such information public, although the benefits to the science may provide a strong incentive to do so.

5. LAT publication policy

LAT guidelines for multi-wavelength work are at
https://confluence.slac.stanford.edu/display/GLAMCOG/
The LAT collaboration has defined two publication categories called I and II. The LAT "publication board" assigns papers to categories. Presently, the publication board is Peter Michelson, Steve Ritz, Neil Gehrels, Pat Nolan, and Julie McEnery.

Category I papers are intended to be "major" results. They may be signed by any LAT team member who so desires (over 100 people), as well as by scientists from outside the LAT team contributing to that work. Generally they will be in alphabetical order but the possibility exists that the first authors be the study leaders. During Cycle 1 most papers are likely to be Category I.

Category II papers are signed only by those having contributed directly to that work. The order of authorship is determined by the authors and approved by the publications board.

It should be emphasized that there is no automatic authorship on any LAT paper in either category. This rule applies to LAT team members as well as outside contributors. For each paper, the eligible scientists are invited to participate in the paper preparation and sign the paper, but each individual must actively inform the lead author that he/she wishes to be an author. The LAT team will inform timing consortium members of preliminary LAT pulsar detections based on timing solutions developed by the timing consortium. Members of the timing consortium who choose to participate in a paper based on such results will be expected to contribute to the analysis, results and text of the paper (in addition to the timing information already provided). All authors are expected to be able to defend the paper or major portions of it.

6. Authorship for consortium members

The timing campaign resembles other large multi-wavelength efforts for the GLAST mission, such as radio and optical blazer flare monitoring. It is however unique in its duration over the 5 to 10 year mission lifetime, and especially by the need for coordination: *without a coordinated, long-term campaign, a few "popular" pulsars could be monitored more than strictly necessary, by multiple instruments, and a large number of "secondary" pulsars could be neglected. LAT pulsar science would suffer in consequence.* The campaign thus requires some "self-sacrifice" by some pulsar-timers, who will agree to track secondary pulsars instead of "best candidates". To make this workload sharing acceptable to all timers, the LAT collaboration agrees to the following:

ARTICLE II

Members of the pulsar timing consortium are eligible to participate in the preparation of and to sign any LAT paper using timing data provided by the consortium, whether or not that individual member contributed ephemeredes for the pulsars studied in that paper.

In return, the LAT collaboration asks that consortium members share all timing data on the 225 pulsars of interest to the LAT with the LAT team in a timely manner.

The LAT collaboration holds that privileged access to LAT pulsar results and instrument team expertise has high value, justifying a two-year commitment by the consortium, but accepts one year. At that time the consortium members will discuss renewal. The LAT collaboration hopes

that radio and X-ray astronomers will find it in their interest to continue to share timing solutions with LAT team members even after the initial commitment ends and LAT data have become public.

ARTICLE III

The agreement is valid until LAT photon data are made public at the end of Cycle 1, but applies to articles-in-preparation for which a significant draft exists at that time.

7. Data & knowledge sharing outside of the consortium

Scientists with timing solutions for pulsars not monitored by the consortium may share those ephemerides with the LAT team at any time, thereby allowing gamma pulsation searches in close coordination with LAT team members. Resulting publications would be co-authored with the LAT team.

Scientists able to contribute significantly to the modeling of specific objects and/or interpretation of LAT and/or multi-wavelength data may also be invited by the LAT team to collaborate on specific studies, in which case they would co-author the resulting publications.

All agreements in this Memorandum are non-exclusive. Timing scientists can share the timing solutions with other observers. LAT scientists can publish results that do not depend on these timing solutions.

All members of the timing consortium agree to treat preliminary LAT results in a confidential manner, not to be shared outside the timing consortium prior to publication.

Appendix: list of the 225 pulsars, with a first estimate of the timing responsibility:

List of 224 pulsars with log(Edot) > 34.0 In total there are 215 pulsars observed

(snapshot of http://www.atnf.csiro.au/people/joh414/glast/ on 18 May 2008)

JNAME	BNAME	NOTE	PERIOD (sec)	DM	AGE (log)	EDOT (log)	DIST (kpc)	TELESCOPE	PI
J0034-0534	*	MSP	0.002	13.76	9.78	34.48	0.5	LOVELL	Kramer
J0034-0534	*	MSP	0.002	13.76	9.78	34.48	0.5	NANCAY	Cognard
J0117+5914	B0114+58	*	0.101	49.42	5.44	35.34	2.2	LOVELL	Kramer
J0117+5914	B0114+58	*	0.101	49.42	5.44	35.34	2.2	NANCAY	Cognard
J0139+5814	B0136+57	*	0.272	73.78	5.61	34.32	2.9	LOVELL	Kramer
J0139+5814	B0136+57	*	0.272	73.78	5.61	34.32	2.9	NANCAY	Cognard
J0205+6449	*	*	0.066	140.70	3.73	37.43	3.2	LOVELL	Kramer
J0205+6449	*	*	0.066	140.70	3.73	37.43	3.2	NANCAY	Cognard
J0205+6449	*	*	0.066	140.70	3.73	37.43	3.2	GBT	Camilo
J0218+4232	*	MSP	0.002	61.25	8.68	35.38	2.7	LOVELL	Kramer
J0218+4232	*	MSP	0.002	61.25	8.68	35.38	2.7	NANCAY	Cognard
J0358+5413	B0355+54	*	0.156	57.14	5.75	34.65	1.1	LOVELL	Kramer
J0358+5413	B0355+54	*	0.156	57.14	5.75	34.65	1.1	NANCAY	Cognard
J0437-4715	*	MSP	0.006	2.64	9.20	34.08	0.1	PARKES	Manchester
J0455-6951	B0456-69	LMC	0.320	94.89	5.70	34.08	49.4	none	none
J0534+2200	B0531+21	Crab	0.033	56.79	3.09	38.66	2.0	LOVELL	Kramer
J0534+2200	B0531+21	Crab	0.033	56.79	3.09	38.66	2.0	NANCAY	Cognard
J0535-6935	*	LMC	0.201	93.70	5.44	34.75	49.4	none	none
J0537-6910	*	X-ray	0.016	*	3.69	38.69	49.4	RXTE	Marshall
J0538+2817	*	*	0.143	39.57	5.79	34.69	1.5	LOVELL	Kramer
J0538+2817	*	*	0.143	39.57	5.79	34.69	1.5	NANCAY	Cognard
J0540-6919	B0540-69	LMC	0.051	146.50	3.22	38.18	49.4	RXTE	Marshall
J0543+2329	B0540+23	*	0.246	77.71	5.40	34.61	2.1	PARKES	Weltevrede
J0543+2329	B0540+23	*	0.246	77.71	5.40	34.61	2.1	LOVELL	Kramer
J0543+2329	B0540+23	*	0.246	77.71	5.40	34.61	2.1	NANCAY	Cognard

JNAME	BNAME	NOTE	PERIOD (sec)	DM	AGE (log)	EDOT (log)	DIST (kpc)	TELESCOPE	PI
J0613-0200	*	MSP	0.003	38.78	9.70	34.11	1.7	PARKES	Manchester
J0613-0200	*	MSP	0.003	38.78	9.70	34.11	1.7	LOVELL	Kramer
J0613-0200	*	MSP	0.003	38.78	9.70	34.11	1.7	NANCAY	Cognard
J0614+2229	B0611+22	*	0.335	96.91	4.95	34.79	2.1	LOVELL	Kramer
J0614+2229	B0611+22	*	0.335	96.91	4.95	34.79	2.1	NANCAY	Cognard
J0627+0705	*	*	0.476	138.20	5.40	34.04	*	PARKES	Weltevrede
J0627+0705	*	*	0.476	138.20	5.40	34.04	*	LOVELL	Kramer
J0631+1036	*	*	0.288	125.40	4.64	35.23	3.7	LOVELL	Kramer
J0631+1036	*	*	0.288	125.40	4.64	35.23	3.7	NANCAY	Cognard
J0633+1746	*	Geminga	0.237	*	5.53	34.51	0.2	none	none
J0659+1414	B0656+14	*	0.385	13.98	5.05	34.58	0.3	PARKES	Weltevrede
J0659+1414	B0656+14	*	0.385	13.98	5.05	34.58	0.3	LOVELL	Kramer
J0659+1414	B0656+14	*	0.385	13.98	5.05	34.58	0.3	NANCAY	Cognard
J0729-1448	*	*	0.252	92.30	4.55	35.45	3.5	PARKES	Weltevrede
J0729-1448	*	*	0.252	92.30	4.55	35.45	3.5	LOVELL	Kramer
J0729-1448	*	*	0.252	92.30	4.55	35.45	3.5	NANCAY	Cognard
J0742-2822	B0740-28	*	0.167	73.78	5.20	35.15	2.1	PARKES	Weltevrede
J0742-2822	B0740-28	*	0.167	73.78	5.20	35.15	2.1	LOVELL	Kramer
J0742-2822	B0740-28	*	0.167	73.78	5.20	35.15	2.1	NANCAY	Cognard
J0745-5353	B0743-53	*	0.215	122.30	6.10	34.04	0.2	PARKES	Weltevrede
J0821-3824	*	*	0.125	195.60	5.91	34.70	*	PARKES	Weltevrede
J0834-4159	*	*	0.121	240.50	5.64	35.00	1.7	PARKES	Weltevrede
J0835-4510	B0833-45	Vela	0.089	67.99	4.05	36.84	0.3	PARKES	Weltevrede
J0855-4644	*	*	0.065	238.20	5.15	36.04	3.9	PARKES	Weltevrede
J0857-4424	*	*	0.327	184.43	5.35	34.41	1.9	PARKES	Weltevrede
J0901-4624	*	*	0.442	198.80	4.90	34.60	2.8	PARKES	Weltevrede
J0905-5127	*	*	0.346	196.43	5.34	34.38	3.3	PARKES	Weltevrede
J0908-4913	B0906-49	*	0.107	180.37	5.05	35.69	2.5	PARKES	Weltevrede

JNAME	BNAME	NOTE	PERIOD (sec)	DM	AGE (log)	EDOT (log)	DIST (kpc)	TELESCOPE	PI
J0940-5428	*	*	0.088	134.50	4.63	36.28	3.0	PARKES	Weltevrede
J0954-5430	*	*	0.473	200.30	5.23	34.20	3.9	PARKES	Weltevrede
J1003-4747	B1001-47	*	0.307	98.10	5.34	34.48	2.9	PARKES	Weltevrede
J1015-5719	*	*	0.140	278.70	4.59	35.92	5.1	PARKES	Weltevrede
J1016-5819	*	*	0.088	252.10	6.30	34.61	4.7	PARKES	Weltevrede
J1016-5857	*	*	0.107	394.20	4.32	36.41	8.0	PARKES	Weltevrede
J1019-5749	*	*	0.162	1039.40	5.11	35.26	6.9	PARKES	Weltevrede
J1020-6026	*	*	0.140	445.00	5.52	34.98	12.3	PARKES	Weltevrede
J1043-6116	*	*	0.289	449.20	5.64	34.23	9.5	PARKES	Weltevrede
J1048-5832	B1046-58	*	0.124	129.10	4.31	36.30	2.7	PARKES	Weltevrede
J1052-5954	*	*	0.181	491.00	5.16	35.11	8.5	PARKES	Weltevrede
J1055-6032	*	*	0.100	633.00	4.75	36.04	*	PARKES	Weltevrede
J1057-5226	B1055-52	*	0.197	30.10	5.73	34.48	0.7	PARKES	Weltevrede
J1105-6107	*	*	0.063	271.01	4.80	36.40	5.0	PARKES	Weltevrede
J1112-6103	*	*	0.065	599.10	4.51	36.65	12.2	PARKES	Weltevrede
J1115-6052	*	*	0.260	228.20	5.76	34.20	4.1	PARKES	Weltevrede
J1119-6127	*	*	0.408	707.40	3.21	36.36	8.4	PARKES	Weltevrede
J1123-6259	*	*	0.271	223.26	5.91	34.00	4.3	PARKES	Weltevrede
J1124-5916	*	*	0.135	330.00	3.46	37.08	6.5	none	none
J1138-6207	*	*	0.118	519.80	5.17	35.48	9.7	PARKES	Weltevrede
J1156-5707	*	*	0.288	243.50	5.24	34.64	6.0	PARKES	Weltevrede
J1216-6223	*	*	0.374	786.60	5.55	34.11	16.6	PARKES	Weltevrede
J1224-6407	B1221-63	*	0.216	97.47	5.84	34.28	3.1	PARKES	Weltevrede
J1248-6344	*	*	0.198	433.30	5.27	34.93	8.3	PARKES	Weltevrede
J1300+1240	B1257+12	MSP	0.006	10.17	8.94	34.28	0.8	LOVELL	Kramer
J1300+1240	B1257+12	MSP	0.006	10.17	8.94	34.28	0.8	NANCAY	Cognard
J1301-6305	*	*	0.185	374.00	4.04	36.23	6.7	PARKES	Weltevrede
J1302-6350	B1259-63	*	0.048	146.72	5.52	35.91	2.8	PARKES	Weltevrede

JNAME	BNAME	NOTE	PERIOD (sec)	DM	AGE (log)	EDOT (log)	DIST (kpc)	TELESCOPE	PI
J1305-6203	*	*	0.428	470.00	5.32	34.20	8.5	PARKES	Weltevrede
J1320-5359	B1317-53	*	0.280	97.60	5.68	34.23	2.3	PARKES	Weltevrede
J1327-6400	*	*	0.281	680.90	5.16	34.75	15.5	PARKES	Weltevrede
J1341-6220	B1338-62	*	0.193	717.30	4.08	36.15	11.1	PARKES	Weltevrede
J1349-6130	*	*	0.259	284.60	5.90	34.08	5.0	PARKES	Weltevrede
J1357-6429	*	*	0.166	128.50	3.86	36.49	2.5	PARKES	Weltevrede
J1359-6038	B1356-60	*	0.128	293.71	5.50	35.08	5.2	PARKES	Weltevrede
J1406-6121	*	*	0.213	542.30	4.79	35.34	8.2	PARKES	Weltevrede
J1410-6132	*	*	0.050	960.00	4.40	37.00	*	PARKES	Weltevrede
J1412-6145	*	*	0.315	514.70	4.70	35.08	7.8	PARKES	Weltevrede
J1413-6141	*	*	0.286	677.00	4.13	35.75	10.1	PARKES	Weltevrede
J1420-6048	*	*	0.068	360.00	4.11	37.00	5.6	PARKES	Weltevrede
J1452-5851	*	*	0.387	262.40	5.08	34.54	4.3	PARKES	Weltevrede
J1452-6036	*	*	0.155	349.70	6.23	34.18	5.8	PARKES	Weltevrede
J1453-6413	B1449-64	*	0.179	71.07	6.02	34.28	2.1	PARKES	Weltevrede
J1509-5850	*	*	0.089	137.70	5.19	35.71	2.6	PARKES	Weltevrede
J1512-5759	B1508-57	*	0.129	628.70	5.47	35.11	7.3	PARKES	Weltevrede
J1513-5908	B1509-58	*	0.151	252.50	3.19	37.26	4.2	PARKES	Weltevrede
J1514-5925	*	*	0.149	194.10	5.91	34.54	3.5	PARKES	Weltevrede
J1515-5720	*	*	0.287	482.00	5.87	34.00	6.6	PARKES	Weltevrede
J1524-5625	*	*	0.078	152.70	4.50	36.51	2.8	PARKES	Weltevrede
J1524-5706	*	*	1.116	833.00	4.70	34.00	11.4	PARKES	Weltevrede
J1531-5610	*	*	0.084	110.90	4.99	35.96	2.1	PARKES	Weltevrede
J1538-5551	*	*	0.105	603.00	5.71	35.04	7.5	PARKES	Weltevrede
J1539-5626	B1535-56	*	0.243	175.88	5.90	34.11	3.1	PARKES	Weltevrede
J1541-5535	*	*	0.296	428.00	4.80	35.04	5.7	PARKES	Weltevrede
J1543-5459	*	*	0.377	345.70	5.06	34.58	4.8	PARKES	Weltevrede
J1548-5607	*	*	0.171	315.50	5.40	34.93	4.9	PARKES	Weltevrede

JNAME	BNAME	NOTE	PERIOD (sec)	DM	AGE (log)	EDOT (log)	DIST (kpc)	TELESCOPE	PI
J1549-4848	*	*	0.288	55.98	5.51	34.36	2.7	PARKES	Weltevrede
J1550-5418	*	Magnetar	2.070	830.00	3.15	35.00	9.6	none	none
J1551-5310	*	*	0.453	493.00	4.57	34.92	7.8	PARKES	Weltevrede
J1600-5044	B1557-50	*	0.193	260.56	5.78	34.45	6.7	PARKES	Weltevrede
J1600-5751	B1556-57	*	0.194	176.55	6.16	34.04	3.5	PARKES	Weltevrede
J1601-5335	*	*	0.288	194.60	4.87	35.00	4.5	PARKES	Weltevrede
J1611-5209	B1607-52	*	0.182	127.57	5.75	34.53	4.3	PARKES	Weltevrede
J1614-5048	B1610-50	*	0.232	582.80	3.87	36.20	7.9	PARKES	Weltevrede
J1617-5055	*	*	0.069	467.00	3.90	37.20	6.8	PARKES	Weltevrede
J1623-2631	B1620-26	MSP	0.011	62.86	8.42	34.28	2.2	LOVELL	Kramer
J1623-2631	B1620-26	MSP	0.011	62.86	8.42	34.28	2.2	NANCAY	Cognard
J1626-4807	*	*	0.294	817.00	5.42	34.43	8.9	PARKES	Weltevrede
J1627-4706	*	*	0.141	456.10	6.11	34.40	6.1	PARKES	Weltevrede
J1632-4757	*	*	0.229	578.00	5.38	34.70	6.4	PARKES	Weltevrede
J1632-4818	*	*	0.813	758.00	4.30	34.68	7.8	PARKES	Weltevrede
J1637-4553	B1634-45	*	0.119	193.23	5.77	34.88	3.2	PARKES	Weltevrede
J1637-4642	*	*	0.154	417.00	4.61	35.81	5.1	PARKES	Weltevrede
J1638-4417	*	*	0.118	436.00	6.06	34.59	6.2	PARKES	Weltevrede
J1638-4608	*	*	0.278	424.30	4.93	34.97	5.2	PARKES	Weltevrede
J1640-4715	B1636-47	*	0.517	591.70	5.29	34.08	6.5	PARKES	Weltevrede
J1643-4505	*	*	0.237	484.00	5.07	34.97	5.6	PARKES	Weltevrede
J1646-4346	B1643-43	*	0.232	490.40	4.51	35.56	5.8	PARKES	Weltevrede
J1648-4611	*	*	0.165	392.90	5.04	35.32	5.0	PARKES	Weltevrede
J1649-4653	*	*	0.557	332.00	5.25	34.04	4.7	PARKES	Weltevrede
J1650-4502	*	*	0.381	319.70	5.58	34.04	4.4	PARKES	Weltevrede
J1650-4921	*	*	0.156	229.90	6.13	34.28	4.1	PARKES	Weltevrede
J1702-4128	*	*	0.182	367.10	4.74	35.53	4.8	PARKES	Weltevrede
J1702-4305	*	*	0.216	537.90	5.54	34.59	*	PARKES	Weltevrede

JNAME	BNAME	NOTE	PERIOD (sec)	DM	AGE (log)	EDOT (log)	DIST (kpc)	TELESCOPE	PI
J1702-4310	*	*	0.241	377.00	4.23	35.80	5.1	PARKES	Weltevrede
J1705-3950	*	*	0.319	207.10	4.92	34.87	3.3	PARKES	Weltevrede
J1709-4429	B1706-44	*	0.102	75.69	4.24	36.53	2.3	PARKES	Weltevrede
J1715-3903	*	*	0.278	313.10	5.07	34.84	4.1	PARKES	Weltevrede
J1718-3825	*	*	0.075	247.40	4.95	36.11	3.6	PARKES	Weltevrede
J1718-3825	*	*	0.075	247.40	4.95	36.11	3.6	NANCAY	Cognard
J1721-3532	B1718-35	*	0.280	496.00	5.25	34.65	5.6	PARKES	Weltevrede
J1721-3532	B1718-35	*	0.280	496.00	5.25	34.65	5.6	LOVELL	Kramer
J1721-3532	B1718-35	*	0.280	496.00	5.25	34.65	5.6	NANCAY	Cognard
J1722-3712	B1719-37	*	0.236	99.50	5.54	34.52	1.9	PARKES	Weltevrede
J1722-3712	B1719-37	*	0.236	99.50	5.54	34.52	1.9	NANCAY	Cognard
J1723-3659	*	*	0.203	254.20	5.60	34.58	3.5	PARKES	Weltevrede
J1723-3659	*	*	0.203	254.20	5.60	34.58	3.5	NANCAY	Cognard
J1726-3530	*	*	1.110	727.00	4.16	34.54	8.4	PARKES	Weltevrede
J1726-3530	*	*	1.110	727.00	4.16	34.54	8.4	NANCAY	Cognard
J1730-3350	B1727-33	*	0.139	259.00	4.41	36.08	3.5	PARKES	Weltevrede
J1730-3350	B1727-33	*	0.139	259.00	4.41	36.08	3.5	LOVELL	Kramer
J1730-3350	B1727-33	*	0.139	259.00	4.41	36.08	3.5	NANCAY	Cognard
J1731-4744	B1727-47	*	0.830	123.33	4.91	34.04	2.8	PARKES	Weltevrede
J1733-3716	B1730-37	*	0.338	153.50	5.55	34.18	2.8	PARKES	Weltevrede
J1733-3716	B1730-37	*	0.338	153.50	5.55	34.18	2.8	NANCAY	Cognard
J1734-3333	*	*	1.169	578.00	3.91	34.75	6.5	PARKES	Weltevrede
J1734-3333	*	*	1.169	578.00	3.91	34.75	6.5	LOVELL	Kramer
J1735-3258	*	*	0.351	754.00	5.33	34.38	9.6	PARKES	Weltevrede
J1735-3258	*	*	0.351	754.00	5.33	34.38	9.6	LOVELL	Kramer
J1735-3258	*	*	0.351	754.00	5.33	34.38	9.6	NANCAY	Cognard
J1737-3137	*	*	0.450	488.20	4.71	34.78	5.5	PARKES	Weltevrede
J1737-3137	*	*	0.450	488.20	4.71	34.78	5.5	LOVELL	Kramer

JNAME	BNAME	NOTE	PERIOD (sec)	DM	AGE (log)	EDOT (log)	DIST (kpc)	TELESCOPE	PI
J1737-3137	*	*	0.450	488.20	4.71	34.78	5.5	NANCAY	Cognard
J1738-2955	*	*	0.443	223.40	4.93	34.57	3.5	PARKES	Weltevrede
J1738-2955	*	*	0.443	223.40	4.93	34.57	3.5	LOVELL	Kramer
J1738-2955	*	*	0.443	223.40	4.93	34.57	3.5	NANCAY	Cognard
J1739-3023	*	*	0.114	170.00	5.20	35.48	2.9	PARKES	Weltevrede
J1739-3023	*	*	0.114	170.00	5.20	35.48	2.9	LOVELL	Kramer
J1739-3023	*	*	0.114	170.00	5.20	35.48	2.9	NANCAY	Cognard
J1740+1000	*	*	0.154	23.85	5.06	35.36	1.2	LOVELL	Kramer
J1740+1000	*	*	0.154	23.85	5.06	35.36	1.2	NANCAY	Cognard
J1740-3015	B1737-30	*	0.607	152.15	4.31	34.91	2.7	PARKES	Weltevrede
J1740-3015	B1737-30	*	0.607	152.15	4.31	34.91	2.7	LOVELL	Kramer
J1740-3015	B1737-30	*	0.607	152.15	4.31	34.91	2.7	NANCAY	Cognard
J1741+1351	*	MSP	0.004	24.20	9.29	34.36	0.5	none	none
J1743-3153	*	*	0.193	505.70	5.46	34.76	6.6	LOVELL	Kramer
J1743-3153	*	*	0.193	505.70	5.46	34.76	6.6	NANCAY	Cognard
J1747-2958	*	*	0.099	101.50	4.41	36.40	2.0	NANCAY	Cognard
J1747-2958	*	*	0.099	101.50	4.41	36.40	2.0	GBT	Camilo
J1755-2534	*	*	0.234	590.00	5.52	34.54	7.1	LOVELL	Kramer
J1756-2225	*	*	0.405	326.00	5.09	34.49	5.0	PARKES	Weltevrede
J1756-2225	*	*	0.405	326.00	5.09	34.49	5.0	LOVELL	Kramer
J1757-2421	B1754-24	*	0.234	179.45	5.46	34.60	4.4	PARKES	Weltevrede
J1757-2421	B1754-24	*	0.234	179.45	5.46	34.60	4.4	LOVELL	Kramer
J1757-2421	B1754-24	*	0.234	179.45	5.46	34.60	4.4	NANCAY	Cognard
J1801-2154	*	*	0.375	387.90	5.57	34.08	5.3	PARKES	Weltevrede
J1801-2304	B1758-23	*	0.416	1073.90	4.77	34.79	12.6	PARKES	Weltevrede
J1801-2304	B1758-23	*	0.416	1073.90	4.77	34.79	12.6	LOVELL	Kramer
J1801-2304	B1758-23	*	0.416	1073.90	4.77	34.79	12.6	NANCAY	Cognard
J1801-2451	B1757-24	*	0.125	289.00	4.19	36.41	5.2	PARKES	Weltevrede

JNAME	BNAME	NOTE	PERIOD (sec)	DM	AGE (log)	EDOT (log)	DIST (kpc)	TELESCOPE	PI
J1801-2451	B1757-24	*	0.125	289.00	4.19	36.41	5.2	LOVELL	Kramer
J1801-2451	B1757-24	*	0.125	289.00	4.19	36.41	5.2	NANCAY	Cognard
J1803-2137	B1800-21	*	0.134	233.99	4.20	36.34	3.9	PARKES	Weltevrede
J1803-2137	B1800-21	*	0.134	233.99	4.20	36.34	3.9	LOVELL	Kramer
J1803-2137	B1800-21	*	0.134	233.99	4.20	36.34	3.9	NANCAY	Cognard
J1806-2125	*	*	0.482	750.40	4.80	34.63	9.8	PARKES	Weltevrede
J1806-2125	*	*	0.482	750.40	4.80	34.63	9.8	LOVELL	Kramer
J1808-2024	*	SGR	7.556	*	2.34	34.70	13.1	none	none
J1809-1917	*	*	0.083	197.10	4.71	36.26	3.5	PARKES	Weltevrede
J1809-1917	*	*	0.083	197.10	4.71	36.26	3.5	LOVELL	Kramer
J1809-1917	*	*	0.083	197.10	4.71	36.26	3.5	NANCAY	Cognard
J1811-1925	*	X-ray	0.065	*	4.37	36.81	*	RXTE	Kaspi
J1812-1910	*	*	0.431	892.00	5.26	34.28	11.2	PARKES	Weltevrede
J1812-1910	*	*	0.431	892.00	5.26	34.28	11.2	LOVELL	Kramer
J1815-1738	*	*	0.198	728.00	4.61	35.59	8.8	PARKES	Weltevrede
J1815-1738	*	*	0.198	728.00	4.61	35.59	8.8	NANCAY	Cognard
J1816-0755	*	*	0.218	116.80	5.73	34.40	2.8	LOVELL	Kramer
J1820-1529	*	*	0.333	772.00	5.14	34.60	8.9	PARKES	Weltevrede
J1820-1529	*	*	0.333	772.00	5.14	34.60	8.9	LOVELL	Kramer
J1824-1945	B1821-19	*	0.189	224.65	5.76	34.48	4.7	PARKES	Weltevrede
J1824-1945	B1821-19	*	0.189	224.65	5.76	34.48	4.7	LOVELL	Kramer
J1824-2452	B1821-24	MSP	0.003	119.80	7.48	36.34	4.9	PARKES	Manchester
J1824-2452	B1821-24	MSP	0.003	119.80	7.48	36.34	4.9	LOVELL	Kramer
J1824-2452	B1821-24	MSP	0.003	119.80	7.48	36.34	4.9	NANCAY	Cognard
J1825-1446	B1822-14	*	0.279	357.00	5.29	34.61	5.1	PARKES	Weltevrede
J1825-1446	B1822-14	*	0.279	357.00	5.29	34.61	5.1	LOVELL	Kramer
J1826-1334	B1823-13	*	0.101	231.00	4.33	36.45	3.9	PARKES	Weltevrede
J1826-1334	B1823-13	*	0.101	231.00	4.33	36.45	3.9	LOVELL	Kramer

JNAME	BNAME	NOTE	PERIOD (sec)	DM	AGE (log)	EDOT (log)	DIST (kpc)	TELESCOPE	PI
J1826-1334	B1823-13	*	0.101	231.00	4.33	36.45	3.9	NANCAY	Cognard
J1828-1057	*	*	0.246	245.00	5.28	34.74	4.0	PARKES	Weltevrede
J1828-1057	*	*	0.246	245.00	5.28	34.74	4.0	LOVELL	Kramer
J1828-1101	*	*	0.072	607.40	4.89	36.20	6.6	PARKES	Weltevrede
J1828-1101	*	*	0.072	607.40	4.89	36.20	6.6	LOVELL	Kramer
J1828-1101	*	*	0.072	607.40	4.89	36.20	6.6	NANCAY	Cognard
J1830-0131	*	*	0.153	95.70	6.06	34.36	2.6	LOVELL	Kramer
J1830-1059	B1828-11	*	0.405	161.50	5.03	34.56	3.2	PARKES	Weltevrede
J1830-1059	B1828-11	*	0.405	161.50	5.03	34.56	3.2	LOVELL	Kramer
J1830-1059	B1828-11	*	0.405	161.50	5.03	34.56	3.2	NANCAY	Cognard
J1831-0952	*	*	0.067	247.00	5.11	36.04	4.0	PARKES	Weltevrede
J1831-0952	*	*	0.067	247.00	5.11	36.04	4.0	LOVELL	Kramer
J1833-0827	B1830-08	*	0.085	411.00	5.17	35.76	4.7	PARKES	Weltevrede
J1833-0827	B1830-08	*	0.085	411.00	5.17	35.76	4.7	LOVELL	Kramer
J1833-0827	B1830-08	*	0.085	411.00	5.17	35.76	4.7	NANCAY	Cognard
J1833-1034	*	*	0.062	169.50	3.69	37.53	4.3	GBT	Camilo
J1834-0731	*	*	0.513	295.00	5.15	34.23	5.1	PARKES	Weltevrede
J1834-0731	*	*	0.513	295.00	5.15	34.23	5.1	LOVELL	Kramer
J1835-0643	B1832-06	*	0.306	472.90	5.08	34.75	6.2	PARKES	Weltevrede
J1835-0643	B1832-06	*	0.306	472.90	5.08	34.75	6.2	LOVELL	Kramer
J1835-0944	*	*	0.145	277.20	5.72	34.75	4.4	PARKES	Weltevrede
J1835-0944	*	*	0.145	277.20	5.72	34.75	4.4	LOVELL	Kramer
J1835-1106	*	*	0.166	132.68	5.11	35.26	2.8	PARKES	Weltevrede
J1835-1106	*	*	0.166	132.68	5.11	35.26	2.8	LOVELL	Kramer
J1837-0559	*	*	0.201	317.80	5.98	34.20	5.4	PARKES	Weltevrede
J1837-0559	*	*	0.201	317.80	5.98	34.20	5.4	LOVELL	Kramer
J1837-0604	*	*	0.096	462.00	4.53	36.30	6.4	PARKES	Weltevrede
J1838-0453	*	*	0.381	621.00	4.72	34.92	8.1	PARKES	Weltevrede

JNAME	BNAME	NOTE	PERIOD (sec)	DM	AGE (log)	EDOT (log)	DIST (kpc)	TELESCOPE	PI
J1838-0453	*	*	0.381	621.00	4.72	34.92	8.1	LOVELL	Kramer
J1838-0453	*	*	0.381	621.00	4.72	34.92	8.1	NANCAY	Cognard
J1838-0549	*	*	0.235	274.00	5.05	35.00	5.1	PARKES	Weltevrede
J1838-0549	*	*	0.235	274.00	5.05	35.00	5.1	NANCAY	Cognard
J1839-0321	*	*	0.239	449.10	5.48	34.56	7.2	PARKES	Weltevrede
J1839-0321	*	*	0.239	449.10	5.48	34.56	7.2	LOVELL	Kramer
J1839-0905	*	*	0.419	348.00	5.41	34.15	5.4	PARKES	Weltevrede
J1841+0130	*	MSP	0.030	125.88	7.76	34.08	3.6	LOVELL	Kramer
J1841-0345	*	*	0.204	194.32	4.75	35.43	4.8	LOVELL	Kramer
J1841-0345	*	*	0.204	194.32	4.75	35.43	4.8	NANCAY	Cognard
J1841-0425	B1838-04	*	0.186	325.49	5.66	34.59	5.7	PARKES	Weltevrede
J1841-0425	B1838-04	*	0.186	325.49	5.66	34.59	5.7	LOVELL	Kramer
J1841-0425	B1838-04	*	0.186	325.49	5.66	34.59	5.7	NANCAY	Cognard
J1841-0524	*	*	0.446	289.00	4.48	35.00	5.3	PARKES	Weltevrede
J1841-0524	*	*	0.446	289.00	4.48	35.00	5.3	LOVELL	Kramer
J1842-0905	*	*	0.345	343.30	5.72	34.00	5.9	PARKES	Weltevrede
J1842-0905	*	*	0.345	343.30	5.72	34.00	5.9	LOVELL	Kramer
J1843-0355	*	*	0.132	797.60	6.31	34.26	8.8	PARKES	Weltevrede
J1843-0355	*	*	0.132	797.60	6.31	34.26	8.8	LOVELL	Kramer
J1843-0702	*	*	0.192	228.10	6.15	34.08	4.8	PARKES	Weltevrede
J1843-0702	*	*	0.192	228.10	6.15	34.08	4.8	NANCAY	Cognard
J1843-1113	*	MSP	0.002	59.96	9.48	34.78	1.7	LOVELL	Kramer
J1843-1113	*	MSP	0.002	59.96	9.48	34.78	1.7	NANCAY	Cognard
J1844-0256	*	*	0.273	820.20	5.18	34.74	9.2	PARKES	Weltevrede
J1844-0538	B1841-05	*	0.256	412.80	5.62	34.36	6.5	PARKES	Weltevrede
J1844-0538	B1841-05	*	0.256	412.80	5.62	34.36	6.5	LOVELL	Kramer
J1844-0538	B1841-05	*	0.256	412.80	5.62	34.36	6.5	NANCAY	Cognard
J1845-0316	*	*	0.208	500.00	5.57	34.59	7.0	LOVELL	Kramer

JNAME	BNAME	NOTE	PERIOD (sec)	DM	AGE (log)	EDOT (log)	DIST (kpc)	TELESCOPE	PI
J1845-0316	*	*	0.208	500.00	5.57	34.59	7.0	NANCAY	Cognard
J1845-0743	*	*	0.105	281.00	6.66	34.11	5.2	PARKES	Weltevrede
J1845-0743	*	*	0.105	281.00	6.66	34.11	5.2	LOVELL	Kramer
J1845-0743	*	*	0.105	281.00	6.66	34.11	5.2	NANCAY	Cognard
J1846-0258	*	X-ray	0.326	*	2.86	36.91	*	RXTE	Gotthelf
J1853+0011	*	*	0.398	568.80	5.27	34.32	8.1	NANCAY	Cognard
J1853+0056	*	*	0.276	180.90	5.31	34.60	5.1	LOVELL	Kramer
J1853+0056	*	*	0.276	180.90	5.31	34.60	5.1	NANCAY	Cognard
J1853+0545	*	*	0.126	198.70	6.52	34.08	5.3	LOVELL	Kramer
J1853+0545	*	*	0.126	198.70	6.52	34.08	5.3	NANCAY	Cognard
J1853-0004	*	*	0.101	438.20	5.46	35.32	7.2	PARKES	Weltevrede
J1853-0004	*	*	0.101	438.20	5.46	35.32	7.2	LOVELL	Kramer
J1853-0004	*	*	0.101	438.20	5.46	35.32	7.2	NANCAY	Cognard
J1856+0113	B1853+01	*	0.267	96.74	4.31	35.63	3.3	LOVELL	Kramer
J1856+0113	B1853+01	*	0.267	96.74	4.31	35.63	3.3	NANCAY	Cognard
J1857+0143	*	*	0.140	249.00	4.85	35.65	5.8	LOVELL	Kramer
J1857+0212	B1855+02	*	0.416	506.77	5.21	34.34	8.0	LOVELL	Kramer
J1903+0601	*	*	0.374	388.00	5.49	34.15	7.2	LOVELL	Kramer
J1903+0925	*	*	0.357	162.00	5.18	34.51	4.9	none	none
J1904+0800	*	*	0.263	438.80	5.38	34.57	8.6	LOVELL	Kramer
J1906+0746	*	*	0.144	217.78	5.05	35.43	5.4	NANCAY	Cognard
J1907+0345	*	*	0.240	311.70	5.67	34.36	7.2	NANCAY	Cognard
J1907+0731	*	*	0.364	239.80	5.50	34.18	5.7	NANCAY	Cognard
J1907+0918	*	*	0.226	357.90	4.58	35.51	7.8	LOVELL	Kramer
J1907+0918	*	*	0.226	357.90	4.58	35.51	7.8	NANCAY	Cognard
J1907+0919	*	SGR	5.169	*	3.02	34.34	*	none	none
J1908+0839	*	*	0.185	512.10	6.09	34.18	9.3	LOVELL	Kramer
J1908+0839	*	*	0.185	512.10	6.09	34.18	9.3	NANCAY	Cognard

JNAME	BNAME	NOTE	PERIOD (sec)	DM	AGE (log)	EDOT (log)	DIST (kpc)	TELESCOPE	PI
J1908+0909	*	*	0.337	467.50	5.18	34.56	9.0	LOVELL	Kramer
J1908+0909	*	*	0.337	467.50	5.18	34.56	9.0	NANCAY	Cognard
J1909+0912	*	*	0.223	421.50	4.99	35.11	8.2	LOVELL	Kramer
J1909+0912	*	*	0.223	421.50	4.99	35.11	8.2	NANCAY	Cognard
J1909-3744	*	MSP	0.003	10.39	9.52	34.34	1.1	PARKES	Manchester
J1909-3744	*	MSP	0.003	10.39	9.52	34.34	1.1	NANCAY	Cognard
J1911-1114	*	MSP	0.004	30.98	9.61	34.08	1.2	LOVELL	Kramer
J1911-1114	*	MSP	0.004	30.98	9.61	34.08	1.2	NANCAY	Cognard
J1913+0832	*	*	0.134	355.20	5.67	34.87	7.9	LOVELL	Kramer
J1913+0832	*	*	0.134	355.20	5.67	34.87	7.9	NANCAY	Cognard
J1913+0904	*	*	0.163	95.30	5.17	35.20	3.0	LOVELL	Kramer
J1913+1011	*	*	0.036	178.80	5.23	36.46	4.8	LOVELL	Kramer
J1913+1011	*	*	0.036	178.80	5.23	36.46	4.8	NANCAY	Cognard
J1917+1353	B1915+13	*	0.195	94.54	5.63	34.59	4.0	LOVELL	Kramer
J1917+1353	B1915+13	*	0.195	94.54	5.63	34.59	4.0	NANCAY	Cognard
J1921+0812	*	*	0.211	84.00	5.79	34.36	3.5	LOVELL	Kramer
J1928+1746	*	*	0.069	176.90	4.92	36.20	5.8	LOVELL	Kramer
J1928+1746	*	*	0.069	176.90	4.92	36.20	5.8	NANCAY	Cognard
J1930+1852	*	*	0.137	308.00	3.46	37.08	5.0	GBT	Camilo
J1932+2220	B1930+22	*	0.144	219.20	4.60	35.88	9.8	LOVELL	Kramer
J1932+2220	B1930+22	*	0.144	219.20	4.60	35.88	9.8	NANCAY	Cognard
J1939+2134	B1937+21	MSP	0.002	71.04	8.37	36.04	8.3	PARKES	Manchester
J1939+2134	B1937+21	MSP	0.002	71.04	8.37	36.04	8.3	LOVELL	Kramer
J1939+2134	B1937+21	MSP	0.002	71.04	8.37	36.04	8.3	NANCAY	Cognard
J1946+2611	*	*	0.435	165.00	5.50	34.04	6.1	LOVELL	Kramer
J1946+2611	*	*	0.435	165.00	5.50	34.04	6.1	NANCAY	Cognard
J1952+3252	B1951+32	*	0.040	45.01	5.03	36.57	2.5	LOVELL	Kramer
J1952+3252	B1951+32	*	0.040	45.01	5.03	36.57	2.5	NANCAY	Cognard

JNAME	BNAME	NOTE	PERIOD (sec)	DM	AGE (log)	EDOT (log)	DIST (kpc)	TELESCOPE	PI
J1959+2048	B1957+20	MSP	0.002	29.12	9.18	35.20	2.5	NANCAY	Cognard
J2002+3217	B2000+32	*	0.697	142.21	5.02	34.08	5.7	LOVELL	Kramer
J2002+3217	B2000+32	*	0.697	142.21	5.02	34.08	5.7	NANCAY	Cognard
J2013+3845	B2011+38	*	0.230	238.22	5.61	34.46	8.4	LOVELL	Kramer
J2013+3845	B2011+38	*	0.230	238.22	5.61	34.46	8.4	NANCAY	Cognard
J2021+3651	*	*	0.104	371.00	4.24	36.53	12.4	LOVELL	Kramer
J2021+3651	*	*	0.104	371.00	4.24	36.53	12.4	NANCAY	Cognard
J2021+3651	*	*	0.104	371.00	4.24	36.53	12.4	GBT	Camilo
J2043+2740	*	*	0.096	21.00	6.08	34.75	1.8	LOVELL	Kramer
J2043+2740	*	*	0.096	21.00	6.08	34.75	1.8	NANCAY	Cognard
J2129-5721	*	MSP	0.004	31.87	9.45	34.20	1.4	PARKES	Manchester
J2150+5247	B2148+52	*	0.332	148.93	5.72	34.04	4.6	LOVELL	Kramer
J2150+5247	B2148+52	*	0.332	148.93	5.72	34.04	4.6	NANCAY	Cognard
J2229+6114	*	*	0.052	200.00	4.02	37.34	7.2	LOVELL	Kramer
J2229+6114	*	*	0.052	200.00	4.02	37.34	7.2	NANCAY	Cognard
J2229+6114	*	*	0.052	200.00	4.02	37.34	7.2	GBT	Camilo
J2337+6151	B2334+61	*	0.495	58.41	4.61	34.79	3.1	LOVELL	Kramer
J2337+6151	B2334+61	*	0.495	58.41	4.61	34.79	3.1	NANCAY	Cognard