

G0.0+0.0

RA: 17^h42^m33^s
Dec: –28°59′

1-GHz flux/Jy: 100?
Spectral index: 0.8?

Sgr A East
Size/arcmin: 3.5 × 2.5
Type: S

Radio: Non-thermal shell, in complex region, interacting with molecular material to the west.

References:

Ekers *et al.* 1983, A&A, 122, 143. VLA at 1.4 GHz and 5 GHz (both 5'' × 8''), $S(1.4)=77$, $S(5.0)=31$.
 Pedlar *et al.* 1989, ApJ, 342, 769. VLA at 332 MHz (12''), 1.4 GHz (1''.3 × 2''.5) and 5 GHz (1''.3 × 2''.5).
 Mezger *et al.* 1989, A&A, 209, 337. Nearby molecular material.
 Ho *et al.* 1991, Natur, 350, 309. VLA of NH₃ emission from surroundings.
 Anantharamaiah *et al.* 1991, MNRAS, 249, 262. VLA at 330 MHz (17'' × 33'').
 Serabyn *et al.* 1992, ApJ, 395, 166. Nearby molecular material.
 Gray 1994, MNRAS, 270, 835. MOST at 843 MHz (43'' × 88'').
 Yusef-Zadeh & Mehninger 1995, ApJ, 452, L37. VLA of nearby H₂O masers.

G0.3+0.0

RA: 17^h43^m05^s
Dec: –28°37′

1-GHz flux/Jy: 22
Spectral index: 0.6

Size/arcmin: 15 × 8
Type: S

Has been called G0.33+0.04 and G0.4+0.1.

Radio: Bilateral shell, near Galactic Centre.

References:

Kassim & Frail 1996, MNRAS, 283, L51. VLA at 333 MHz (23'' × 42''), plus review of flux densities and other observations.

G0.9+0.1

RA: 17^h44^m12^s
Dec: –28°08′

1-GHz flux/Jy: 18?
Spectral index: varies

Size/arcmin: 8
Type: C

Radio: Flat spectrum core within steep spectrum shell.

X-ray: Central core.

References:

Helfand & Becker 1987, ApJ, 314, 203. VLA at 1.4 and 5 GHz, and IPC observations.
 Gray 1994, MNRAS, 270, 835. MOST at 843 MHz (43'' × 91'').
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.
 Mereghetti *et al.* 1998, A&A, 331, L77. X-ray detection.

G1.0–0.1

RA: 17^h46^m20^s
Dec: –28°25′

1-GHz flux/Jy: 15
Spectral index: 0.6?

Size/arcmin: 8
Type: S

Has been called G1.05–0.1 and G1.05–0.15.

Radio: Incomplete shell, to the S of Sgr D.

References:

Downes *et al.* 1979, A&AS, 35, 1. Review of flux densities.
 Anantharamaiah *et al.* 1991, MNRAS, 249, 262. VLA at 330 MHz (64'' × 100'' : $S=12.3$).
 Liszt 1992, ApJS, 82, 495. VLA at 1.6 GHz (13'' × 23'').
 Gray 1994, MNRAS, 270, 835. MOST at 843 MHz (43'' × 91'').
 Mehninger *et al.* 1998, ApJ, 493, 274. VLA at 1.6 GHz (15'' × 28'') and 5 GHz, including masers observations.

G1.4–0.1

RA: 17^h46^m30^s
Dec: –27°45′

1-GHz flux/Jy: 2?
Spectral index: ?

Size/arcmin: 10
Type: S

Radio: Shell, brightest in E.

References:

Gray 1994, MNRAS, 270, 847. MOST at 843 MHz (43'' × 92'' : $S=2$).

G1.9+0.3**RA:** 17^h45^m37^s**Dec:** –27°09′**1-GHz flux/Jy:** 0.6**Spectral index:** 0.7**Size/arcmin:** 1.2**Type:** S**Radio:** Shell, brighter to the N.**References:**Green & Gull 1984, *Natur*, 312, 527. VLA at 5 GHz (4″ × 2″).Gray 1994, *MNRAS*, 270, 835. MOST at 843 MHz (43″ × 94″).Green *et al.* 1997, *AJ*, 114, 2058. Parkes 64-m OH observations.**G3.7–0.2****RA:** 17^h52^m20^s**Dec:** –25°50′**1-GHz flux/Jy:** 2.3**Spectral index:** 0.65**Size/arcmin:** 11 × 14**Type:** S

Has been called G003.8–00.3.

Radio: Double arc.**References:**Gray 1994, *MNRAS*, 270, 847. MOST at 843 MHz (43″ × 99″ : $S=2.4$).Gaensler 1998, *ApJ*, 493, 781. VLA at 1.4 GHz (9″ × 15″ : $S=1.7 \pm 0.1$).**G3.8+0.3****RA:** 17^h49^m50^s**Dec:** –25°27′**1-GHz flux/Jy:** 4?**Spectral index:** ?**Size/arcmin:** 18**Type:** S?**Radio:** Incomplete shell.**References:**Gray 1994, *MNRAS*, 270, 847. MOST at 843 MHz (43″ × 100″ : $S=3.5$).**G4.2–3.5****RA:** 18^h05^m45^s**Dec:** –27°04′**1-GHz flux/Jy:** 3.2?**Spectral index:** 0.6?**Size/arcmin:** 28**Type:** S**Radio:** Elongated shell.**References:**Reich *et al.* 1988, in *SNRISM*, p293. Summary of parameters.Reich *et al.* 1990, *A&AS*, 85, 633. Effelsberg 100-m at 2.7 GHz (4′.3).

G4.5+6.8

RA: 17^h27^m42^s
Dec: –21°27′

1-GHz flux/Jy: 19
Spectral index: 0.64

Kepler, SN1604, 3C358

Size/arcmin: 3
Type: S

This is the remnant of Kepler’s SN of AD1604.

Radio: Incomplete shell, brighter to the N.

Optical: Faint filaments.

X-ray: Shell, brighter to the N.

Distance: Historical observations indicate about 4.4 kpc.

References:

van den Bergh & Kamper 1977, ApJ, 218, 617. Optical proper motions.
 Leibowitz & Danziger 1983, MNRAS, 204, 273. Optical spectra.
 Danziger & Goss 1980, MNRAS, 190, 47P. Revision of distance.
 White & Long 1983, ApJ, 264, 196. IPC observations.
 Matsui *et al.* 1984, ApJ, 287, 295. VLA at 1.4 (2″.5 × 3″.2) and 5 GHz (3″.2 × 4″.8) and HRI map (5″).
 Dickel *et al.* 1988, ApJ, 330, 254. VLA at 1.4 (1″.2 × 2″.3) and 5 GHz (0″.6 × 1″.0) at two epochs.
 Smith *et al.* 1989, ApJ, 347, 925. EXOSAT observations.
 Hatsukade *et al.* 1990, PASJ, 42, 279. X-ray spectrum.
 Blair *et al.* 1991, ApJ, 366, 484. Optical imaging and spectroscopy.
 Bandiera & van den Bergh 1991, ApJ, 374, 186. Optical changes.
 van den Bergh 1991, PASP, 103, 194. Optical imaging.
 Predehl & Schmitt 1995, A&A, 293, 889. ROSAT of dust scattered halo.
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G5.2–2.6

RA: 18^h04^m25^s
Dec: –25°45′

1-GHz flux/Jy: 2.6?
Spectral index: 0.6?

Size/arcmin: 18
Type: S

Radio: Poorly resolved shell.

References:

Reich *et al.* 1988, in SNRISM, p293. Summary of parameters.
 Reich *et al.* 1990, A&AS, 85, 633. Effelsberg 100-m at 2.7 GHz (4′.3).

G5.4–1.2

RA: 17^h59^m00^s
Dec: –24°55′

1-GHz flux/Jy: 35?
Spectral index: 0.2?

Milne 56
Size/arcmin: 35
Type: C?

Part been called G5.3–1.0. Has been suggested that this is not a SNR.

Radio: Incomplete shell, including wide ‘v’ of emission to east with small flat-spectrum source at apex.

Optical: Detected.

Distance: HI absorption suggests > 4.3 kpc.

Point sources: Pulsar associated with flat spectrum source.

References:

Clark *et al.* 1975, AuJPA, 37, 75. Molonglo at 408 MHz (3′ : S=38).
 Becker & Kundu 1975, AJ, 80, 679. NRAO 140-ft at 10.6 GHz (3′).
 Dickel & Milne 1976, AuJPh, 29, 435. Comparison of earlier Parkes 64-m maps at 2.7 GHz (8′.4) and 5 GHz (4′.4).
 Angerhofer *et al.* 1977, A&A, 55, 11. NRAO 140-ft at 5 GHz (6′.8 : S=21.9±2.4).
 Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz (2′.6).
 Zealey *et al.* 1979, A&AS, 38, 39. Optical detection.
 Becker & Helfand 1985, Natur, 313, 115. VLA at 1.4 and 5 GHz. Suggest it is not SNR, see Helfand & Becker 1985, Natur, 313, 118.
 Manchester *et al.* 1985, MNRAS, 212, 975. Pulsar detection.
 Caswell *et al.* 1987, MNRAS, 225, 329. MOST at 843 MHz (42″ × 110″).
 Frail & Kulkarni 1991, Natur, 352, 785. Pulsar and remnant association.
 Manchester *et al.* 1991, MNRAS, 253, 7P. Pulsar and remnant association.
 Milne *et al.* 1992, MNRAS, 255, 707. Parkes 64-m at 4.75 (4′.5 : S=30.8±2.1) and 8.4 GHz (3′ : S=24±3), including polarization.
 Kassim 1992, AJ, 103, 943. VLA at 327 MHz (3′.0 × 4′.9 : S=38).
 Frail *et al.* 1994, AJ, 107, 1120. VLA at 327 MHz (68″ × 73″), plus HI absorption.
 Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.

G5.9+3.1

RA: 17^h44^m20^s
Dec: –22°15′

1-GHz flux/Jy: 3.3?
Spectral index: 0.4?

Size/arcmin: 20
Type: S

Radio: Asymmetric shell.

References:

Reich *et al.* 1988, in SNRISM, p293. Effelsberg 100-m at 2.7 GHz (4′.3).

G6.1+1.2

RA: 17^h51^m55^s
Dec: –23°05′

1-GHz flux/Jy: 4.0?
Spectral index: 0.3?

Size/arcmin: 30 × 26
Type: F

Has been called G6.1+1.15.

Radio: Faint, diffuse emission.

References:

Reich *et al.* 1988, in SNRISM, p293. Summary of parameters.

Reich *et al.* 1990, A&AS, 85, 633. Effelsberg 100-m at 2.7 GHz (4′.3).

G6.4–0.1

RA: 17^h57^m30^s
Dec: –23°25′

1-GHz flux/Jy: 310
Spectral index: varies

Size/arcmin: 42
Type: C

W28

Has been called G6.6–0.2.

Radio: Several non-thermal sources in a ring, with flat spectrum core.

Optical: Filaments.

X-ray: Diffuse emission from most of the remnant.

Point sources: Young pulsar near edge of remnant.

Distance: Uncertain mean optical velocity indicates 3.5–4 kpc.

References:

Kundu & Velusamy 1972, A&A, 20, 237. NRAO 140-ft at 10 GHz (3′).

van den Bergh *et al.* 1973, ApJS, 26, 19. Optical.

Dickel & Milne 1976, AuJPh, 29, 435. Comparison of earlier Parkes 64-m maps at 2.7 GHz (8′.4) and 5 GHz (4′.4).

Dopita *et al.* 1977, ApJ, 214, 179. Some optical line ratios.

Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz (2′.6).

Lozinskaya 1981, SvAL, 7, 17. Mean optical velocity.

Andrews *et al.* 1983, ApJ, 266, 684. VLA at 1.4 GHz (8′′) 4.9 GHz (3′′) and 15 GHz (1′′) of central region only, plus HRI image of central region.

Bohigas *et al.* 1983, RMxAA, 8, 155. Optical spectra.

Odenwald *et al.* 1984, ApJ, 279, 162. Nearby IR source.

Andrews *et al.* 1985, AJ, 90, 310. VLA of central component.

Long *et al.* 1991, ApJ, 373, 567. IPC and optical observations.

Kassim 1992, AJ, 103, 943. VLA at 327 MHz (3′.1 × 4′.4: $S=660$).

Kaspi *et al.* 1993, ApJ, 409, L57. Pulsar association.

Frail *et al.* 1993, Natur, 365, 136. VLA at 327 MHz (smoothed to 65′′), plus pulsar association.

Frail *et al.* 1994, ApJ, 424, L111. VLA of associated OH masers.

Esposito *et al.* 1996, ApJ, 461, 820. Possible associated γ -ray emission.

Frail *et al.* 1996, AJ, 111, 1651. OH maser emission.

Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.

Claussen *et al.* 1997, ApJ, 489, 143. VLA of OH masers.

G6.4+4.0

RA: 17^h42^m10^s
Dec: –21°20′

1-GHz flux/Jy: 1.3?
Spectral index: 0.4?

Size/arcmin: 31
Type: S

Radio: Faint asymmetric shell.

References:

Reich *et al.* 1988, in SNRISM, p293. Effelsberg 100-m at 2.7 GHz (4′.3).

G7.7 – 3.7

1814–24

RA: 18^h14^m20^s**1-GHz flux/Jy:** 11**Size/arcmin:** 22**Dec:** –24°05′**Spectral index:** 0.32**Type:** S**Radio:** Shell, with high polarization.**References:**

Dickel & Milne 1976, AuJPh, 29, 435. Comparison of earlier Parkes 64-m maps at 2.7 GHz (8′.4) and 5 GHz (4′.4).

Milne *et al.* 1986, MNRAS, 223, 487. MOST at 843 MHz (44″ × 108″) and Parkes 64-m at 8.4 GHz (3′ : S = 4.6 ± 0.5), with polarization, plus review of flux densities.Dubner *et al.* 1996, AJ, 111, 1304. VLA at 1.4 GHz (70″ × 35″ : S = 9.9 ± 0.1), including polarization.**G8.7 – 5.0****RA:** 18^h21^m05^s**1-GHz flux/Jy:** 4.4**Size/arcmin:** 26**Dec:** –23°50′**Spectral index:** 0.3**Type:** S**Radio:** Asymmetric shell.**References:**Reich *et al.* 1988, in SNRISM, p293. Summary of parameters.Reich *et al.* 1990, A&AS, 85, 633. Effelsberg 100-m at 2.7 GHz (4′.3).**G8.7 – 0.1**

(W30)

RA: 18^h02^m35^s**1-GHz flux/Jy:** 80**Size/arcmin:** 45**Dec:** –21°25′**Spectral index:** 0.5**Type:** S?**Radio:** Clumpy non-thermal shell, with low-frequency turnover.**X-ray:** Northern edge detected.**Point sources:** Pulsar inside western edge.**References:**

Odegard 1986, AJ, 92, 1372. TPT at 57.5 MHz (7′.2 × 9′.7 : S = 190 ± 50).

Kassim & Weiler 1990, Natur, 343, 146. VLA at 327 MHz (3′.0 × 3′.7).

Kassim & Weiler 1990, ApJ, 360, 184. VLA at 327 MHz (2′.8 × 4′.1 : S = 129 ± 11), and part at 1.4 GHz (0′.9 × 1′.8), plus review of flux densities.

Frail *et al.* 1994, AJ, 107, 1120. VLA at 327 MHz (37″ × 55″).

Finley & Ögelman 1994, ApJ, 434, L25. ROSAT observations, including pulsar.

G9.8+0.6**RA:** 18^h02^m10^s**1-GHz flux/Jy:** 3.9**Size/arcmin:** 12**Dec:** –20°14′**Spectral index:** 0.5**Type:** S**Radio:** Asymmetric shell.**References:**Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz (2′.6).

Caswell 1983, MNRAS, 204, 833. Molonglo at 408 MHz (3′ : S = 5.8 ± 0.6).

Dubner *et al.* 1993, AJ, 105, 2251. VLA at 1.47 GHz (41″ × 63″ : S = 3.5 ± 0.4).Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G10.0 – 0.3**RA:** 18^h05^m40^s**Dec:** –20°26′**1-GHz flux/Jy:** 2.9**Spectral index:** 0.8**Size/arcmin:** 8?**Type:** ?**Radio:** Not well resolved.**X-ray:** X-ray pulsar.**Point sources:** X-ray pulsar associated with soft gamma repeater.**Distance:** Association with W31 gives 14.5 kpc.**References:**

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).

Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz (2′.6).

Kulkarni & Frail 1993, Natur, 365, 33. VLA at 330 MHz (smoothed to 2′) and 1.49 GHz (40″ × 65″), including association with soft gamma repeater.

Sonobe *et al.* 1994, ApJ, 436, L23. X-ray observations.Kulkarni *et al.* 1994, Natur, 368, 129. VLA at 1.4 GHz (31″) and 8.4 GHz (5″.5)Vasisht *et al.* 1995, ApJ, 440, L65. Radio monitoring of core.Frail *et al.* 1996, AJ, 111, 1651. OH emission near remnant.Corbel *et al.* 1997, ApJ, 478, 624. CO observations of surroundings.Frail *et al.* 1997, ApJ, 480, L129. VLA monitoring of changing core.Kouveliotou *et al.* 1998, Natur, 393, 235. X-ray pulsar detection.**G11.2 – 0.3****RA:** 18^h08^m30^s**Dec:** –19°26′**1-GHz flux/Jy:** 22**Spectral index:** 0.49**Size/arcmin:** 4**Type:** C

Probably associated with the SN of AD386.

Radio: Symmetrical clumpy shell, possibly with flatter spectrum core.**X-ray:** Shell, with hard spectrum centrally brightened region.**Point sources:** Central pulsar.**Distance:** HI absorption indicates 5 kpc.**References:**

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).

Radhakrishnan *et al.* 1972, ApJS, 24, 49. HI absorption.

Becker & Kundu 1975, AJ, 80, 679. NRAO 140-ft at 10.6 GHz (3′).

Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz (2′.6).

Downes 1984, MNRAS, 210, 845. VLA at 1465 MHz (20″ × 25″) and HRI observations, with review of flux densities.

Becker *et al.* 1985, ApJ, 296, 461. VLA at 1.4 and 5 GHz, plus HI absorption, HRI and IPC observations.

Morsi & Reich 1987, A&AS, 71, 189. Effelsberg 100-m at 32 GHz (26″.5: S=4.04±0.24).

Green *et al.* 1988, MNRAS, 231, 735. VLA at 1.4 and 5 GHz.

Kassim 1992, AJ, 103, 943. VLA at 327 MHz (3′.2 × 4′.1: S=39).

Reynolds *et al.* 1994, MNRAS, 271, L1. ROSAT image and spectra.Vasisht *et al.* 1996, ApJ, 456, L59. ASCA observations.Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.Torii *et al.* 1997, ApJ, 489, L145. ASCA detection of pulsar.**G11.4 – 0.1****RA:** 18^h07^m50^s**Dec:** –19°06′**1-GHz flux/Jy:** 6**Spectral index:** 0.5**Size/arcmin:** 8**Type:** S?**Radio:** Incomplete shell, possibly with central core.**References:**Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz (3′: S=9.4) contaminated by sidelobes of a nearby source, and Parkes 64-m at 5 GHz (4′: S=2.8).Angerhofer *et al.* 1977, A&A, 55, 11. NRAO 140-ft at 5 GHz (6′.8: S=2.0±0.4).Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz (2′.6).

Kassim 1992, AJ, 103, 943. VLA at 327 MHz (3′.2 × 4′.1: S=18).

Dubner *et al.* 1993, AJ, 105, 2251. VLA at 1.47 GHz (44″ × 63″: S=5.1±0.6).Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G12.0 – 0.1

RA: 18^h09^m15^s
Dec: –18°38′

1-GHz flux/Jy: 3.5
Spectral index: 0.7

Size/arcmin: 7?
Type: ?

Radio: Incomplete shell, defined in E only.

References:

Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz ($3' : S=6.6$) and Parkes 64-m at 5 GHz ($4' : S=1.1$).
 Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz ($2'.6$).
 Kassim 1992, AJ, 103, 943. VLA at 327 MHz ($3'.2 \times 4'.1$).
 Dubner *et al.* 1993, AJ, 105, 2251. VLA at 1.47 GHz ($41'' \times 61'' : S=0.7$).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G13.3 – 1.3

RA: 18^h16^m30^s
Dec: –18°01′

1-GHz flux/Jy: ?
Spectral index: ?

Size/arcmin: 70 × 40
Type: S?

Radio: Amporphous emission.

X-ray: Elongated emission.

Optical: Filaments in S.

Distance: Absorption indicates 2–4 kpc.

References:

Seward *et al.* 1995, ApJ, 449, 681. ROSAT detection, optical studies and observations of CO.
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G13.5+0.2

RA: 18^h11^m20^s
Dec: –17°13′

1-GHz flux/Jy: 3.5?
Spectral index: 1.0?

Size/arcmin: 5 × 4
Type: S

Has been called G13.46+0.16.

Radio: Elongated, incomplete shell.

References:

Helfand *et al.* 1989, ApJ, 341, 151. VLA at 5 GHz ($S=0.65 \pm 0.05$) and 1.4 GHz ($15'' : S=2.67 \pm 0.5$).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G15.1 – 1.6

RA: 18^h21^m05^s
Dec: –16°36′

1-GHz flux/Jy: 5.5?
Spectral index: 0.8?

Size/arcmin: 30 × 24
Type: S

Radio: Elongated, incomplete shell.

References:

Reich *et al.* 1988, in SNRISM, p293. Summary of parameters.
 Reich *et al.* 1990, A&AS, 85, 633. Effelsberg 100-m at 2.7 GHz ($4'.3$).

G15.9+0.2

RA: 18^h16^m00^s
Dec: –15°03′

1-GHz flux/Jy: 5
Spectral index: 0.6?

Size/arcmin: 7 × 5
Type: S?

Radio: Incomplete shell, with bright concentration to the E.

References:

Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz ($3' : S=7.7$) and Parkes 64-m at 5 GHz ($4' : S=1.9$).
 Angerhofer *et al.* 1977, A&A, 55, 11. NRAO 140-ft at 5 GHz ($6'.8 : S=1.1 \pm 0.2$).
 Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz ($2'.6$).
 Caswell *et al.* 1982, MNRAS, 200, 1143. FIRST at 1415 MHz ($58'' \times 44''$).
 Dubner *et al.* 1996, AJ, 111, 1304. VLA at 330 MHz ($77'' \times 61'' : S=11.2 \pm 1.0$), 1.4 GHz ($23'' \times 14'' : S=3.9 \pm 0.1$) and 4.9 GHz ($13'' \times 16''$).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G16.7+0.1

RA: 18^h18^m05^s
Dec: –14°21′

1-GHz flux/Jy: 3.0
Spectral index: 0.6

Size/arcmin: 4
Type: C

Has been called G16.73+0.08.

Radio: Asymmetric shell with flat-spectrum core.

References:

Helfand *et al.* 1989, ApJ, 341, 151. VLA at 5 GHz ($5': S=0.95$) and 1.4 GHz ($15'': S=2.43$) and OSRT at 327 MHz ($S=5.13$).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations, including masers.

G16.8–1.1

RA: 18^h22^m30^s
Dec: –14°48′

1-GHz flux/Jy: 2?
Spectral index: ?

Size/arcmin: 30 × 24?
Type: ?

Has been called G16.85–1.05.

Radio: Overlapping thermal and non-thermal emission, parameters uncertain.

Point sources: Pulsar within boundary of non-thermal emission.

References:

Reich *et al.* 1986, A&A, 155, 185. Effelsberg 100-m at 4.75 GHz ($2'.4$), plus other observations.

G17.4–2.3

RA: 18^h28^m05^s
Dec: –14°54′

1-GHz flux/Jy: 4.8?
Spectral index: 0.8?

Size/arcmin: 24?
Type: S

Radio: Incomplete, poorly defined shell.

References:

Reich *et al.* 1988, in SNRISM, p293. Summary of parameters.
 Reich *et al.* 1990, A&AS, 85, 633. Effelsberg 100-m at 2.7 GHz ($4'.3$).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G17.8–2.6

RA: 18^h30^m00^s
Dec: –14°41′

1-GHz flux/Jy: 4.0?
Spectral index: 0.3?

Size/arcmin: 24
Type: S

Radio: Well defined shell.

References:

Reich *et al.* 1988, in SNRISM, p293. Summary of parameters.
 Reich *et al.* 1990, A&AS, 85, 633. Effelsberg 100-m at 2.7 GHz ($4'.3$).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G18.8+0.3

RA: 18^h21^m10^s
Dec: –12°25′

1-GHz flux/Jy: 33
Spectral index: 0.4

Size/arcmin: 17 × 11
Type: S
 Kes 67

Has been called G18.9+0.3.

Radio: Incomplete shell, in complex region near the HII region W39.

Distance: HI absorption indicates > 9.5 kpc, and possibly < 19 kpc.

References:

Willis 1973, A&A, 26, 237. NRAO 300-ft at 2.7 GHz ($5': S=17 \pm 7$).
 Clark *et al.* 1975, AuJPA, 37, 75. Molonglo at 408 MHz ($3': S=38$).
 Caswell *et al.* 1975, A&A, 45, 239. Parkes HI absorption.
 Dickel & Milne 1976, AuJPh, 29, 435. Comparison of earlier Parkes 64-m maps at 2.7 GHz ($8'.4$) and 5 GHz ($4'.4$).
 Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz ($2'.6$).
 Milne *et al.* 1989, PASAu, 8, 187. Parkes 64-m at 8.4 GHz ($3'.0: S=12.9 \pm 1.0$), including polarization.
 Kassim 1992, AJ, 103, 943. VLA at 327 MHz ($2'.9 \times 3'.5: S=55$).
 Dubner *et al.* 1996, AJ, 111, 1304. VLA at 1.4 GHz ($75'' \times 55'' : S=29.9 \pm 0.3$).

G18.9 – 1.1**RA:** 18^h27^m00^s**Dec:** –13°00′**1-GHz flux/Jy:** 37**Spectral index:** varies**Size/arcmin:** 33**Type:** C?

Has been called G18.95–1.1 and G18.94–1.04.

Radio: Non-thermal, diffuse partially limb-brightened, with central ridge.

X-ray: Partial shell.

References:

Fürst *et al.* 1985, Natur, 314, 720. Effelsberg 100-m at 4.75 GHz ($2'.4 : S=23.8$), plus other flux densities.

Odegard 1986, AJ, 92, 1372. TPT at 57.5 MHz ($7'.2 \times 8' : S=82 \pm 15$), plus review of flux densities.

Barnes & Turtle 1988, in SNRISM, p347. Molonglo at 408 MHz ($2'.9 \times 3'.1 : S=58 \pm 9$) and Parkes 64-m at 5 GHz ($4'.4 \times 4'.1 : S=23 \pm 6$).

Patnaik *et al.* 1988, Natur, 332, 136. OSRT at 327 MHz ($0'.6 \times 1'.6$).

Fürst *et al.* 1989, A&A, 209, 361. Effelsberg 100-m at 4.75 GHz ($2'.45 : S=23.8$) and VLA at 1.5 and 4.9 GHz ($19'' \times 14''$), and Effelsberg 100-m at 1.4 GHz ($9'$) for HI.

Aschenbach *et al.* 1991, A&A, 246, L32. ROSAT observations.

Fürst *et al.* 1997, A&A, 319, 655. ROSAT observations, and Effelsberg 100-m at 10.6 GHz ($1'.1$).

G20.0 – 0.2**RA:** 18^h25^m20^s**Dec:** –11°37′**1-GHz flux/Jy:** 10**Spectral index:** 0.0**Size/arcmin:** 10**Type:** F

Radio: Faint, filled-centre, polarized.

Point sources: OH source 20.1–0.1 is nearby.

References:

Becker & Helfand 1985, ApJ, 297, L25. VLA at 1.4 and 5 GHz ($12''$).

Odegard 1986, AJ, 92, 1372. TPT at 57.5 MHz ($7'.2 \times 8' : S=8.5 \pm 2$), plus review of flux densities.

Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.

G21.5 – 0.9**RA:** 18^h30^m47^s**Dec:** –10°37′**1-GHz flux/Jy:** 6**Spectral index:** 0.0**Size/arcmin:** 1.2**Type:** F

Radio: Filled-centre, with high frequency turnover.

X-ray: Detected, with power-law spectrum.

Distance: HI absorption indicates 5.5 kpc.

References:

Wilson & Weiler 1976, A&A, 53, 89. WSRT at 5 GHz ($6'' \times 35''$).

Becker & Kundu 1976, ApJ, 204, 427. NRAO interferometer at 2.7 GHz ($20'' \times 5''$) and 8 GHz ($7'' \times 2''$), plus review of flux densities.

Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz ($2'.6$).

Becker & Szymkowiak 1981, ApJ, 248, L23. VLA at 5 GHz ($8''$), and HRI and IPC observations.

Davelaar *et al.* 1986, ApJ, 300, L59. EXOSAT X-ray spectrum, and VLA HI observations.

Morsi & Reich 1987, A&AS, 69, 533. Effelsberg 100-m at 32 GHz ($26''.5 : S=5.64 \pm 0.29$).

Fürst *et al.* 1988, PASJ, 40, 347. NRO array at 22.3 GHz ($4''.4 \times 7''.3$).

Salter *et al.* 1989, A&A, 225, 167. Observations at 90.7 ($29''.5 : S=3.8 \pm 0.4$) and 141.9 GHz ($S=2.5 \pm 1.2$).

Salter *et al.* 1989, ApJ, 338, 171. NRAO 12-m at 84.2 GHz ($S=3.94 \pm 0.70$), plus review of flux densities.

Asaoka & Koyama 1990, PASJ, 42, 625. Ginga X-ray spectrum.

Kassim 1992, AJ, 103, 943. VLA at 327 MHz ($3'.3 \times 3'.4 : S=9$).

Wallace *et al.* 1994, A&A, 286, 565. HI of surroundings.

Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.

Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G21.8 – 0.6

Kes 69

RA: 18^h30^m00^s**1-GHz flux/Jy:** 69**Size/arcmin:** 20**Dec:** –10° 10′**Spectral index:** 0.5**Type:** S**Radio:** Incomplete shell.**X-ray:** Detected.**Distance:** H₂CO absorption indicates > 6.3 kpc.**References:**

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).

Wilson 1972, A&A, 19, 354. H₂CO absorption.Kundu *et al.* 1974, AJ, 79, 1332. NRAO 140-ft at 5 GHz (6′) and 10 GHz (3′).Velusamy & Kundu 1974, A&A, 32, 375. NRAO 300-ft at 2.7 GHz (5′ : $S = 42.3 \pm 4.6$).

Dickel & Milne 1976, AuJPh, 29, 435. Comparison of earlier Parkes 64-m maps at 2.7 GHz (8′.4) and 5 GHz (4′.4).

Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz (2′.6).

Seward 1990, ApJS, 73, 781. IPC observations.

Kassim 1992, AJ, 103, 943. VLA at 327 MHz (3′.3 × 3′.5 : $S = 132$).Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations, including masers.**G22.7 – 0.2****RA:** 18^h30^m30^s**1-GHz flux/Jy:** 33**Size/arcmin:** 26**Dec:** –09° 15′**Spectral index:** 0.6**Type:** S?**Radio:** Non-thermal ring in complex region, overlapping G23.3–0.3.**References:**

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).

Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz (2′.6).Kassim 1992, AJ, 103, 943. VLA at 327 MHz (3′.3 × 3′.4 : $S = 82$).Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.**G23.3 – 0.3**

W41

RA: 18^h32^m00^s**1-GHz flux/Jy:** 70**Size/arcmin:** 27**Dec:** –08° 50′**Spectral index:** 0.5**Type:** S**Radio:** Incomplete ring, in complex region, overlapping G22.7–0.2.**Point sources:** Pulsar association suggested.**References:**

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).

Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz (2′.6).Kassim 1992, AJ, 103, 943. VLA at 327 MHz (3′.3 × 3′.4 : $S = 138$).

Gaensler & Johnston 1995, MNRAS, 275, L73. Possible pulsar association.

Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.**G23.6+0.3****RA:** 18^h30^m20^s**1-GHz flux/Jy:** 8?**Size/arcmin:** 10?**Dec:** –08° 15′**Spectral index:** 0.3**Type:** ?**Radio:** Not well resolved, in complex region.**References:**

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).

Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz (2′.6).Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G24.7 – 0.6

RA: 18^h36^m00^s
Dec: –07°35′

1-GHz flux/Jy: 8
Spectral index: 0.5

Size/arcmin: 15?
Type: S?

Radio: Incomplete shell, defined in SW.

References:

Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz ($3' : S = 12.3$) and Parkes 64-m at 5 GHz ($4' : S = 3.6$).
 Angerhofer *et al.* 1977, A&A, 55, 11. NRAO 140-ft at 5 GHz ($6'.8 : S = 2.2 \pm 0.5$).
 Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz ($2'.6$).
 Dubner *et al.* 1993, AJ, 105, 2251. VLA at 1.47 GHz ($44'' \times 56'' : S = 1.9$).
 Frail *et al.* 1996, AJ, 111, 1651. OH emission near remnant.
 Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.

G24.7 + 0.6

RA: 18^h31^m30^s
Dec: –07°07′

1-GHz flux/Jy: 20?
Spectral index: 0.2?

Size/arcmin: 30 × 15
Type: C?

Radio: Filled-centre, with faint shell, and a compact HII region to the S.

References:

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz ($3'$) and Parkes 64-m at 5 GHz ($4'$).
 Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz ($2'.6$).
 Reich *et al.* 1984, A&A, 133, L4. Effelsberg 100-m at 2.7 GHz ($4.3 : S = 19 \pm 3$) and 4.75 GHz ($2'.4 : S = 17 \pm 4$) and NRO 45-m at 10.2 GHz ($2'.7 : S = 15 \pm 3$).
 Becker & Helfand 1987, ApJ, 316, 660. VLA at 1.4 GHz ($12''$), and X-ray upper limit.
 Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.

G27.4 + 0.0

RA: 18^h38^m40^s
Dec: –04°59′

1-GHz flux/Jy: 6
Spectral index: 0.68

4C–04.71
Size/arcmin: 4
Type: S

Early references refer to G27.3–0.1 (Kes 73), a supposed larger remnant.

Radio: Incomplete shell.

X-ray: Diffuse emission, with central compact source.

Point sources: Central long period pulsar.

Distance: HI absorption indicates 6 to 7.5 kpc.

References:

Velusamy & Kundu 1974, A&A, 32, 375. NRAO 300-ft at 2.7 GHz ($5'$).
 Dickel & Milne 1976, AuJPh, 29, 435. Comparison of earlier Parkes 64-m maps at 2.7 GHz ($8'.4$) and 5 GHz ($4'.4$).
 Angerhofer *et al.* 1977, A&A, 55, 11. NRAO 140-ft at 5 GHz ($6'.8 : S = 2.0 \pm 0.5$).
 Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz ($2'.6$).
 Clark *et al.* 1975, AuJPA, 37, 75. Molonglo at 408 MHz ($3' : S = 4.4$).
 Caswell *et al.* 1982, MNRAS, 200, 1143. FIRST at 1415 MHz ($60'' \times 45'' : S = 3.5$). Revise $S(408) = 10.4$, and $S(5000) = 1.9 \pm 0.2$.
 Kriss *et al.* 1985, ApJ, 288, 703. IPC and HRI observations, plus VLA at 1.4 and 5 GHz ($12''$).
 Sanbonmatsu & Helfand 1992, AJ, 104, 2189. VLA at 1.4 GHz for HI absorption.
 Helfand *et al.* 1994, ApJ, 434, 627. ROSAT observations, particularly of central source.
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations, including nearby masers.
 Vasisht & Gotthelf 1997, ApJ, 486, L129. ASCA detection of pulsar.
 Gotthelf & Vasisht 1997, ApJ, 486, L133. ASCA observations.

G27.8 + 0.6

RA: 18^h37^m06^s
Dec: –04°28′

1-GHz flux/Jy: 30
Spectral index: varies

Size/arcmin: 50 × 30
Type: F

Radio: Filled-centre, with spectral turnover.

References:

Reich *et al.* 1984, A&A, 133, L4. Effelsberg 100-m at 2.7 GHz ($4'.3 : S = 23 \pm 2$), and 4.75 GHz ($2'.4 : S = 18 \pm 2$) and NRO 45-m at 10.2 GHz (smoothed to $4'.3 : S = 8.5 \pm 2$).
 Frail *et al.* 1996, AJ, 111, 1651. OH emission near remnant.
 Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.

G28.8+1.5**RA:** 18^h36^m30^s**Dec:** –02°40′**1-GHz flux/Jy:** ?
Spectral index: 0.4?**Size/arcmin:** 100?**Type:** S?**Radio:** Part of rim detected.**X-ray:** Diffuse, Centrally brightened.**References:**

Schwentker 1994, A&A, 286, L47. ROSAT observations.

G29.7 – 0.3**RA:** 18^h43^m48^s**Dec:** –03°02′**1-GHz flux/Jy:** 10
Spectral index: 0.7

Kes 75

Size/arcmin: 3**Type:** C**Radio:** Shell with flatter spectrum emission from centre.**X-ray:** Thermal shell and non-thermal core.**Distance:** HI absorption indicates > 9 kpc and possibly at 21 kpc.**References:**

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).

Milne & Dickel 1974, AuJPh, 27, 549. Parkes 64-m at 2.7 GHz (8′.4: $S=5\pm 20\%$).

Becker & Kundu 1975, AJ, 80, 679. NRAO 140-ft at 10.6 GHz (3′).

Becker & Kundu 1976, ApJ, 204, 427. NRAO interferometer at 2.7 GHz (20″ × 7″) and 8 GHz (25″ × 8″), plus review of flux densities.

Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz (2′.6).Becker *et al.* 1983, ApJ, 268, L93. VLA at 1.4 GHz (3″), plus IPC and HRI.

Becker & Helfand 1984, ApJ, 283, 154. VLA at 5 GHz (2″.6), plus HI.

Morsi & Reich 1987, A&AS, 71, 189. Effelsberg 100-m at 32 GHz (26″.5: $S=1.02\pm 0.07$).Salter *et al.* 1989, ApJ, 338, 171. NRAO 12-m at 84.2 GHz of core, plus review of flux densities.Kassim 1992, AJ, 103, 943. VLA at 327 MHz (3′.4 × 3′.7: $S=27.4$).

Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.

Blanton & Helfand 1996, ApJ, 470, 961. ASCA observations.

Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.**G30.7 – 2.0****RA:** 18^h51^m50^s**Dec:** –02°58′**1-GHz flux/Jy:** 0.5?
Spectral index: 0.7?**Size/arcmin:** 16**Type:** ?**Radio:** Poorly defined.**References:**Reich *et al.* 1988, in SNRISM, p293. Summary of parameters.Reich *et al.* 1990, A&AS, 85, 633. Effelsberg 100-m at 2.7 GHz (4′.3).Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.**G30.7+1.0****RA:** 18^h42^m10^s**Dec:** –01°35′**1-GHz flux/Jy:** 6
Spectral index: 0.4**Size/arcmin:** 24 × 18**Type:** S?**Radio:** Non-thermal, highly polarized part shell?**Point sources:** Compact source near centre.**References:**Reich *et al.* 1986, A&A, 155, 185. Effelsberg 100-m at 4.75 GHz (2′.4: $S=3.4\pm 0.4$), plus other flux densities.Kassim 1992, AJ, 103, 943. VLA at 327 MHz (3′.6 × 3′.9: $S=8.6$).Gorham *et al.* 1996, ApJ, 458, 257. Pulsar search.

G31.5 – 0.6**RA:** 18^h48^m35^s**Dec:** –01°35′**1-GHz flux/Jy:** 2?**Spectral index:** ?**Size/arcmin:** 18?**Type:** S?

Has been called G31.55–0.65.

Radio: Distorted shell? near HII region.**References:**Fürst *et al.* 1987, A&AS, 69, 403. Effelsberg 100-m at 4.75 GHz (2′.4), plus other flux densities.**G31.9+0.0****RA:** 18^h46^m50^s**Dec:** –00°59′**1-GHz flux/Jy:** 24**Spectral index:** 0.55

3C391

Size/arcmin: 5 × 7**Type:** S**Radio:** Shell, brightest in NW.**X-ray:** Diffuse with central core.**Distance:** HI absorption is seen to the tangent point (8.5 kpc).**References:**Radhakrishnan *et al.* 1972, ApJS, 24, 49. HI absorption.

Becker & Kundu 1975, AJ, 80, 679. NRAO 140-ft at 10.6 GHz (3′).

Green *et al.* 1975, A&A, 44, 187. Effelsberg 100-m at 15 GHz (58′ : $S > 1.6$).

Becker & Kundu 1976, ApJ, 204, 427. NRAO interferometer at 2.7 GHz (20′ × 23′) and 8 GHz (24′ × 9′), plus review of flux densities.

Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz (2′.6).Goss *et al.* 1979, A&A, 78, 75. FIRST at 1.4 GHz (54′ × 66′ : $S = 20 \pm 2$) and Effelsberg 100-m at 10.7 GHz (77′ : $S = 7.5 \pm 0.8$).

Wang & Seward 1984, ApJ, 279, 705. IPC and HRI observations.

Kassim 1992, AJ, 103, 943. VLA at 327 MHz (3′.4 × 3′.7 : $S = 44.8$).

Reynolds & Moffett 1993, AJ, 105, 2226. VLA at 1.4 GHz (6′), including possible associated CO.

Moffett & Reynolds 1994, ApJ, 425, 668. VLA at 330 MHz (smoothed to 30′ : $S = 38.5 \pm 0.5$) 1.46 GHz (6′.7) and 4.85 GHz (6′.2 × 6′.4), including spectral index and polarization studies.Frail *et al.* 1996, AJ, 111, 1651. OH emission near remnant, including masers.Gorham *et al.* 1996, ApJ, 458, 257. Pulsar search.

Reach & Rho 1996, A&A, 315, L277. ISO spectroscopy.

Rho & Petre 1996, ApJ, 467, 698. ROSAT observations.

Wilner *et al.* 1998, AJ, 115, 247. CO observations of surroundings.**G32.0 – 4.9****RA:** 19^h03^m00^s**Dec:** –03°00′**1-GHz flux/Jy:** 22?**Spectral index:** 0.5?

3C396.1

Size/arcmin: 60?**Type:** S?**Radio:** Possible large shell?**References:**Milne & Hill 1969, AuJPh, 22, 211. Parkes 64-m at 635 MHz (31′ : $S = 25 \pm 30\%$), 1410 MHz (15′ : $S = 19 \pm 15\%$) and 2650 MHz (8′.4 : $S = 8.6 \pm 30\%$). Fluxes if size is 60′, plus review of flux densities.

Caswell 1970, AuJPh, 23, 105. Revision of low frequency flux densities.

Dickel & DeNoyer 1975, AJ, 80, 437. Arecibo at 111 MHz ($S = 105 \pm 30$).**G32.1 – 0.9****RA:** 18^h50^m30^s**Dec:** –01°12′**1-GHz flux/Jy:** ?**Spectral index:** ?**Size/arcmin:** 40?**Type:** C?**Radio:** Possible faint shell, not well defined.**X-ray:** Diffuse, with clumps.**References:**Folgheraiter *et al.* 1997, MNRAS, 292, 365. ROSAT and ASCA observations.

G32.8 – 0.1

Kes 78

RA: 18^h48^m50^s**1-GHz flux/Jy:** 11?**Size/arcmin:** 17**Dec:** –00°12′**Spectral index:** 0.2?**Type:** S?

Part has been called G33.1–0.1.

Radio: Elongated shell?**References:**

Velusamy & Kundu 1974, A&A, 32, 375. NRAO 300-ft et 2.7 GHz ($S' : S = 7.2 \pm 0.5$).
 Dickel & DeNoyer 1975, AJ, 80, 437. Arecibo at 430 MHz ($S = 19.0 \pm 15.5$).
 Becker & Kundu 1975, AJ, 80, 679. NRAO 140-ft at 10.6 GHz ($3'$).
 Caswell *et al.* 1975, AuJPA, 37, 39. Molonglo at 408 MHz ($3' : S = 12.8$) and Parkes 64-m at 5 GHz ($4' : S = 7.7$).
 Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz ($2'.6$).
 Kassim 1992, AJ, 103, 943. VLA at 327 MHz ($3'.6 \times 3'.8 : S = 31.3$).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G33.2 – 0.6**RA:** 18^h51^m12^s**1-GHz flux/Jy:** 3.5**Size/arcmin:** 18**Dec:** –00°05′**Spectral index:** varies**Type:** S**Radio:** Incomplete shell.**References:**

Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz ($2'.6$).
 Reich 1982, A&A, 106, 314. Effelsberg 100-m at 2.7 GHz ($4'.4 : S = 2.6 \pm 0.3$) and 4.75 GHz ($2'.5 : S = 1.75 \pm 0.2$).
 Dubner *et al.* 1996, AJ, 111, 1304. VLA at 1.4 GHz ($68'' \times 52'' : S = 2.7 \pm 0.3$).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G33.6+0.1

Kes 79, 4C00.70, HC13

RA: 18^h50^m15^s**1-GHz flux/Jy:** 22**Size/arcmin:** 10**Dec:** +00°37′**Spectral index:** 0.5**Type:** S

Has been called G33.7+0.0.

Radio: Shell, with bright central region, in complex region.**X-ray:** Detected.**Distance:** HI absorption gives about 10 kpc.**References:**

Caswell *et al.* 1975, AuJPA, 37, 39. Molonglo at 408 MHz ($3' : S = 35.5$) and Parkes 64-m at 5 GHz ($4' : S = 7.8$).
 Caswell *et al.* 1975, A&A, 45, 239. HI absorption.
 Dickel & DeNoyer 1975, AJ, 80, 437. Arecibo $S(430) = 69 \pm 33$.
 Becker & Kundu 1975, AJ, 80, 679. NRAO 140-ft at 10.6 GHz ($3' : S = 6.8 \pm 1.5$).
 Angerhofer *et al.* 1977, A&A, 55, 11. NRAO 140-ft at 5 GHz ($6'.8 : S = 11.4 \pm 1.1$).
 Caswell *et al.* 1981, MNRAS, 195, 89. FIRST at 1415 MHz ($1'$), plus observations of the nearby point source.
 van Gorkom *et al.* 1982, MNRAS, 198, 757. WSRT HI absorption to nearby point source, possibly extragalactic.
 Seaquist & Gilmore 1982, AJ, 87, 378. VLA observations of nearby source, plus IPC observations.
 Green 1989, MNRAS, 238, 737. OH absorption.
 Frail & Clifton 1989, ApJ, 336, 854. VLA at 1.4 GHz ($1' \times 2'.9$), including HI absorption.
 Velusamy *et al.* 1991, AJ, 102, 676. VLA at 327 MHz ($1'$), 1.5 ($7'' \times 14''$) and 5 GHz ($7''$), including spectral comparison.
 Green & Dewdney 1992, MNRAS, 254, 686. Observations of adjacent molecular material.
 Kassim 1992, AJ, 103, 943. VLA at 327 MHz ($3'.6 \times 3'.8 : S = 34.8$).
 Seward & Velusamy 1995, ApJ, 439, 715. ROSAT observations.
 Gorham *et al.* 1996, ApJ, 458, 257. Pulsar search.
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G34.7 – 0.4

W44, 3C392

RA: 18^h53^m30^s**1-GHz flux/Jy:** 230**Size/arcmin:** 35 × 27**Dec:** +01° 18′**Spectral index:** 0.30**Type:** S

Has been called G34.6–0.5.

Radio: Distorted shell, brighter to the E, with pulsar and associated nebula.

X-ray: Centrally concentrated, thermal spectrum, plus pulsar nebula.

Point sources: Pulsar within the boundary of the remnant.

Distance: HI absorption indicates 3 kpc.

References:

Kundu & Velusamy 1972, A&A, 20, 237. NRAO 140-ft at 10.7 GHz ($3' : S = 105 \pm 7$).

Velusamy & Kundu 1974, A&A, 32, 375. NRAO 300-ft at 2.7 GHz ($5' : S = 177 \pm 10$).

Caswell *et al.* 1975, A&A, 45, 239. HI absorption.

Clark *et al.* 1975, AuJPA, 37, 75. Molonglo at 408 MHz ($3' : S = 299$ which is less than the 390 Jy found by Kesteven 1968, AuJPh, 21, 739 with the same telescope).

Dickel & DeNoyer 1975, AJ, 80, 437. Arecibo $S(430) = 540 \pm 187$.

Dickel & Milne 1976, AuJPh, 29, 435. Comparison of earlier Parkes 64-m maps at 2.7 GHz ($8'.4$) and 5 GHz ($4'.4$).

Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz ($2'.6$).

Smith *et al.* 1985, MNRAS, 217, 99. IPC observations.

Wolszczan *et al.* 1991, ApJ, 372, L99. Pulsar detection.

Kassim 1992, AJ, 103, 943. VLA at 327 MHz ($3'.6 \times 3'.8 : S = 469$).

Jones *et al.* 1993, MNRAS, 265, 631. VLA at 1.4 GHz ($15''$), plus X-ray spectra.

Rho *et al.* 1994, ApJ, 430, 757. Optical and ROSAT observations.

Koo & Heiles 1995, ApJ, 442, 679. HI of surrounding shell.

Esposito *et al.* 1996, ApJ, 461, 820. Possible associated γ -ray emission.

Harrus *et al.* 1996, ApJ, 464, L161. ASCA observations.

Frail *et al.* 1996, ApJ, 464, L165. VLA at 1.5 and 8.4 GHz ($8''.9 \times 7''.8$) of pulsar nebula.

Frail *et al.* 1996, AJ, 111, 1651. OH maser emission.

Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.

Reach & Rho 1996, A&A, 315, L277. ISO spectroscopy.

Harrus *et al.* 1997, ApJ, 488, 781. X-ray observations.

Causen *et al.* 1997, ApJ, 489, 143. VLA of associated OH masers.

Giacani *et al.* 1997, AJ, 113, 1379. VLA at 1.4 GHz ($15''$), plus optical images.

G36.6 – 0.7**RA:** 18^h58^m05^s**1-GHz flux/Jy:** ?**Size/arcmin:** 25?**Dec:** +02° 52′**Spectral index:** ?**Type:** S?

Radio: Polarized arc, possibly part of a larger shell?

References:

Fürst *et al.* 1987, A&AS, 69, 403. Effelsberg 100-m at 4.75 GHz ($2'.4$), plus other flux densities.

Kassim 1992, AJ, 103, 943. VLA at 327 MHz ($3'.4 \times 3'.7 : S = 6.7$).

Gorham *et al.* 1996, ApJ, 458, 257. Pulsar search.

G36.6+2.6**RA:** 18^h46^m20^s**1-GHz flux/Jy:** 0.7?**Size/arcmin:** 17 × 13?**Dec:** +04° 23′**Spectral index:** 0.5?**Type:** S

Radio: Poorly resolved shell.

References:

Reich *et al.* 1988, in SNRISM, p293. Summary of parameters.

Reich *et al.* 1990, A&AS, 85, 633. Effelsberg 100-m at 2.7 GHz ($4'.3$).

G39.2 – 0.3

3C396, HC24, NRAO 593

RA: 19^h01^m40^s**1-GHz flux/Jy:** 18**Size/arcmin:** 8 × 6**Dec:** +05°23′**Spectral index:** 0.6**Type:** S**Radio:** Shell, brightest to the W, with faint ‘tail’ to E.**X-ray:** Centrally brightened.**Distance:** HI absorption suggests at least 7.7 kpc.**References:**

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′).

Dickel & DeNoyer 1975, AJ, 80, 437. Arecibo $S(430) = 54 \pm 38$.Becker & Kundu 1975, AJ, 80, 679. NRAO 140-ft at 10.6 GHz (3′ : $S = 4.1 \pm 1.0$).Caswell *et al.* 1975, A&A, 45, 239. HI absorption.Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz (2′.6).Caswell *et al.* 1982, MNRAS, 200, 1143. FIRST at 1.4 GHz (65″ × 48″).Becker & Helfand 1987, AJ, 94, 1629. VLA at 1.4 GHz (12″ : $S = 14$) and 5 GHz, plus IPC observations.Patnaik *et al.* 1990, A&A, 232, 467. VLA at 1.5 GHz (25″) and 1.4 GHz (7″.8 × 7″.5) and 5 GHz (25″) including polarization, plus OSRT at 327 MHz (100″ × 31″), including review of flux densities.Kassim 1992, AJ, 103, 943. VLA at 327 MHz (3′.5 × 3′.6 : $S = 42.5$).

Anderson & Rudnick 1993, ApJ, 408, 514. VLA at 1.45 and 4.89 GHz for spectral index studies.

Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.

Gorham *et al.* 1996, ApJ, 458, 257. Pulsar search.Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.**G39.7 – 2.0**

W50, SS433

RA: 19^h10^m00^s**1-GHz flux/Jy:** 85?**Size/arcmin:** 120 × 60**Dec:** +04°50′**Spectral index:** 0.7?**Type:** ?

Eastern part has been called G40.0–3.1. Is this a SNR?

Radio: Elongated shell, containing SS433, adjacent to the HII region S74.**Optical:** Faint filaments at the edge of the radio emission.**X-ray:** Emission from SS433 and two lobes.**Point sources:** SS433 is the compact source in the centre of the W50.**Distance:** Distance to SS433 is 5 kpc.**References:**van den Bergh 1980, ApJ, 236, L23. Optical in H α and [SII].Zealey *et al.* 1980, MNRAS, 192, 731. Optical spectra.van Gorkom *et al.* 1982, MNRAS, 198, 757. WSRT HI absorption to nearby point source (not SS433).

Seaquist & Gilmore 1982, AJ, 87, 378. VLA observations of nearby source.

Watson *et al.* 1983, ApJ, 273, 688. X-ray observations.Downes *et al.* 1986, MNRAS, 218, 393. Effelsberg 100-m at 4.75 GHz (2′.4 : $S = 34 \pm 4$), plus previous 1.7 and 2.7 GHz data.Romney *et al.* 1987, ApJ, 321, 822. VLBI of SS433, including distance.

Elston & Baum 1987, AJ, 94, 1633. Mosaic with VLA at 1.4 GHz (30″) of fine structure only.

Kawai *et al.* 1989, PASJ, 41, 491. X-ray observations of SS433.

Band 1989, ApJ, 336, 937. Einstein and EXOSAT observations.

Yamauchi *et al.* 1994, PASJ, 46, L109. X-ray spectral observations.

Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.

Brinkmann *et al.* 1996, A&A, 312, 306. ROSAT observations.

Safi-Harb & Ögelman 1997, ApJ, 483, 868. ROSAT observations.

G40.5 – 0.5**RA:** 19^h04^m45^s**1-GHz flux/Jy:** 11**Size/arcmin:** 22**Dec:** +06°26′**Spectral index:** 0.5**Type:** S**Radio:** Shell, brightest to the NE.**References:**Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz (2′.6).Downes *et al.* 1980, A&A, 92, 47. Effelsberg 100-m at 1.7 GHz (7′.6 : $S = 9.3 \pm 1.3$), and 2.7 GHz (4′.4 : $S = 7.2 \pm 0.5$), plus review of flux densities.

G41.1 – 0.3

3C397

RA: 19^h05^m08^s
Dec: +07°03′**1-GHz flux/Jy:** 22
Spectral index: 0.48**Size/arcmin:** 4.5 × 2.5
Type: S**Radio:** 3C397 is two sources: the E is the SNR, the W is a HII region.**X-ray:** Brighter to the E and W.**Distance:** Possible limit of > 7.5 kpc for non-thermal component from HI absorption.**References:**

- Kundu *et al.* 1974, AJ, 79, 1332. NRAO 140-ft at 10 GHz (3′) and 5 GHz (6′).
 Velusamy & Kundu 1974, A&A, 32, 375. NRAO 300-ft at 2.7 GHz ($S′ : S = 21.3 \pm 1.2$ for both components).
 Caswell *et al.* 1975, A&A, 45, 239. HI absorption.
 Dickel & DeNoyer 1975, AJ, 80, 437. Arecibo $S(430) = 82 \pm 51$, also Algonquin 46-m at 10.6 GHz ($S′ : S = 12 \pm 2$), and Haystack 36-m at 15.5 GHz ($2′.3 : S = 8.5 \pm 3.0$).
 Caswell *et al.* 1975, AuJPA, 37, 39. Molonglo at 408 MHz ($S′ : S = 29.8$) and Parkes 64-m at 5 GHz ($4′ : S = 8.7$).
 Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz (2′.6).
 Caswell *et al.* 1982, MNRAS, 200, 1143. FIRST at 1.4 GHz ($58″ \times 52″$).
 Becker *et al.* 1985, ApJ, 296, 461. VLA at 1.4 and 5 GHz (8″), plus HRI and IPC observations.
 Morsi & Reich 1987, A&AS, 71, 189. Effelsberg 100-m at 32 GHz (smoothed to 30″ : $S = 1.10 \pm 0.19$).
 Kassim 1992, AJ, 103, 943. VLA at 327 MHz ($3′.5 \times 3′.6 : S = 46.3$).
 Anderson & Rudnick 1993, ApJ, 408, 514. VLA at 1.45 and 4.89 GHz, for spectral index studies.
 Gorham *et al.* 1996, ApJ, 458, 257. Pulsar search.
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G42.8+0.6**RA:** 19^h04^m55^s
Dec: +09°00′**1-GHz flux/Jy:** 3?
Spectral index: 0.5?**Size/arcmin:** 24
Type: S

Has been called G42.8+0.65.

Radio: Faint shell.**Point sources:** Near soft gamma repeater.**References:**

- Fürst *et al.* 1987, A&AS, 69, 403. Effelsberg 100-m at 4.75 GHz ($2′.4 : S = 1.5 \pm 0.2$), plus other flux densities.
 Vasishth *et al.* 1994, ApJ, 431, L35. VLA at 327 MHz ($3′.2 \times 3′.4$).
 Hurley *et al.* 1996, ApJ, 463, L13. Observations of soft gamma repeater field.

G43.3 – 0.2

W49B

RA: 19^h08^m44^s
Dec: +09°01′**1-GHz flux/Jy:** 38
Spectral index: 0.48**Size/arcmin:** 4 × 3
Type: S**Radio:** Shell, brightest to the SE and W, near the HII region W49A.**X-ray:** Filled-centre.**Distance:** HI absorption indicates 10 kpc.**References:**

- Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 2.7 GHz (4′).
 Downes & Wilson 1974, A&A, 34, 133. Effelsberg 100-m at 10.7 GHz (1′.3).
 Caswell *et al.* 1975, A&A, 45, 239. HI absorption.
 Green *et al.* 1975, A&A, 44, 187. Effelsberg 100-m at 15.0 GHz ($58″ : S = 9.0 \pm 0.7$).
 Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz (2′.6).
 Pye *et al.* 1984, MNRAS, 207, 649. HRI and IPC observations, and VLA at 1.4 and 5 GHz (both 12″).
 Smith *et al.* 1985, ApJ, 296, 469. EXOSAT spectrum.
 Morsi & Reich 1987, A&AS, 71, 189. Effelsberg 100-m at 32 GHz (smoothed to 30″ : $S = 6.90 \pm 0.38$).
 Moffett & Reynolds 1994, ApJ, 437, 705. VLA at 330 MHz ($6′.7 \times 7′.7 : S = 64.4$), 1.48 GHz ($4′.8 \times 5′.2 : S = 31.8$) and 4.85 GHz ($4′.0 \times 4′.1$), including polarization.
 Fujimoto *et al.* 1995, PASJ, 47, L31. ASCA observations.
 Gorham *et al.* 1996, ApJ, 458, 257. Pulsar search.
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G43.9+1.6

RA: 19^h03^m30^s
Dec: +10°25′

1-GHz flux/Jy: 8.6?
Spectral index: 0.2?

Size/arcmin: 60?
Type: S?

Radio: Large, poorly defined faint shell.

Point sources: Soft gamma repeater nearby.

References:

Reich *et al.* 1988, in SNRISM, p293. Summary of parameters.
 Reich *et al.* 1990, A&AS, 85, 633. Effelsberg 100-m at 2.7 GHz (4′.3).
 Vasisht *et al.* 1994, ApJ, 431, L35. VLA at 327 MHz (3′.2 × 3′.4).
 Hurley *et al.* 1996, ApJ, 463, L13. Observations of soft gamma repeater field.

G45.7 – 0.4

RA: 19^h14^m05^s
Dec: +11°04′

1-GHz flux/Jy: 4.2?
Spectral index: 0.4?

Size/arcmin: 22
Type: S

Radio: Shell, brightest to the SE, poorly defined to NW.

References:

Fürst *et al.* 1987, A&AS, 69, 403. Effelsberg 100-m at 4.75 GHz (2′.4: $S=2.6\pm 0.3$), plus other flux densities.
 Gorham *et al.* 1996, ApJ, 458, 257. Pulsar search.

G46.8 – 0.3

(HC30)

RA: 19^h15^m50^s
Dec: +12°04′

1-GHz flux/Jy: 14
Spectral index: 0.5

Size/arcmin: 17 × 13
Type: S

Has been called G46.6–0.2.

Radio: Shell, two bright arcs to NNW and SSE.

Distance: HI absorption suggests 6.8–8.8 kpc.

References:

Willis 1973, A&A, 26, 237. NRAO 300-ft at 2.7 GHz ($S′: S=9.8\pm 0.9$), and VRO 37-m at 1.7 GHz ($S=14.5\pm 5.5$).
 Caswell *et al.* 1975, AuJPA, 37, 39. Molonglo at 408 MHz ($S′: S=20.3$) and Parkes 64-m at 5 GHz ($4′: S=7.1$).
 Dickel & DeNoyer 1975, AJ, 80, 437. Arecibo $S(430)=46\pm 21$.
 Angerhofer *et al.* 1977, A&A, 55, 11. NRAO 140-ft at 5 GHz ($6′.8: S=5.9\pm 0.6$).
 Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz (2′.6).
 Dubner *et al.* 1996, AJ, 111, 1304. VLA at 1.4 GHz ($58'' \times 53'': S=13.3\pm 0.1$).

G49.2 – 0.7

(W51)

RA: 19^h21^m30^s
Dec: +14°00′

1-GHz flux/Jy: 160?
Spectral index: 0.3?

Size/arcmin: 30
Type: S?

Radio: In complex region, parameters uncertain.

X-ray: Elongated east–west.

Distance: HI absorption suggests 4.1 kpc.

References:

Shaver & Goss 1970, AuJPA, 14, 133. Parkes 64-m at 5 GHz (4′).
 Sato 1973, PASJ, 25, 135. HI absorption.
 Velusamy & Kundu 1974, A&A, 32, 375. NRAO 300-ft at 2.7 GHz ($S′$), $S=51.5\pm 3.2$, for the non-thermal component, but probably confused.
 Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz (2′.6).
 Seward 1990, ApJS, 73, 781. IPC observations.
 Copetti & Schmidt 1991, MNRAS, 250, 127. CLFST at 151 MHz.
 Kassim 1992, AJ, 103, 943. VLA at 327 MHz (3′.1 × 3′.5).
 Subrahmanyan & Goss 1995, MNRAS, 275, 755. VLA at 330 MHz (1′.1).
 Koo *et al.* 1995, ApJ, 447, 211. ROSAT observations.
 Frail *et al.* 1996, AJ, 111, 1651. OH emission near remnant.
 Gorham *et al.* 1996, ApJ, 458, 257. Pulsar search.
 Green *et al.* 1997, AJ, 114, 2058. OH masers.
 Koo & Moon 1997, ApJ, 475, 194. Arecibo (3′) and VLA (40'' × 42'') at 1.4 GHz for HI.
 Koo & Moon 1997, ApJ, 485, 263. NRAO 12-m CO and HCO⁺ observations.

G53.6 – 2.2

RA: 19^h36^m30^s
Dec: +17°08′

1-GHz flux/Jy: 8
Spectral index: 0.75

3C400.2, NRAO 611
Size/arcmin: 28 × 33
Type: S

Has been called G53.7–2.2.

Radio: Ring of emission, with extension to NW.

Optical: Filaments and diffuse emission.

X-ray: Centrally brightened, offset to NW.

Distance: Mean optical velocity indicates 6.7 kpc.

References:

Willis 1973, A&A, 26, 237. NRAO 300-ft at 2.7 GHz ($S' : S = 5.3 \pm 0.6$).
van den Bergh 1978, ApJS, 38, 119. Optical.
Velusamy & Kundu 1974, A&A, 32, 375. NRAO 300-ft at 2.7 GHz ($S' : S = 4.8 \pm 0.3$).
Clark *et al.* 1975, AuJPA, 37, 75. Molonglo at 408 MHz ($3' : S = 11.7$).
Dickel & DeNoyer 1975, AJ, 80, 437. Arecibo $S(430) = 20 \pm 10$, $S(318) = 20 \pm 3.6$.
Goss *et al.* 1975, A&A, 43, 459. WSRT at 610 MHz ($1' \times 3' : S = 13.2 \pm 1.6$).
Sabbadin & d'Odorico 1976, A&A, 49, 119. Optical spectra.
Rosado 1983, RMxAA, 8, 59. Optical spectra.
Blair & Long 1988, PASP, 100, 461. Optical imaging and spectroscopy.
Long *et al.* 1991, ApJ, 373, 567. IPC and optical observations.
Winkler *et al.* 1993, ApJ, 405, 608. Optical imaging.
Dubner *et al.* 1994, AJ, 108, 207. VLA at 327 MHz (59'') and 1.49 GHz (52''), plus X-rays.
Saken *et al.* 1995, ApJ, 443, 231. ROSAT observations.
Gorham *et al.* 1996, ApJ, 458, 257. Pulsar search.

G54.1 + 0.3

RA: 19^h28^m18^s
Dec: +18°46′

1-GHz flux/Jy: 0.5
Spectral index: 0.1

Size/arcmin: 1.5
Type: F?

Radio: Filled-centre.

X-ray: Detected.

References:

Green 1985, MNRAS, 216, 691. 5km at 2.7 GHz ($7'' \times 20''$).
Reich *et al.* 1985, A&A, 151, L10. Effelsberg 100-m at 4.75 GHz ($2'.4 : S = 0.37 \pm 0.04$)
Velusamy & Becker 1988, AJ, 95, 1162. VLA at 1.4 ($14'' : S = 0.48 \pm 0.03$), 1.6 ($14'' : S = 0.42 \pm 0.03$) and 5 GHz ($5'' : S = 0.33 \pm 0.02$), OSRT at 327 MHz ($S = 0.50 \pm 0.08$), plus review of flux densities.
Seward 1989, AJ, 97, 481. IPC observations
Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.
Gorham *et al.* 1996, ApJ, 458, 257. Pulsar search.
Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G54.4 – 0.3

RA: 19^h31^m10^s
Dec: +18°50′

1-GHz flux/Jy: 28
Spectral index: 0.5

(HC40)
Size/arcmin: 40
Type: S

Has been called G54.5–0.3.

Radio: Shell, in complex region.

References:

Velusamy & Kundu 1974, A&A, 32, 375. NRAO 300-ft at 2.7 GHz ($S' : S = 34.4 \pm 5.0$).
Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz ($2'.6$).
Caswell 1985, AJ, 90, 1224. DRAO at 1.4 GHz ($1'.3 \times 2'.6 : S = 18 \pm 4$).
Velusamy *et al.* 1986, JApA, 7, 105. WSRT at 609 MHz ($50'' \times 191''$ smoothed to $100'' \times 200''$).
Junkes *et al.* 1992, A&AS, 96, 1. Surrounding CO.
Junkes *et al.* 1992, A&A, 261, 289. Nearby IRAS sources.

G55.0+0.3

RA: 19^h30^m00^s
Dec: +19°45′

1-GHz flux/Jy: 0.5?
Spectral index: 0.5?

Size/arcmin: 15 × 20?
Type: S

Has been called G55.2+0.5.

Radio: Faint, partial shell.

Distance: Association with HI features implies 14 kpc.

Point sources: Old pulsar nearby.

References:

Matthews *et al.* 1998, ApJ, 493, 312. WSRT at 327 MHz ($1'.0 \times 2'.9 : S = 0.98 \pm 0.15$), DRAO at 1.4 GHz ($1'.0 \times 2'.9 : S = 0.25 \pm 0.12$), plus HI observations.

G55.7+3.4

RA: 19^h19^m10^s
Dec: +21°38′

1-GHz flux/Jy: 1.4
Spectral index: 0.6

Size/arcmin: 23
Type: S

Radio: Incomplete shell.

Point sources: Old pulsar within the boundary of the remnant.

References:

Goss *et al.* 1977, A&A, 61, 93. WSRT observations at 610 MHz ($57'' \times 156'' : S = 1.9 \pm 0.2$) and 1415 MHz ($27'' \times 72'' : S = 1.0 \pm 0.1$).

G57.2+0.8

RA: 19^h32^m50^s
Dec: +21°50′

1-GHz flux/Jy: 1.8?
Spectral index: ?

(4C21.53)
Size/arcmin: 12?
Type: S?

Radio: Extended non-thermal arc.

Point sources: Near the millisecond pulsar, but not thought to be related.

References:

Sieber & Seiradakis 1984, A&A, 130, 257. Effelsberg 100-m at 1.4 GHz ($8'.8 : 1.34 \pm 0.1$), 2.7 GHz ($4'.3 : 0.86 \pm 0.1$), plus other surveys of the area.

Caswell *et al.* 1985, AJ, 90, 488. DRAO at 1.4 GHz ($1' \times 3'$).

G59.5+0.1

RA: 19^h40^m25^s
Dec: +23°28′

1-GHz flux/Jy: 3?
Spectral index: ?

Size/arcmin: 5
Type: S

Has been called G59.6+0.1.

Radio: Incomplete shell.

References:

Taylor *et al.* 1992, AJ, 103, 931. WSRT at 327 MHz ($1'.0 \times 2'.5 : S = 5.1 \pm 0.2$), and northern sky survey at 4.9 GHz.

Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G59.8+1.2

RA: 19^h36^m50^s
Dec: +24°12′

1-GHz flux/Jy: 1.6
Spectral index: 0.5

Size/arcmin: 20 × 16?
Type: ?

Has been called G59.7+1.2.

Radio: Poorly defined source.

References:

Reich *et al.* 1988, in SNRISM, p293. Summary of parameters.

Reich *et al.* 1990, A&AS, 85, 633. Effelsberg 100-m at 2.7 GHz ($4'.3$).

G63.7+1.1

RA: 19^h45^m50^s
Dec: +27°37′

1-GHz flux/Jy: 1.8
Spectral index: 0.3

Size/arcmin: 8
Type: F

Radio: Centrally brightened, with core.

References:

Wallace *et al.* 1997, AJ, 114, 2068. WSRT at 1.4 GHz (14″ × 26″ : $S=1.63$), DRAO at 1.4 GHz (smoothed to 2′), plus review of flux densities and other observations.

G65.1+0.6

RA: 19^h52^m30^s
Dec: +28°25′

1-GHz flux/Jy: 6
Spectral index: 0.6

Size/arcmin: 90 × 50
Type: S

Radio: Large, faint shell.

Point sources: Pulsar nearby.

References:

Landecker *et al.* 1990, A&A, 232, 207. DRAO at 408 MHz (3′.5 × 7′.0 : $S=9.5 \pm 0.1$), and 1.4 GHz (1′.0 × 2′.0 : $S=5.4 \pm 1.0$).
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G65.3+5.7

RA: 19^h31^m00^s
Dec: +31°05′

1-GHz flux/Jy: 52?
Spectral index: 0.6?

Size/arcmin: 310 × 240
Type: S?

Has been called G65.2+5.7.

Radio: Large, faint ring? near S91 and S94.

Optical: Strong in H α +[NII] and [OIII].

X-ray: Detected.

Distance: Mean optical velocity suggests 0.8 kpc.

References:

Gull *et al.* 1977, ApJ, 215, L69. Optical plates.
 Reich *et al.* 1979, A&A, 72, 270. Effelsberg 100-m observations at 1.42 GHz (smoothed to 11′ : $S=42.4 \pm 1.6$), estimate $S(408)=91 \pm 5$ from previous sky survey.
 Lozinskaya 1981, SvAL, 7, 17. Mean optical velocity.
 Rosado 1981, ApJ, 250, 222. Optical interferometry.
 Fesen *et al.* 1983, ApJS, 51, 337. Deep [OIII] imagery.
 Fesen *et al.* 1985, ApJ, 292, 29. Optical spectra.
 Seward 1990, ApJS, 73, 781. IPC observations.
 Gorham *et al.* 1996, ApJ, 458, 257. Pulsar search.

G65.7+1.2

RA: 19^h50^m10^s
Dec: +29°18′

1-GHz flux/Jy: 5.1
Spectral index: 0.6

DA 495
Size/arcmin: 18
Type: ?

Has mistakenly been called G55.7+1.2.

Radio: Filled-centre or thick shell?

References:

Willis 1973, A&A, 26, 237. NRAO 300-ft at 2.7 GHz (5′ : $S=2.8 \pm 0.4$), and VRO 37-m at 1.7 GHz ($S=4.4 \pm 0.5$), plus review of flux densities.
 Dickel & DeNoyer 1975, AJ, 80, 437. Arecibo $S(430)=8.7 \pm 4.9$, $S(318)=9.7 \pm 2.2$.
 Landecker & Caswell 1983, AJ, 88, 1810. DRAO at 1.4 GHz (0′.9 × 1′.5 : $S=4.4 \pm 0.2$).
 Velusamy *et al.* 1989, JApA, 10, 161. OSRT at 327 MHz (36″ × 64″), WSRT at 610 MHz (62″) and VLA at 1.4 GHz (36″ and 12″), including IRAS imaging.
 Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.
 Gorham *et al.* 1996, ApJ, 458, 257. Pulsar search.
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G67.7+1.8

RA: 19^h52^m34^s
Dec: +31°21′

1-GHz flux/Jy: 1.4
Spectral index: 0.3

Size/arcmin: 9
Type: S

Radio: Double arc shell.

References:

Taylor *et al.* 1992, AJ, 103, 931. WSRT at 327 MHz (1′.9 × 1′.0: $S=1.9 \pm 0.1$), and northern sky survey at 4.9 GHz ($S=0.42 \pm 0.05$).
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G68.6–1.2

RA: 20^h06^m40^s
Dec: +30°28′

1-GHz flux/Jy: 0.7?
Spectral index: 0.0?

Size/arcmin: 28 × 25?
Type: ?

Radio: Faint, poorly defined source.

References:

Reich *et al.* 1988, in SNRISM, p293. Summary of parameters.
 Reich *et al.* 1990, A&AS, 85, 633. Effelsberg 100-m at 2.7 GHz (4′.3).
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G69.0+2.7

RA: 19^h51^m30^s
Dec: +32°45′

1-GHz flux/Jy: 120?
Spectral index: varies

Size/arcmin: 80?
Type: ?

CTB 80

An association with a SN in AD1408 has been suggested. Has been called G68.8+2.8. Is it a SNR?

Radio: Compact core, flat spectrum plateau, and steeper spectrum extensions, with spectral break?

Optical: Expanding nebulosity near centre, with filaments to the SW and far NE.

X-ray: Diffuse emission with compact source.

Point sources: Pulsar at western edge of core.

References:

Angerhofer *et al.* 1981, A&A, 94, 313. WSRT at 610 MHz (56″ × 103″) 1.4 GHz (24″ × 44″) and 5 GHz (7″ × 13″), plus optical.
 Becker *et al.* 1982, ApJ, 255, 557. X-ray observations.
 Sofue *et al.* 1983, PASJ, 35, 437. NRO 45-m at 10.2 GHz (2′.7).
 Velusamy & Kundu 1983, JApA, 3, 253. VLA of compact sources.
 Blair *et al.* 1984, ApJ, 282, 161. Optical images and spectra.
 Wang & Seward 1984, ApJ, 285, 607. IPC observations.
 Strom *et al.* 1984, A&A, 139, 43. Radio observations of flat spectrum component, VLA 5 GHz (1″.7) and 1.4 GHz.
 Mantovani *et al.* 1985, A&A, 145, 50. Bologna at 408 MHz (2′.6 × 4′.9: $S=67.5 \pm 10.5$), Effelsberg 100-m at 1.41 (9′: $S=62 \pm 9$), 1.72 (7′.6: $S=66 \pm 5$), 2.7 (4′.5: $S=52 \pm 4$) and 4.75 GHz (2′.4: $S=44 \pm 3.3$), plus review of flux densities.
 Kulkarni *et al.* 1988, Natur, 331, 50. Pulsar detection.
 Angelini *et al.* 1988, ApJ, 330, L43. EXOSAT spectra.
 Fesen *et al.* 1988, Natur, 334, 229. IRAS of surrounding shell.
 Whitehead *et al.* 1989, MNRAS, 237, 1109. Optical of core.
 Salter *et al.* 1989, ApJ, 338, 171. NRAO 12-m at 84.2 GHz of core, plus review of flux densities.
 Hester & Kulkarni 1989, ApJ, 340, 362. Optical imaging and spectroscopy.
 Koo *et al.* 1990, ApJ, 364, 178. Large, expanding H I shell.
 Greidanus & Strom 1990, A&A, 240, 376. Optical kinematics of core.
 Koo *et al.* 1993, ApJ, 417, 196. VLA at 1.4 GHz of surrounding H I (1′), plus IRAS.
 Safi-Harb *et al.* 1995, ApJ, 439, 722. ROSAT observations.
 Srinivasan 1997, ApJ, 489, 170. γ -ray observations of pulsar.

G69.7+1.0

RA: 20^h00^m45^s
Dec: +32°35′

1-GHz flux/Jy: 1.6
Spectral index: 0.8

Size/arcmin: 16
Type: S

Radio: Poorly resolved source.

References:

Reich *et al.* 1988, in SNRISM, p293. Summary of parameters.
 Reich *et al.* 1990, A&AS, 85, 633. Effelsberg 100-m at 2.7 GHz (4′.3).
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G73.9+0.9

RA: 20^h12^m20^s
Dec: +36°03′

1-GHz flux/Jy: 9?
Spectral index: 0.3?

Size/arcmin: 22?
Type: S?

Radio: Diffuse, centrally brightened to SW.

Optical: Weak shell.

References:

Reich *et al.* 1986, A&A, 155, 185. Effelsberg 100-m at 4.75 GHz (2′.4: $S=6.7\pm 0.5$), plus other flux densities.
 Chastenay & Pineault 1988, in SNRISM, p297. DRAO at 408 MHz (3′.5 × 5′.9) and 1.4 GHz (1′.0 × 1′.7).
 Pineault & Chastenay 1990, MNRAS, 246, 169. DRAO at 408 MHz (3′.4 × 5′.8: $S=12.7\pm 1.2$) and 1.4 GHz (1′.0 × 1′.7: $S=7.4\pm 1.0$).
 Lozinskaya *et al.* 1993, ARep, 37, 240. Optical observations.
 Gorham *et al.* 1996, ApJ, 458, 257. Pulsar search.
 Pineault *et al.* 1996, AJ, 112, 201. DRAO at 1.4 GHz (smoothed to 2′) for HI.
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G74.0 – 8.5

RA: 20^h49^m00^s
Dec: +30°30′

1-GHz flux/Jy: 210
Spectral index: varies

Cygnus Loop
Size/arcmin: 230 × 160
Type: S

Radio: Shell, brightest to the NE, with fainter breakout region to S, with spectral variations.

Optical: Large filamentary loop, brightest to the NE, not well defined to the S or W.

X-ray: Shell in soft X-rays.

Point sources: Several compact radio sources within the boundary of the remnant, including CL4.

References:

Keen *et al.* 1973, A&A, 28, 197. Effelsberg 100-m at 2.7 GHz (4′.8), NE at 10.7 GHz (1′.25).
 Dickel & Willis 1980, A&A, 85, 55. WSRT at 610 MHz (56″ × 107″) of NE area (NGC6992) only.
 Seaquist & Gilmore 1982, AJ, 87, 378. VLA observations of CL4.
 Fesen *et al.* 1982, ApJ, 262, 171. Optical spectroscopy.
 Hester *et al.* 1983, ApJ, 273, 219. Optical imagery.
 Ku *et al.* 1984, ApJ, 278, 615. IPC and HRI X-ray observations.
 Green 1984, MNRAS, 211, 433. Most of remnant at 408 MHz (80″ × 160″) with OMT.
 Charles *et al.* 1985, ApJ, 295, 456. IPC observations.
 Braun & Strom 1986, A&A, 164, 208. IRAS observations.
 Straka *et al.* 1986, ApJ, 306, 266. Radio and optical comparison of NE. VLA at 1.6 GHz (4″.7) plus optical.
 Raymond *et al.* 1988, ApJ, 324, 869. Detailed optical study of filaments.
 Ballet *et al.* 1989, A&A, 211, 217. [Fex] and [FexIV] spectroscopy.
 Ballet & Rothenflug 1989, A&A, 218, 277. EXOSAT observations.
 Green 1990, AJ, 100, 1927. DRAO at 408 MHz (3′.3 × 6′.7) for spectral index study, plus X-ray and optical.
 Graham *et al.* 1991, AJ, 101, 175. Shocked molecular H outside rim in NE.
 Shull & Clarke 1991, PASP, 103, 811. Optical spectroscopy of nearside filaments.
 Blair *et al.* 1991, ApJ, 374, 202. Far UV mapping.
 Blair *et al.* 1991, ApJ, 379, L33. UV spectroscopy.
 Greidanus & Strom 1992, A&A, 257, 265. Optical kinematics.
 Shull & Hippelein 1992, ApJ, 383, 714. Optical kinematics and proper motion.
 Fesen *et al.* 1992, AJ, 104, 719. H α imagery.
 Cornett *et al.* 1992, ApJ, 395, L9. UV imagery.
 Long *et al.* 1992, ApJ, 400, 214. Optical of Balmer dominated filament.
 Arendt *et al.* 1992, ApJ, 400, 562. IRAS observations.
 Vancura *et al.* 1993, ApJ, 417, 663. Far UV observations.
 Hester *et al.* 1994, ApJ, 420, 721. H α , [OIII] and other optical observations of Balmer dominated filaments in NE.
 Miyata *et al.* 1994, PASJ, 46, L101. X-ray observations of NE.
 Graham *et al.* 1995, ApJ, 444, 787. X-ray and optical studies of interaction with surroundings.
 Sauvageot & Decourchelle 1995, A&A, 296, 201. [Fex] and [FexIV] observations.
 Gorham *et al.* 1996, ApJ, 458, 257. Pulsar search.
 Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.
 Levenson *et al.* 1996, ApJ, 468, 323. ROSAT and optical observations of W.
 Decourchelle *et al.* 1997, A&A, 326, 811. ROSAT observations of N.
 Levenson *et al.* 1997, ApJ, 484, 304. ROSAT observations.
 Leahy *et al.* 1997, AJ, 114, 2081. DRAO at 1.4 GHz (1′ × 2′), including polarisation.
 Miyata *et al.* 1998, PASJ, 50, 257. ASCA observations.

G74.9+1.2

CTB 87

RA: 20^h14^m10^s
Dec: +37°03′**1-GHz flux/Jy:** 9
Spectral index: varies**Size/arcmin:** 8 × 6
Type: F**Radio:** Filled-centre, with high polarization and high frequency turnover.**X-ray:** Centrally brightened.**Distance:** HI absorption indicates 12 kpc.**Point sources:** Extragalactic compact source is nearby.**References:**

Dickel & DeNoyer 1975, AJ, 80, 437. Arecibo $S(430)=12.2\pm 9.7$, $S(318)=17.7\pm 5.0$.
 Weiler & Shaver 1978, A&A, 70, 389. WSRT at 610 MHz ($57''\times 94''$: $S=9.1\pm 1.2$), 1.4 ($24''\times 40''$: $S=8.7\pm 1.2$) and 5 GHz ($24''\times 40''$: $S=5.6\pm 1.3$).
 Geldzahler *et al.* 1980, A&A, 84, 237. Effelsberg 100-m at 2.7 GHz ($4'.4$: $S=7.6\pm 0.5$).
 Wilson 1980, ApJ, 241, L19. IPC observations.
 van Gorkom *et al.* 1982, MNRAS, 198, 757. WSRT HI absorption of nearby compact source.
 Seaquist & Gilmore 1982, AJ, 87, 378. VLA observations of nearby source.
 Morsi & Reich 1987, A&AS, 69, 533. Effelsberg 100-m at 32 GHz (smoothed to $40''$: $S=1.47\pm 0.19$).
 Green & Gull 1989, MNRAS, 237, 555. VLA at 1.4 GHz ($1'.2\times 1'.4$) including HI.
 Salter *et al.* 1989, ApJ, 338, 171. NRAO 12-m at 84.2 GHz, plus review of flux densities.
 Pineault & Chastenay 1990, MNRAS, 246, 169. DRAO at 408 MHz ($3'.4\times 5'.8$: $S=11.6\pm 0.4$) and 1.4 GHz ($1'.0\times 1'.7$: $S=7.2\pm 0.3$).
 Asaoka & Koyama 1990, PASJ, 42, 625. Ginga X-ray spectrum.
 Wendker *et al.* 1991, A&A, 241, 551. DRAO at 408 MHz ($3'.5\times 5'.2$: $S=13.3\pm 0.8$) and Effelsberg 100-m at 4.8 GHz ($S=7.5\pm 0.7$).
 Wallace *et al.* 1994, A&A, 286, 565. HI of surroundings.
 Cho *et al.* 1994, AJ, 108, 634. CO of adjacent molecular clouds.
 Gorham *et al.* 1996, ApJ, 458, 257. Pulsar search.
 Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.
 Wallace *et al.* 1997, A&A, 317, 212. DRAO at 408 MHz ($3'.4\times 5'.5$) and 1.4 GHz ($1'.0\times 1'.6$) including HI (smoothed to $2'$).
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G76.9+1.0**RA:** 20^h20^m30^s
Dec: +38°33′**1-GHz flux/Jy:** 2
Spectral index: 0.6**Size/arcmin:** 9 × 12
Type: ?**Radio:** Diffuse, non-thermal, with low frequency turnover.**References:**

Landecker *et al.* 1993, A&A, 276, 522. VLA at 1.49 GHz ($14''$), 4.86 GHz ($13''\times 16''$) and 8.55 GHz ($11''\times 12''$), including polarization and review of flux densities.
 Landecker *et al.* 1997, A&AS, 123, 199. Miyun at 232-MHz ($3'.8\times 5'.4$).
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G78.2+2.1

RA: 20^h19^m00^s
Dec: +40°15′

1-GHz flux/Jy: 340
Spectral index: 0.5

DR4, γ Cygni

Size/arcmin: 60
Type: S

Has been called G78.1+1.8.

Radio: In complex region (early catalogues refer to other proposed remnants in this region).

Optical: Faint filaments, spectra indicate a SNR superposed on a HII region.

X-ray: Weak emission from the SE of the remnant.

Point sources: γ -ray and X-ray point source in remnant.

References:

Higgs *et al.* 1977, AJ, 82, 718. DRAO at 1.4 GHz ($2' \times 3' : S=270 \pm 40$) plus some 10 GHz ($4'$) survey data, reveals true extent of remnant.
d'Odorico & Sabbadin 1977, A&AS, 28, 439. Optical spectra.
van den Bergh 1978, ApJS, 38, 119. Optical.
Landecker *et al.* 1980, A&AS, 39, 133. DRAO HI observations ($2' \times 3'.1$).
Higgs *et al.* 1983, AJ, 88, 97. CO of surroundings.
Bohigas *et al.* 1983, RMxAA, 8, 155. Optical spectra, find thermal only.
Braun & Strom 1986, A&AS, 63, 345. WSRT HI observations.
Fukui & Tatematsu 1988, in SNRISM, p261. CO observations of the vicinity ($2'.7$).
Green 1989, MNRAS, 238, 737. OH observations.
Pineault & Chastenay 1990, MNRAS, 246, 169. DRAO at 408 MHz ($3'.4 \times 5'.8 : S=480 \pm 60$) and 1.4 GHz ($1'.0 \times 1'.7 : S=270 \pm 40$).
Wendker *et al.* 1991, A&A, 241, 551. DRAO at 408 MHz ($3'.5 \times 5'.2 : S=540 \pm 40$) and Effelsberg 100-m at 4.8 GHz ($S=150 \pm 15$).
Esposito *et al.* 1996, ApJ, 461, 820. Associated γ -ray emission.
Brazier *et al.* 1996, MNRAS, 281, 1033. γ -ray and X-ray point source.
Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.
Zhang *et al.* 1997, A&A, 324, 641. Multi-frequency radio comparison.
Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G82.2+5.3

RA: 20^h17^m30^s
Dec: +45°20′

1-GHz flux/Jy: 120?
Spectral index: 0.5?

W63

Size/arcmin: 95 \times 65
Type: S

Radio: Shell in the Cygnus X complex.

Optical: In complex region, but spectra indicate SNR filaments.

X-ray: Detected.

References:

Velusamy & Kundu 1974, A&A, 32, 375. NRAO 300-ft at 2.7 GHz ($5' : S=59.0 \pm 3.5$).
Sabbadin 1976, A&A, 51, 159. Optical spectra.
Angerhofer *et al.* 1977, A&A, 55, 11. NRAO 140-ft at 5 GHz ($6'.8$). Incomplete mapping.
Rosado & González 1981, RMxAA, 5, 93. Optical spectra.
Seward 1990, ApJS, 73, 781. IPC observations.
Higgs *et al.* 1991, JRASC, 85, 24. DRAO at 408 MHz ($3'.4 \times 5'.0 : S=165 \pm 21$), plus review of flux densities.
Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.
Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G84.2 – 0.8

RA: 20^h51^m30^s
Dec: +43°16′

1-GHz flux/Jy: 11
Spectral index: 0.5

Size/arcmin: 20 \times 16
Type: S

Radio: Elongated shell, with a filament aligned with the major axis.

References:

Matthews *et al.* 1977, A&A, 55, 1. WSRT at 610 MHz ($56'' \times 81'' : S=12.4 \pm 1.5$) and Effelsberg 100-m at 2.7 GHz ($4'.4 : S=6.8 \pm 1.3$).
Matthews & Shaver 1980, A&A, 87, 255. WSRT at 1415 MHz ($23'' \times 32''$), and Effelsberg 100-m at 2.7 GHz ($4'.4 : S=5.6 \pm 0.5$).
Feldt & Green 1993, A&A, 274, 421. DRAO at 1.4 GHz ($1' \times 1'.5$), including HI, plus CO observations.
Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G84.9+0.5

RA: 20^h48^m45^s
Dec: +44°42′

1-GHz flux/Jy: 0.8
Spectral index: 0.4

Size/arcmin: 6
Type: S

Radio: Incomplete shell.

References:

Taylor *et al.* 1992, AJ, 103, 931. WSRT at 327 MHz ($1'.4 \times 1'.0$: $S=1.2 \pm 0.1$), and northern sky survey at 4.9 GHz ($S=0.40 \pm 0.01$).
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G89.0+4.7

RA: 20^h43^m30^s
Dec: +50°25′

1-GHz flux/Jy: 220
Spectral index: 0.40

Size/arcmin: 120 × 90
Type: S
 HB21

Radio: Distorted shell (4C50.52, an extragalactic double, is within the boundary of the remnant).

Optical: Filaments possibly associated.

X-ray: Centrally brightened.

References:

Hirabayashi & Takahashi 1972, PASJ, 24, 231. 30-m dish at 4.2 GHz ($11'$: $S=160 \pm 40$).
 Willis 1973, A&A, 26, 237. NRAO 300-ft at 2.7 GHz ($5'$: $S=148 \pm 16$), plus optical filaments.
 Hill 1974, MNRAS, 169, 59. HMT at 1.4 GHz ($3' \times 3'.9$).
 Haslam *et al.* 1975, A&A, 39, 453. Effelsberg 100-m at 2.7 GHz ($4'.4$).
 Fukui & Tatematsu 1988, in SNRISM, p261. CO observations of the vicinity ($2'.7$).
 Tatematsu *et al.* 1990, A&A, 237, 189. DRAO at 408 MHz ($3'.5 \times 4'.5$) and 1.4 GHz ($1'.0 \times 1'.3$), including HI, plus CO observations of adjacent molecular cloud.
 Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.
 Leahy & Aschenbach 1996, A&A, 315, 260. ROSAT observations.
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G93.3+6.9

RA: 20^h51^m00^s
Dec: +55°10′

1-GHz flux/Jy: 9
Spectral index: 0.54

Size/arcmin: 27 × 20
Type: S
 DA 530, 4C(T)55.38.1

Has been called G93.2+6.7.

Radio: Shell, with two bright limbs, highly polarized.

References:

Roger & Costain 1976, A&A, 51, 151. DRAO at 1.42 GHz ($2' \times 2'.4$: $S=6.9$).
 Haslam *et al.* 1980, A&A, 92, 57. Effelsberg 100-m at 1.72 GHz ($7'.6$: $S=6.47 \pm 0.52$) and 2.7 GHz ($4'.4$: $S=5.64 \pm 0.64$), plus review of flux densities.
 Lalitha *et al.* 1984, A&A, 131, 196. Effelsberg 100-m at 4.75 GHz (smoothed to $3'$: $S=4.01 \pm 0.57$).
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G93.7–0.2

RA: 21^h27^m45^s
Dec: +50°35′

1-GHz flux/Jy: 65
Spectral index: 0.3

Size/arcmin: 80
Type: S
 CTB 104A, DA 551

Has been called G93.6–0.2 and G93.7–0.3.

Radio: Faint shell with possible a steep spectrum core.

References:

Velusamy & Kundu 1974, A&A, 32, 375. NRAO 300-ft at 2.7 GHz ($5'$: $S=18.4 \pm 1.0$).
 Mantovani *et al.* 1982, A&A, 105, 176. Effelsberg 100-m at 1.7 GHz ($7'.6$: $S=53.5 \pm 5.0$), plus review of flux densities.
 Landecker *et al.* 1985, AJ, 90, 1082. DRAO at 1.4 GHz (smoothed to $2'$: $S=58 \pm 6$).
 Mantovani *et al.* 1991, A&A, 247, 545. Effelsberg 100-m at 4.75 GHz (smoothed to $3'$: $S=33.5 \pm 4.0$), including polarization, plus review of flux densities.
 Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G94.0+1.0

3C434.1

RA: 21^h23^m10^s**1-GHz flux/Jy:** 15**Size/arcmin:** 30 × 25**Dec:** +51°40′**Spectral index:** 0.44**Type:** S**Radio:** Incomplete shell, in complex region.**References:**

Willis 1973, A&A, 26, 237. NRAO 300-ft at 2.7 GHz ($S': S=6.1 \pm 0.8$), and VRO 37-m at 1.7 GHz ($S=11 \pm 3$).
 Velusamy & Kundu 1974, A&A, 32, 375. NRAO 300-ft at 2.7 GHz ($S': S=5.8 \pm 0.4$). Also NRAO 140-ft at 5 GHz ($6'$).
 Mantovani *et al.* 1982, A&A, 105, 176. Effelsberg 100-m at 1.7 GHz ($7'.6: S=12.0 \pm 1.3$), plus review of flux densities.
 Goss *et al.* 1984, A&A, 138, 469. WSRT at 610 MHz (smoothed to $100'': S=16 \pm 1.7$) and Effelsberg 100-m at 4.75 GHz ($2'.4: S=7.2 \pm 0.5$).
 Landecker *et al.* 1985, AJ, 90, 1082. DRAO at 1.4 GHz (smoothed to $2': S=16 \pm 3$).
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G109.1 – 1.0

CTB 109

RA: 22^h59^m30^s**1-GHz flux/Jy:** 20**Size/arcmin:** 28**Dec:** +58°37′**Spectral index:** 0.50**Type:** S**Radio:** Semicircular shell, with the Molecular cloud S152 is to the immediate W.**X-ray:** Incomplete shell.**Point sources:** Pulsar at W edge.**References:**

Hughes *et al.* 1981, ApJ, 246, L127. WSRT at 610 MHz ($1': S=40 \pm 5$) shows bad CLEAN artefacts.
 Blair & Kirshner 1981, Natur, 291, 132. Optical spectra.
 Downes 1983, MNRAS, 203, 695. Effelsberg 100-m at 2.7 GHz ($4'.4: S=13.0 \pm 1.5$).
 Sofue *et al.* 1983, PASJ, 35, 447. NRO 45-m at 10.2 GHz ($2'.7$).
 Hughes *et al.* 1984, ApJ, 283, 147. WSRT at 610 MHz ($20'': S=26 \pm 3$) 1.4 GHz ($10''$), DRAO at 1.4 GHz ($1' \times 1'.2: S=16.8 \pm 2$) and Algonquin 46-m at 6.5 GHz ($4'.5: S=6.7 \pm 1$).
 Braun & Strom 1986, A&AS, 63, 345. WSRT HI observations.
 Tatematsu *et al.* 1987, PASJ, 39, 755. NRO 45-m at 10 GHz ($2'.7$), plus polarization.
 Tatematsu *et al.* 1987, A&A, 184, 279. CO observations of the surroundings ($2'.7$).
 Hanson *et al.* 1988, A&A, 195, 114. EXOSAT of pulsar.
 Morini *et al.* 1988, ApJ, 333, 777. EXOSAT observations.
 Koyama *et al.* 1989, PASJ, 41, 461. X-ray observations of pulsar.
 Coe *et al.* 1989, MNRAS, 238, 649. IRAS observations of surroundings.
 Green 1989, MNRAS, 238, 737. OH observations.
 Tatematsu *et al.* 1990, ApJ, 351, 157. CO of surroundings, plus X-ray observations.
 Davies & Coe 1991, MNRAS, 249, 313. Optical and IR observations near pulsar.
 Hurford & Fesen 1995, MNRAS, 277, 549. ROSAT imaging.
 Rho & Petre 1997, ApJ, 484, 828. ROSAT observations.
 Parmar *et al.* 1998, A&A, 330, 175. X-ray observations.
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G111.7 – 2.1**RA:** 23^h21^m10^s**Dec:** +58°32′**1-GHz flux/Jy:** 2720**Spectral index:** 0.77

Cassiopeia A, 3C461

Size/arcmin: 5**Type:** S

Presumably the remnant of a late 17th century SN.

Radio: Bright shell with compact knots and extended plateau of emission.

Optical: Fast knots and quasi-stationary flocculi, with many filaments at large radii.

X-ray: Incomplete shell, with hard spectral component.

Distance: Optical expansion, plus proper motions indicate 2.8 kpc.

References:

- Bell *et al.* 1975, *Natur*, 257, 463. 5km at 5 GHz ($2'' \times 2''.3$).
- Green *et al.* 1975, *A&A*, 44, 187. Effelsberg 100-m at 15.0 GHz ($58'' : S = 419.1 \pm 1.7$).
- Fabian *et al.* 1980, *MNRAS*, 193, 175. HRI observations.
- Tuffs 1986, *MNRAS*, 219, 13. Proper motions from 5km maps at 5 GHz ($2'' \times 2''.3$) between 1974 and 1978.
- Mezger *et al.* 1986, *A&A*, 167, 145. 247-GHz map ($70''$).
- Fesen *et al.* 1987, *ApJ*, 313, 378. Optical, of fast moving flocculi.
- Fesen *et al.* 1988, *ApJ*, 329, L89. Optical, flocculi, and ‘flare’.
- Woan & Duffett-Smith 1990, *MNRAS*, 243, 87. Structure at 81.5 MHz.
- Fesen 1990, *AJ*, 99, 1904. [Nem] optical imagery.
- Rees 1990, *MNRAS*, 243, 637. Flux density decrease at 38 MHz.
- Anderson *et al.* 1991, *ApJ*, 373, 146. VLA at 1.4 and 5 GHz ($1''.3$) for spectral variations.
- Hook *et al.* 1992, *A&A*, 255, 285. Flux density decrease at 81.5 MHz.
- Wilson *et al.* 1993, *A&A*, 280, 221. Molecular emission towards remnant.
- Holt *et al.* 1994, *PASJ*, 46, L151. X-ray spectral mapping.
- Woan & Duffett-Smith 1993, *MNRAS*, 260, 693. Deep pulsar search.
- Guame *et al.* 1994, *ApJ*, 425, 127. NH₃ absorption and CO observations.
- Iyudin *et al.* 1994, *A&A*, 284, L1. γ -ray line observations.
- Reed *et al.* 1995, *ApJ*, 440, 706. Optical spectra, for 3-d structure.
- Anderson *et al.* 1995, *ApJ*, 441, 300. VLA at 1.4 GHz and 4.8 GHz (both $1''.3$), for polarization studies.
- Anderson & Rudnick 1995, *ApJ*, 441, 307. VLA at 1.4 GHz and 4.8 GHz, for proper motion studies.
- The *et al.* 1995, *ApJ*, 444, 244. γ -ray observations.
- Predehl & Schmitt 1995, *A&A*, 293, 889. ROSAT of dust scattered halo.
- Liszt & Lucas 1995, *A&A*, 294, 811. NRAO 12-m observations of molecular emission and absorption.
- Lawrence *et al.* 1995, *AJ*, 109, 2635. Optical imaging spectroscopy.
- Kassim *et al.* 1995, *ApJ*, 455, L59. VLA at 74 ($25''$) and 332 MHz ($6''$), including spectral index comparisons.
- Anderson & Rudnick 1996, *ApJ*, 456, 234. VLA for spectral index comparisons.
- Agafanov 1996, *A&A*, 306, 578. Flux density decrease at 102 MHz.
- Biggs & Lyne 1996, *MNRAS*, 282, 691. Pulsar search.
- Vink *et al.* 1996, *A&A*, 307, L41. ASCA spectrum.
- Lagage *et al.* 1996, *A&A*, 315, L273. ISO observations.
- Keohane *et al.* 1996, *ApJ*, 466, 309. Radio and X-ray comparison.
- Hurford & Fesen 1996, *ApJ*, 469, 246. Optical spectroscopy and reddening studies.
- Fesen & Gunderson 1996, *ApJ*, 470, 967. Optical observations of NE ‘jet’.
- Allen *et al.* 1997, *ApJ*, 487, L97. X-ray spectroscopy.
- Schwarz *et al.* 1997, *A&AS*, 123, 43. WST at 1.4 GHz ($30''$) for H_i absorption.
- Reynoso *et al.* 1997, *A&A*, 317, 203. VLA at 1.4 GHz ($11'' \times 14''$) for H_i absorption.
- Favata *et al.* 1997, *A&A*, 324, L49. X-ray spectroscopy.
- Dupraz *et al.* 1997, *A&A*, 324, 683. γ -ray line detection.
- Lorimer *et al.* 1998, *A&A*, 331, 1002. Pulsar search.

G112.0+1.2**RA:** 23^h13^m40^s**Dec:** +61°30′**1-GHz flux/Jy:** 7?**Spectral index:** 0.6?**Size/arcmin:** 30?**Type:** S?

Radio: Non-thermal source hinted by Bologna survey.

References:

- Bonsignori-Facondi & Tomasi 1979, *A&A*, 77, 93. Bologna at 408 MHz ($4'.2 \times 110' : S = 11 \pm 30\%$).
- Lorimer *et al.* 1998, *A&A*, 331, 1002. Pulsar search.

G114.3+0.3

RA: 23^h34^m45^s
Dec: +61°38′

1-GHz flux/Jy: 6?
Spectral index: 0.3?

Size/arcmin: 90 × 55
Type: S

Radio: Shell, with HII region S165 within the boundary of the remnant.

Distance: Possible association with HI features suggests 3.0–3.8 kpc.

Point sources: Pulsar near centre of remnant.

References:

Reich & Braunsfurth 1981, A&A, 99, 17. Effelsberg 100-m at 2.7 GHz ($4'.4 : S = 3.6$) and $S(1.4) = 4.4$ from 1.4 GHz survey data, plus HI from Maryland-Green Bank survey.
 Kulkarni *et al.* 1993, Natur, 362, 135. Pulsar association.
 Fürst *et al.* 1993, A&A, 276, 470. Pulsar association.
 Becker *et al.* 1996, A&A, 306, 464. ROSAT of pulsar.
 Fesen *et al.* 1997, AJ, 113, 767. Optical observations.

G116.5+1.1

RA: 23^h51^m20^s
Dec: +62°58′

1-GHz flux/Jy: 11?
Spectral index: 0.8?

Size/arcmin: 80 × 60
Type: S

Radio: Distinct shell, with high polarization.

Distance: Possible association with HI features suggests 3.6–5.2 kpc.

References:

Reich & Braunsfurth 1981, A&A, 99, 17. Effelsberg 100-m at 2.7 GHz ($4'.4 : S = 4.7 \pm 0.4$) and $S(1.4) = 8.0 \pm 0.8$ from 1.4 GHz survey data, plus HI from Maryland-Green Bank survey.
 Fesen *et al.* 1997, AJ, 113, 767. Optical observations.
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G116.9+0.2

RA: 23^h56^m40^s
Dec: +62°10′

1-GHz flux/Jy: 9?
Spectral index: 0.5?

CTB 1
Size/arcmin: 34
Type: S

Has been called G117.3+0.1 and G116.9+0.1.

Radio: Incomplete shell.

Optical: Filaments on sky survey.

X-ray: Centrally brightened, with NE ‘breakout’.

Point sources: Pulsar to NE.

Distance: Possible association with HI features suggests 2.8–4.0 kpc, mean optical velocity suggests 2.7 kpc.

References:

Willis 1973, A&A, 26, 237. NRAO 300-ft at 2.7 GHz ($5' : S = 3.9 \pm 1.0$), and VRO 37-m at 1.7 GHz ($S = 5.5 \pm 2.0$), plus review of flux densities.
 van den Bergh *et al.* 1973, ApJS, 26, 19. Optical.
 Velusamy & Kundu 1974, A&A, 32, 375. NRAO 300-ft at 2.7 GHz ($5' : S = 4.2 \pm 0.2$).
 Angerhofer *et al.* 1977, A&A, 55, 11. NRAO 140-ft at 5 GHz ($6'.8 : S = 3.0 \pm 0.3$).
 Dickel & Willis 1980, A&A, 85, 55. WSRT at 610 MHz ($56'' \times 64''$) and 1.4 GHz ($22'' \times 25''$).
 Reich & Braunsfurth 1981, A&A, 99, 17. Effelsberg 100-m at 2.7 GHz ($4'.4 : S = 4.8 \pm 0.4$) and $S(1.4) = 7.8 \pm 0.8$ from 1.4 GHz survey data, plus HI from Maryland-Green Bank survey.
 Lozinskaya 1981, SvAL, 7, 17. Mean optical velocity.
 Landecker *et al.* 1982, AJ, 87, 1379. DRAO at 1.42 GHz and HI ($2' \times 2'.3 : S = 8.3 \pm 0.5$), plus review of flux densities.
 Fesen *et al.* 1985, ApJ, 292, 29. Optical spectra.
 Hailey & Craig 1994, ApJ, 434, 635. Optical spectroscopy.
 Hailey & Craig 1995, ApJ, 455, L151. ROSAT of nearby pulsar.
 Fesen *et al.* 1997, AJ, 113, 767. Optical observations.
 Craig *et al.* 1997, ApJ, 488, 307. ROSAT observations.
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G117.4+5.0**RA:** 23^h52^m30^s**Dec:** +67°30′**1-GHz flux/Jy:** 30?**Spectral index:** 0.5?**Size/arcmin:** 60 × 80?**Type:** S?**Radio:** Non-thermal source hinted by Bologna survey.**References:**

Bonsignori-Facondi & Tomasi 1979, A&A, 77, 93. Bologna at 408 MHz (4′.2 × 110′: $S=45 \pm 30\%$).
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G119.5+10.2**RA:** 00^h04^m00^s**Dec:** +72°30′**1-GHz flux/Jy:** 36**Spectral index:** 0.6

CTA 1

Size/arcmin: 90?**Type:** S

Has been called G119.5+10.3.

Radio: Incomplete shell, with ‘breakout’ to NW.**Optical:** Faint diffuse nebulosities.**X-ray:** Centrally brightened.**Point sources:** Compact, central X-/γ-ray source.**References:**

Sieber *et al.* 1979, A&A, 74, 361. Effelsberg 100-m at 2.7 GHz (4′.4: $S=23.6 \pm 2.8$).
 Sieber *et al.* 1981, A&A, 103, 393. Effelsberg 100-m at 2.7 GHz and 1.7 GHz (7′.6: $S=31.6 \pm 2.5$), and 6C at 151 MHz (4′: $S=62.6 \pm 6$).
 Fesen *et al.* 1981, ApJ, 247, 148. Optical, including spectra.
 Fesen *et al.* 1983, ApJS, 51, 337. Deep [OIII] imagery.
 Seward 1990, ApJS, 73, 781. IPC observations.
 Simonetti 1992, ApJ, 386, 170. VLA observations of background sources for rotation measure studies.
 Pineault *et al.* 1993, AJ, 105, 1060. DRAO at 1.4 GHz (1′: $S=34 \pm 4$), plus HI and IRAS.
 Seward *et al.* 1995, ApJ, 453, 284. ROSAT observations.
 Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.
 Slane *et al.* 1997, ApJ, 485, 221. ROSAT observations.
 Pineault *et al.* 1997, A&A, 324, 1152. DRAO at 408 MHz (3′.5) and 1.4 GHz (1′.0).
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.
 Brazier *et al.* 1998, MNRAS, 295, 819. Studies of central, compact γ-ray source.

G120.1+1.4**RA:** 00^h22^m30^s**Dec:** +63°52′**1-GHz flux/Jy:** 56**Spectral index:** 0.61

Tycho, 3C10, SN1572

Size/arcmin: 8**Type:** S

This is the remnant of the Tycho's SN of AD1572.

Radio: Shell, brightest to the NE.

Optical: Faint filaments/knots to the NNW, NE and E.

X-ray: Shell, coincident with the radio shell, brighter to the NE.

Point sources: Faint radio source near centre of the remnant, thought to be extragalactic.

Distance: HI absorption gives 4–5 kpc, optical proper motion and modelled shock velocity gives 2.3 kpc.

References:

- Duin & Strom 1975, A&A, 39, 33. WSRT at 610 MHz ($57'' \times 64''$) and 5 GHz ($7'' \times 8''$).
 Klein *et al.* 1979, A&A, 76, 120. Effelsberg 100-m at 10.7 GHz ($1'.2 : S = 13.1 \pm 0.8$), plus review of flux densities.
 Strom *et al.* 1982, MNRAS, 200, 473. WSRT at 1415 MHz ($27'' \times 31''$) from 1971 and 1979, for expansion.
 Dickel *et al.* 1982, ApJ, 257, 145. Comparison of Radio, X-ray and Optical.
 Reid *et al.* 1982, ApJ, 261, 485. IPC observations.
 Seward *et al.* 1983, ApJ, 266, 287. HRI observations.
 Tan & Gull 1985, MNRAS, 216, 949. 5km at 2.7 GHz ($4''$) from 1980 and 1983, and OMT at 1.4 GHz ($23''$) from 1965 and 1980, for expansion.
 Albinson *et al.* 1986, MNRAS, 219, 427. HI observations.
 Green & Gull 1987, MNRAS, 224, 1055. VLA HI absorption observations towards central radio source.
 Smith *et al.* 1988, ApJ, 325, 288. EXOSAT spectrum and image (smoothed to $13''$).
 Dickel *et al.* 1991, AJ, 101, 2151. VLA at 1.4 and 5 GHz ($1''.5$).
 Wood *et al.* 1992, AJ, 103, 1338. VLA at 5 GHz ($1''.5$) polarization studies.
 Fink *et al.* 1994, A&A, 283, 635. X-ray spectra.
 Vancura *et al.* 1995, ApJ, 441, 680. X-ray spectra and ROSAT image.
 Predehl & Schmitt 1995, A&A, 293, 889. ROSAT of dust scattered halo.
 Schwarz *et al.* 1995, A&A, 299, 193. WSRT and Effelsberg 100-m at 1.4 GHz ($50''$), and VLA at 1.4 GHz ($13''$), for neutral hydrogen studies.
 Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.
 Hwang & Gotthelf 1997, ApJ, 475, 665. ASCA observations.
 Reynoso *et al.* 1997, ApJ, 491, 816. VLA at 1.4 GHz ($1''.4 \times 1''.5$) from 1984 and 1994 for expansion studies.
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G126.2+1.6**RA:** 01^h18^m30^s**Dec:** +64°00′**1-GHz flux/Jy:** 7**Spectral index:** varies**Size/arcmin:** 70**Type:** S?

Radio: Poorly defined shell.

Optical: Filaments detected.

References:

- Reich *et al.* 1979, A&A, 78, L13. Effelsberg 100-m at 1.4 GHz ($9' : S = 6.8 \pm 0.7$) and 2.7 GHz ($4'.4 : S = 3.9 \pm 0.4$).
 Blair *et al.* 1980, ApJ, 242, 592. Optical detection and spectra.
 Rosado 1982, RMxAA, 5, 127. Optical spectra.
 Fesen *et al.* 1983, ApJS, 51, 337. Deep [OIII] imagery.
 Fürst *et al.* 1984, A&A, 133, 11. Effelsberg 100-m at 2.7 GHz ($4'.4$) and 4.8 GHz ($2'.6$).
 Joncas *et al.* 1989, A&A, 219, 303. DRAO at 408 MHz ($3'.5 \times 3'.9 : S = 12 \pm 2.5$) and part at 1.4 GHz ($1'.1 \times 1'.0$), plus review of flux densities.
 Xilouris *et al.* 1993, A&A, 270, 393. Optical imaging.
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G127.1+0.5

R5

RA: 01^h25^m00^s**1-GHz flux/Jy:** 13**Size/arcmin:** 45**Dec:** +62°55′**Spectral index:** 0.6**Type:** S

Has been called G127.3+0.7.

Radio: Distinct shell, with bright central source.

Point sources: Flat radio spectrum (extragalactic) source at centre of remnant.

Optical: Detected.

Distance: 1.2–1.3 kpc if associated with NGC559.

References:

- Caswell 1977, MNRAS, 181, 789. HMT at 1.42 GHz ($3'.5 \times 3'.9$), plus other observations of central source.
 Salter *et al.* 1978, A&A, 66, 77. Effelsberg 100-m at 2.7 GHz ($4'.4$), plus 5 and 8.7 GHz of the central source.
 Pauls 1977, A&A, 59, L13. Effelsberg 100-m at 1.4 GHz ($9' : S=8 \pm 1$).
 Reich *et al.* 1979, A&A, 78, L13. Effelsberg 100-m at 1.4 GHz ($9' : S=10.8 \pm 1.3$).
 Pauls *et al.* 1982, A&A, 112, 120. WSRT at 610 MHz ($56'' \times 62''$) and H_I absorption to the point source with the VLA.
 Geldzahler & Shaffer 1982, ApJ, 260, L69. Observations of central source.
 Fürst *et al.* 1984, A&A, 133, 11. Effelsberg 100-m at 2.7 GHz ($4'.4$) and 4.8 GHz ($2'.6$).
 Goss & van Gorkom 1984, JApA, 5, 425. WSRT H_I absorption of central source.
 Joncas *et al.* 1989, A&A, 219, 303. DRAO at 408 MHz ($3'.5 \times 3'.9 : S=17.9 \pm 2.0$) and 1.4 GHz ($1'.13 \times 1'.0 : S=10.1 \pm 0.8$), plus review of flux densities.
 Xilouris *et al.* 1993, A&A, 270, 393. Optical imaging.
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G130.7+3.1

3C58, SN1181

RA: 02^h01^m55^s**1-GHz flux/Jy:** 33**Size/arcmin:** 9 × 5**Dec:** +64°35′**Spectral index:** 0.10**Type:** F

This is the remnant of the SN of AD1181.

Radio: Filled-centre, highly polarized, with high frequency turnover.

Optical: Faint filaments.

X-ray: Centrally brightened with power-law spectrum.

Point sources: Compact source in X-rays.

Distance: H_I absorption indicates 3.2 kpc.

References:

- Green *et al.* 1975, A&A, 44, 187. Effelsberg 100-m at 15.0 GHz ($58'' : S=26.7 \pm 0.5$).
 Wilson & Weiler 1976, A&A, 49, 357. WSRT at 610 MHz ($58'' \times 64''$), 1.4 GHz ($24'' \times 27''$) and 5 GHz ($7'' \times 8''$).
 van den Bergh 1978, ApJ, 220, L9. Optical observations.
 Becker *et al.* 1982, ApJ, 255, 557. X-ray observations.
 Green & Gull 1982, Natur, 299, 606. H_I absorption distance.
 Fesen 1983, ApJ, 270, L53. Optical spectra.
 Reynolds & Aller 1985, AJ, 90, 2312. VLA at 1.4 GHz ($2'$), for limits of shell.
 Davelaar *et al.* 1986, ApJ, 300, L59. EXOSAT spectrum.
 Green 1986, MNRAS, 218, 533. CLFST at 151 MHz ($1'.2 \times 1'.3 : S=36 \pm 4$), 5km at 2.7 GHz ($4''$), plus IPC observations for limit on shell.
 Green 1987, MNRAS, 225, 11P. Flux density increase at 408 MHz.
 Morsi & Reich 1987, A&AS, 69, 533. Effelsberg 100-m at 32 GHz ($26''.5 : S=24.2 \pm 1.4$).
 Reynolds & Aller 1988, ApJ, 327, 845. VLA at 1.4 ($2''.4$) and 4.9 GHz ($2''.5$).
 Salter *et al.* 1989, ApJ, 338, 171. NRAO 12-m at 84.2 GHz ($90'' : S=15.0 \pm 2.0$), plus review of flux densities.
 Asaoka & Koyama 1990, PASJ, 42, 625. Ginga X-ray spectrum.
 Green & Scheuer 1992, MNRAS, 258, 833. IRAS upper limits.
 Roberts *et al.* 1993, A&A, 274, 427. H_I absorption.
 Wallace *et al.* 1994, A&A, 286, 565. H_I of surroundings.
 Helfand *et al.* 1995, ApJ, 453, 741. ROSAT observations.
 Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.
 Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G132.7+1.3

HB3

RA: 02^h14^m00^s**1-GHz flux/Jy:** 45**Size/arcmin:** 80**Dec:** +62°30′**Spectral index:** 0.6**Type:** S

Has been called G132.4+2.2.

Radio: Faint shell, adjacent to W3/4/5 complex.

Optical: Complete, filamentary shell, shock excited spectra.

X-ray: Partial shell.

Point sources: Pulsar nearby.

Distance: Interaction with surroundings suggests 2.2 kpc.

References:

van den Bergh *et al.* 1973, ApJS, 26, 19. Optical.

Velusamy & Kundu 1974, A&A, 32, 375. NRAO 300-ft at 2.7 GHz ($S' : S = 33.8 \pm 7.0$).

d'Odorico & Sabbadin 1977, A&AS, 28, 439. Optical spectra.

Read 1981, MNRAS, 194, 863. 6C at 151 MHz ($4'.4$) and HMT at 1.4 GHz ($2'$) showing H α shell.

Lozinskaya 1981, SvAL, 7, 17. Mean optical velocity.

Fesen & Gull 1983, PASP, 95, 196. Optical image.

Leahy *et al.* 1985, ApJ, 294, 183. IPC observations.

Landecker *et al.* 1987, AJ, 94, 111. DRAO at 408 MHz ($3'.5 \times 4' : S = 75 \pm 15$), plus review of flux densities.

Routledge *et al.* 1991, A&A, 247, 529. DRAO at 1.4 GHz ($1'.0 \times 1'.1$) for H α , plus CO observations.

Fesen *et al.* 1995, AJ, 110, 2876. Optical imaging and spectroscopy, DRAO at 408 MHz ($3'.5 \times 4'$) and 1.4 GHz ($1'.0 \times 1'.1$).

Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G152.2 – 1.2**RA:** 04^h05^m30^s**1-GHz flux/Jy:** 16?**Size/arcmin:** 110?**Dec:** +48°24′**Spectral index:** 0.7?**Type:** S?

Radio: Non-thermal source hinted by Bologna survey.

References:

Bonsignori-Facondi & Tomasi 1979, A&A, 77, 93. Bologna at 408 MHz ($4'.2 \times 110' : S = 30 \pm 30\%$).

Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G156.2+5.7**RA:** 04^h54^m40^s**1-GHz flux/Jy:** 5**Size/arcmin:** 110**Dec:** +51°47′**Spectral index:** 0.5**Type:** S

Radio: Faint shell.

X-ray: Faint shell.

References:

Pfeffermann *et al.* 1991, A&A, 246, L28. ROSAT detection.

Reich *et al.* 1992, A&A, 256, 214. Effelsberg 100-m at 1.4 ($9' : S = 4.2 \pm 1.0$) and 2.7 GHz ($4'.3 : S = 3.0 \pm 1.0$), plus H α and IRAS.

Yamauchi *et al.* 1993, PASJ, 45, 795. Hard X-ray observations.

Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G160.9+2.6			HB9
RA: 04 ^h 57 ^m 00 ^s	1-GHz flux/Jy: 110	Size/arcmin: 140 × 120	
Dec: +46°36′	Spectral index: 0.6	Type: S	

Has been called G160.5+2.8 and G160.4+2.8.

Radio: Large, filamentary shell.

Optical: Incomplete shell.

X-ray: Centrally brightened.

Point sources: Pulsar within boundary of the remnant, plus several nearby compact radio sources.

Distance: Various observations suggests less than 4 kpc.

References:

d’Odorico & Sabbadin 1977, A&AS, 28, 439. Optical spectra.

Damashek *et al.* 1978, ApJ, 225, L31. Pulsar.

Lozinskaya 1981, SvAL, 7, 17. Mean optical velocity.

Dwarakanath *et al.* 1982, JApA, 3, 207. Radio observations at 34.5 MHz ($26' \times 40' : S=750 \pm 150$), plus review of flux densities.

van Gorkom *et al.* 1982, MNRAS, 198, 757. WSRT HI absorption to nearby point source.

Seaquist & Gilmore 1982, AJ, 87, 378. VLA observations of nearby source.

Leahy 1988, ApJ, 322, 917. IPC observations.

Leahy & Roger, 1991, AJ, 101, 1033. DRAO at 408 MHz ($3'.5 \times 4'.8$) and 1.4 GHz ($1'.0 \times 1'.4$), including HI and discussion of distance.

Yamauchi & Koyama 1993, PASJ, 45, 545. Hard X-ray observations.

Leahy & Aschenbach 1995, A&A, 293, 853. ROSAT observations.

Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.

G166.0+4.3			VRO 42.05.01
RA: 05 ^h 23 ^m 00 ^s	1-GHz flux/Jy: 7?	Size/arcmin: 55 × 35	
Dec: +42°52′	Spectral index: 0.4?	Type: S	

Radio: Two arcs of strikingly different radii.

Optical: Nearly complete ring.

X-ray: Predominantly in SW.

Distance: HI indicates 4.5 kpc.

References:

van den Bergh *et al.* 1973, ApJS, 26, 19. Optical.

Willis 1973, A&A, 26, 237. NRAO 300-ft at 2.7 GHz ($5' : S=5.2 \pm 1.0$).

Lozinskaya 1979, AuJPh, 32, 113. H α interferometry.

Landecker *et al.* 1982, ApJ, 261, L41. DRAO at 1.4 GHz ($1'.0 \times 1'.4$), plus review of flux densities.

Fesen *et al.* 1983, ApJS, 51, 337. Deep [OIII] imagery.

Pineault *et al.* 1985, A&A, 151, 52. VLA at 1.4 GHz ($16'' \times 20''$) of part of remnant, and optical.

Pineault *et al.* 1987, ApJ, 315, 580. DRAO and VLA combined at 1.4 GHz ($20''$).

Fesen *et al.* 1985, ApJ, 292, 29. Optical spectra.

Braun & Strom 1986, A&AS, 63, 345. WSRT HI Observations.

Landecker *et al.* 1989, MNRAS, 237, 277. DRAO at 1.4 GHz ($1'.0 \times 1'.4$), including HI.

Burrows & Guo 1994, ApJ, 421, L19. ROSAT images and spectra.

Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.

Guo & Burrows 1997, ApJ, 480, L51. ASCA observations.

Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.

G166.2+2.5

OA 184

RA: 05^h15^m30^s**1-GHz flux/Jy:** 11**Size/arcmin:** 90 × 70**Dec:** +41°50′**Spectral index:** 0.5**Type:** S**Radio:** Large, faint shell.**Optical:** Nearly complete ring.**Distance:** HI indicates 8 ± 2 kpc.**References:**Willis 1973, A&A, 26, 237. NRAO 300-ft at 2.7 GHz ($5' : S = 6.0 \pm 2.2$).

Dickel & DeNoyer 1975, AJ, 80, 437. Arecibo 111 MHz.

Lozinskaya 1981, SvAL, 7, 17. Mean optical velocity.

Fesen *et al.* 1985, ApJ, 292, 29. Optical spectra.Routledge *et al.* 1986, MNRAS, 221, 809. DRAO at 1.4 GHz ($1' \times 1'.4 : S = 9.0 \pm 0.5$) including HI, plus review of flux densities.Kim *et al.* 1988, AJ, 96, 704. VLA of background sources for magnetic field structure of the remnant.

Leahy & Marshall 1988, MNRAS, 235, 805. IRAS observations.

Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.**G179.0+2.6****RA:** 05^h50^m30^s**1-GHz flux/Jy:** 7**Size/arcmin:** 70**Dec:** +31°05′**Spectral index:** 0.4**Type:** S?**Radio:** Thick shell, with background extragalactic sources near centre.**References:**

Fürst & Reich 1986, A&A, 154, 303. Effelsberg 100-m at 1.4 (9'.4), 2.7 (4'.3) and 4.75 GHz (2'.4).

Fürst *et al.* 1989, A&A, 223, 66. Observations of central, extragalactic source.Lorimer *et al.* 1998, A&A, 331, 1002. Pulsar search.**G180.0 – 1.7**

S147

RA: 05^h36^m00^s**1-GHz flux/Jy:** 65**Size/arcmin:** 180**Dec:** +27°50′**Spectral index:** varies**Type:** S**Radio:** Large faint shell, with spectral break.**Optical:** Wispy ring.**X-ray:** Possible detection.**Point sources:** Pulsar within boundary.**References:**van den Bergh *et al.* 1973, ApJS, 26, 19. Optical.Sofue *et al.* 1980, PASJ, 32, 1. Effelsberg 100-m at 5 GHz (2'.6) of parts.Kundu *et al.* 1980, A&A, 92, 225. Effelsberg 100-m at 2.7 GHz ($5'.5 : S = 34.9 \pm 4$) and 1.6 GHz ($10' : S = 60.2 \pm 6$).Angerhofer & Kundu 1981, AJ, 86, 1003. Arecibo at 430 MHz ($9' : S = 97 \pm 20$).Fürst *et al.* 1982, A&A, 115, 428. Observations of compact radio sources near the remnant.Fesen *et al.* 1985, ApJ, 292, 29. Optical spectra.

Fürst & Reich 1986, A&A, 163, 186. Effelsberg 100-m at 1.4, 2.7 and 4.7/5.0 GHz (9'.4, 4'.3 and 2'.4/2'.6).

Sauvageot *et al.* 1990, A&A, 227, 183. EXOSAT possible detection.

Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.

Anderson *et al.* 1996, ApJ, 468, L55. Pulsar detection.**G182.4+4.3****RA:** 06^h05^m00^s**1-GHz flux/Jy:** 1.2**Size/arcmin:** 50**Dec:** +29°00′**Spectral index:** 0.4**Type:** S**Radio:** Incomplete shell.**References:**Kotthes *et al.* 1998, A&A, 331, 661. Effelsberg 100-m at 1.4, 2.7, 4.9 and 10.5 GHz ($9'.4 : S = 0.36 \pm 0.08$, $4'.4 : S = 0.25 \pm 0.04$, $2'.5 : S = 0.20 \pm 0.02$ and $1'.2 : S = 0.15 \pm 0.03$), plus X-ray upper limit.

G184.6 – 5.8

Crab Nebula, 3C144, SN1054

RA: 05^h31^m30^s**1-GHz flux/Jy:** 1040**Size/arcmin:** 7 × 5**Dec:** +21°59′**Spectral index:** 0.30**Type:** F

This is the remnant of the SN of AD1054.

Radio: Filled-centre, central pulsar, with faint ‘jet’ (or tube) extending from the N edge.

Optical: Strongly polarized filaments, diffuse synchrotron emission, with ‘jet’ faintly visible.

X-ray: Centrally brightened around the pulsar.

Point sources: Pulsar powering the remnant.

Distance: Proper motions and radial velocities give 2 kpc.

References:

- Trimble & Woltjer 1971, ApJ, 163, L97. Optical expansion for distance.
 Green *et al.* 1975, A&A, 44, 187. Effelsberg 100-m at 15.0 GHz (58″ : $S=499.3 \pm 1.0$).
 Clark *et al.* 1983, MNRAS, 204, 415. 3-D optical structure.
 Velusamy 1984, Natur, 308, 251. VLA at 1.4 GHz, radio detection of ‘jet’.
 Harnden & Seward 1984, ApJ, 283, 279. X-ray observations.
 Velusamy 1985, MNRAS, 212, 359. VLA at 1.4 GHz (15″).
 Aller & Reynolds 1985, ApJ, 293, L73. Flux density decrease.
 Mezger *et al.* 1986, A&A, 167, 145. 249-GHz map (120″).
 Fesen & Gull 1986, ApJ, 306, 259. Deep [OIII] imagery of ‘jet’.
 Morsi & Reich 1987, A&AS, 69, 533. Effelsberg 100-m at 32 GHz (26″.5 : $S < 417$).
 Romani *et al.* 1990, ApJ, 349, L51. HI and IR of surroundings.
 Marcelin *et al.* 1990, A&A, 228, 471. Optical of ‘jet’.
 Fesen & Blair 1990, ApJ, 351, L45. Optical identification of dust in filaments.
 Hester *et al.* 1990, ApJ, 357, 539. Optical and IR images.
 Graham *et al.* 1990, ApJ, 352, 172. IR spectroscopy and imaging.
 Hickson & van den Bergh 1990, ApJ, 365, 224. Optical polarization.
 Bietenholz & Kronberg 1990, ApJ, 357, L13. VLA at 1.4 GHz (1″.8).
 MacAlpine & Uomoto 1991, AJ, 102, 218. Photometry.
 Michel *et al.* 1991, ApJ, 368, 463. Optical photometry.
 Bietenholz *et al.* 1991, ApJ, 373, L59. VLA at multiple epochs for expansion studies.
 Véron-Cetty & Woltjer 1991, A&A, 251, L31. Limits on optical variations.
 Hennessy *et al.* 1992, ApJ, 395, L13. UV imagery.
 Fesen *et al.* 1992, ApJ, 399, 599. Optical studies of ‘dark bays’.
 Blair *et al.* 1992, ApJ, 399, 611. Far UV observations.
 Bietenholz & Kronberg 1992, ApJ, 393, 206. VLA at 1.5 and 5 GHz (1″.8) and 1.5 and 14 GHz (6″.5) for spectral studies.
 Strom & Greidanus 1992, Natur, 358, 654. IRAS observations.
 Fesen & Staker 1993, MNRAS, 263, 69. [OIII] imaging of ‘jet’, and proper motion studies.
 Kassim *et al.* 1993, AJ, 106, 2218. VLA at 74 MHz (20″).
 Véron-Cetty & Woltjer 1993, A&A, 270, 370. Continuum and [OIII] photometry.
 Nolan *et al.* 1993, ApJ, 409, 697. γ -ray observations.
 Strong *et al.* 1993, A&AS, 97, 133. γ -ray observations
 Murdin 1994, MNRAS, 269, 89. Deep H α plates and spectroscopy of halo.
 Wallace *et al.* 1994, A&A, 286, 565. HI of surroundings.
 MacAlpine *et al.* 1994, ApJ, 432, L131. Prominent optical knots.
 Rudy *et al.* 1994, ApJ, 426, 646. IR spectroscopy.
 Tanimori *et al.* 1994, ApJ, 429, L61. γ -rays from pulsar.
 Predehl & Schmitt 1995, A&A, 293, 889. ROSAT of dust scattered halo.
 Lawrence *et al.* 1995, AJ, 109, 2635. Optical imaging spectroscopy.
 Frail *et al.* 1995, ApJ, 454, L129. VLA at 333 MHz (20″) for limits on shell.
 MacAlpine *et al.* 1996, ApJ, 463, 650. Optical spectroscopy of N and S rich filaments.
 Nasuti *et al.* 1996, A&A, 314, 849. Spectrophotometry of pulsar.
 Bietenholz *et al.* 1997, ApJ, 490, 291. Comparison of VLA observations at 74 MHz, 327 MHz, 1.5 GHz and 5 GHz for spectral index studies.
 Blair *et al.* 1997, ApJS, 109, 473. HST imaging.
 van der Meulen *et al.* 1998, A&A, 330, 321. γ -ray observations.
 Tanimori *et al.* 1998, ApJ, 492, L33. γ -ray observations.
 Nugent 1998, PASP, 110, 831. Optical expansion.

G189.1+3.0

RA: 06^h14^m00^s
Dec: +22°36′

1-GHz flux/Jy: 160
Spectral index: 0.36

IC443, 3C157

Size/arcmin: 45
Type: S

Radio: Limb-brightened to NE, with faint extension to the E.

Optical: Brightest to the NE, with faint filaments outside the NE boundary.

X-ray: Shell, brightest to the NE.

Distance: Mean optical velocity suggests 0.7–1.5 kpc, association with S249 gives 1.5–2 kpc.

References:

- Duin & van der Laan 1975, A&A, 40, 111. WSRT at 610 MHz ($1' \times 2'.5$), 1415 MHz ($24'' \times 63''$), and part at 5 GHz ($12'' \times 31''$).
 Lozinskaya 1981, SvAL, 7, 17. Mean optical velocity.
 Fesen 1984, ApJ, 281, 658. Optical of filament to far NE.
 Erickson & Mahoney 1985, ApJ, 290, 596. TPT at 4 frequencies between 31 and 74 MHz ($13' \times 11'$ to $5'.4 \times 4'.7$), plus review of flux densities.
 Braun & Strom 1986, A&A, 164, 193. WSRT at 327 MHz ($72'' \times 185''$) and 1.4 GHz ($17'' \times 43''$), plus HI and IRAS.
 Green 1986, MNRAS, 221, 473. CLFST at 151 MHz ($1'.2 \times 3'.1$) and HMT at 1.4 GHz ($2'.1 \times 5'.4$).
 Mufson *et al.* 1986, AJ, 92, 1349. Radio, IR, optical, UV and X-ray comparison, including VLA at 1.6 GHz ($3''.8 \times 3''.3$ and $40''$).
 White *et al.* 1987, A&A, 173, 337. Observations of shocked molecular species.
 Graham *et al.* 1987, ApJ, 313, 847. IR spectroscopy.
 Burton *et al.* 1988, MNRAS, 231, 617. Molecular hydrogen imaging of shocked material.
 Brown *et al.* 1988, ApJ, 334, 852. [Fex] optical imaging.
 Dickel *et al.* 1989, AJ, 98, 1363. VLA at 1.4 GHz ($1''.1 \times 1''.2$) of NE.
 Petre *et al.* 1988, ApJ, 335, 215. IPC, HRI and other X-ray observations.
 Ziurys *et al.* 1989, ApJ, 341, 857. Observations of shocked molecular species.
 Burton *et al.* 1990, ApJ, 355, 197. IR observations of shocked O₂.
 Sauvageot *et al.* 1990, A&A, 232, 203. [Fex] and [FexIV] imaging.
 Moorhouse *et al.* 1991, MNRAS, 253, 662. Observations of shocked molecular H₂.
 Wood *et al.* 1991, AJ, 102, 224. VLA at 5 GHz ($3''.6 \times 3''.8$) of northeast, including polarization.
 Teske 1991, ApJ, 383, 233. [Fex] and [FexIV] imaging.
 Wang & Scoville 1992, ApJ, 386, 158. Observations of shocked molecular species.
 Wang *et al.* 1992, PASJ, 44, 303. Ginga X-ray observations.
 Turner *et al.* 1992, ApJ, 399, 114. Observations of shocked molecular species.
 Dickman *et al.* 1992, ApJ, 400, 203. Observations of shocked molecular species.
 Inoue *et al.* 1993, PASJ, 45, 539. Observations of shocked molecular H₂.
 van Dishoeck *et al.* 1993, A&A, 279, 541. Observations of shocked molecular species.
 Asaoka & Aschenbach 1994, A&A, 284, 573. X-ray, including possible overlapping remnant.
 White 1994, A&A, 283, L25. Observations of shocked molecular species.
 Tauber *et al.* 1994, ApJ, 421, 570. Observations of shocked molecular species.
 Richter *et al.* 1995, ApJ, 454, 277. Observations of shocked molecular H₂.
 Esposito *et al.* 1996, ApJ, 461, 820. Associated γ -ray emission.
 Frail *et al.* 1996, AJ, 111, 1651. OH maser emission.
 Keohane *et al.* 1997, ApJ, 484, 350. ASCA observations.
 Caussen *et al.* 1997, ApJ, 489, 143. VLA of associated OH masers.

G192.8 – 1.1

RA: 06^h06^m30^s
Dec: +17°20′

1-GHz flux/Jy: 20?
Spectral index: 0.6?

PKS 0607+17

Size/arcmin: 78
Type: S

Has been called G193.3–1.5. Has been regarded as part of the Origem Loop, a supposed larger remnant.

Radio: In complex region.

Optical: Encompasses S261 and S254–258.

References:

- Milne & Dickel 1974, AuJPh, 27, 549. Parkes 64-m at 2.7 GHz ($9' : S = 13 \pm 15\%$).
 Dickel & DeNoyer 1975, AJ, 80, 437. Arecibo at 318 MHz ($15' : S = 74 \pm 32$), and $S(610) = 40$.
 Caswell 1985, AJ, 90, 1076. DRAO at 1.4 GHz ($1' \times 3'.3 : S = 18 \pm 3$).
 Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.

G205.5+0.5

RA: 06^h36^m00^s
Dec: +06°30'

1-GHz flux/Jy: 160
Spectral index: 0.5

Monoceros Nebula

Size/arcmin: 220
Type: S

Radio: In complex region, parts may be HII regions.

Optical: Large ring, near Rosette nebula.

X-ray: Possibly detected.

Distance: Mean optical velocity suggests 0.8 kpc, low frequency radio absorption suggests 1.6 kpc.

References:

Milne & Dickel 1974, AuJPh, 27, 549. Parkes 64-m at 2.7 GHz (9').
 Velusamy & Kundu 1974, A&A, 32, 375. NRAO 300-ft at 2.7 GHz (5'), part only.
 Dickel & DeNoyer 1975, AJ, 80, 437. Arecibo at 111 MHz (1': S=462±180) and S(610)=245.
 Davies *et al.* 1978, A&AS, 31, 271. Deep optical plates.
 Lozinskaya 1981, SvAL, 7, 17. Mean optical velocity.
 Graham *et al.* 1982, A&A, 109, 145. Effelsberg 100-m at 2.7 GHz (4'.4: S=97.6±12.5), plus review of flux densities.
 Fesen *et al.* 1985, ApJ, 292, 29. Optical spectra.
 Leahy *et al.* 1986, MNRAS, 220, 501. IPC observations.
 Odegard 1986, ApJ, 301, 813. TPT at 20.6, 25.6 and 30.9 MHz (24', 19' and 16').
 Esposito *et al.* 1996, ApJ, 461, 820. Possible associated γ -ray emission.
 Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.
 Oliver *et al.* 1996, A&A, 315, 578. CO observations of some of surroundings.
 Jaffe *et al.* 1997, ApJ, 484, L129. γ -ray detection.

G206.9+2.3

RA: 06^h46^m00^s
Dec: +06°30'

1-GHz flux/Jy: 6
Spectral index: 0.5

PKS 0646+06

Size/arcmin: 60×40
Type: S?

Radio: Diffuse source near the Monoceros Nebula.

Optical: Filaments detected.

X-ray: Possibly detected.

References:

Davies & Meaburn 1978, A&A, 69, 443. Optical.
 Nousek *et al.* 1981, ApJ, 248, 152. HEAO-1 X-ray limit.
 Graham *et al.* 1982, A&A, 109, 145. Effelsberg 100-m at 2.7 GHz (4'.4: S=4.1±0.6), plus review of flux densities.
 Rosado 1982, RMxAA, 5, 127. Optical.
 Fesen *et al.* 1985, ApJ, 292, 29. Optical spectra.
 Leahy *et al.* 1986, MNRAS, 220, 501. IPC observations.
 Odegard 1986, ApJ, 301, 813. TPT at 20.6, 25.6 and 30.9 MHz (24', 19' and 16').
 Biggs & Lyne 1996, MNRAS, 282, 691. Pulsar search.

G211.7 – 1.1

RA: 06^h43^m10^s
Dec: +00°24'

1-GHz flux/Jy: 15?
Spectral index: 0.5?

Size/arcmin: 70?
Type: S?

Radio: Non-thermal source hinted by Bologna survey.

Optical: Coincides with S284, filamentary ring with brighter central area.

References:

Bonsignori-Facondi & Tomasi 1979, A&A, 77, 93. Bologna at 408 MHz (4'.2×110': S=23±20%).

G260.4 – 3.4**RA:** 08^h20^m30^s**Dec:** –42°50′**1-GHz flux/Jy:** 130**Spectral index:** 0.5

Puppis A, MSH 08–44

Size/arcmin: 60 × 50**Type:** S**Radio:** Angular shell, brightest to the E, poorly defined to the W.**Optical:** Nebulosity and wisps.**X-ray:** Brightest to the E.**Point sources:** Central compact X-ray source.**Distance:** Association with HI gives 2.2 ± 0.3 kpc.**References:**Green 1971, AuJPh, 24, 773. Molonglo at 408 MHz ($3' : S = 198 \pm 20$).Goudis & Meaburn 1978, A&A, 62, 283. H α +NII optical image.Winkler *et al.* 1981, ApJ, 245, 574. X-ray spectroscopy of O lines.Winkler *et al.* 1981, ApJ, 245, L27. X-ray spectrum.Petre *et al.* 1982, ApJ, 258, 22. HRI observations.Milne *et al.* 1983, MNRAS, 204, 237. FIRST at 1415 MHz (50''), large scale emission missing.

Teske & Petre 1987, ApJ, 318, 370. Coronal optical line emission.

Dubner & Arnal 1988, A&AS, 75, 363. HI and CO observations of surroundings.

Arendt *et al.* 1990, ApJ, 350, 266. MOST at 843 MHz (44'' × 65''), with large scale emission added, plus IR, optical and X-ray observations.Dubner *et al.* 1991, AJ, 101, 1466. VLA at 327 MHz (43'' × 73'') and 1.5 GHz (43'' × 77'').Arendt *et al.* 1991, ApJ, 368, 474. IR observations.Milne *et al.* 1993, MNRAS, 261, 366. Parkes 64-m at 4.75 (4'.5 : S = 59 ± 5) and 8.4 GHz (3' : S = 38 ± 4), plus polarization.Berthiaume *et al.* 1994, ApJ, 425, 132. X-ray spectroscopy.

Sutherland & Dopita 1995, ApJ, 439, 365. Spectrophotometry.

Reynoso *et al.* 1995, AJ, 110, 318. VLA at 1.4 GHz (90'') including neutral hydrogen.Blair *et al.* 1995, ApJ, 454, L35. Far UV spectroscopy.Petre *et al.* 1996, ApJ, 465, L43. ROSAT of central source.**G261.9+5.5****RA:** 09^h02^m20^s**Dec:** –38°30′**1-GHz flux/Jy:** 10?**Spectral index:** 0.4?**Size/arcmin:** 40 × 30**Type:** S**Radio:** Faint shell with little limb brightening.**References:**Hill 1967, AuJPh, 20, 297. Parkes 64-m at 2650 MHz (7'.5 : S = 7) also $S(1410) = 8$, $S(81.5) = 25$.

Colomb & Dubner 1980, A&A, 82, 244. Argentine 30-m dish at 1.4 GHz, for HI possibly associated with remnant.

Kesteven & Caswell 1987, A&A, 183, 118. MOST at 843 MHz (44'' × 71'').

Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G263.9 – 3.3**RA:** 08^h32^m30^s
Dec: –45°35′**1-GHz flux/Jy:** 1750
Spectral index: varies**Vela (XYZ)**
Size/arcmin: 255
Type: C

This refers to the whole Vela XYZ complex, of which X has at times been classified as a separate (filled-centre) remnant.

Radio: Large shell, with flatter spectrum component (Vela X).

Optical: Filaments.

X-ray: Patchy shell, with extensions, central nebula and pulsar.

Point sources: Pulsar within Vela X, with one-sided ‘jet’.

Distance: Vela pulsar implies 0.5 kpc.

References:

- Milne 1968, AuJPh, 21, 201. Parkes 64-m at various frequencies, including 408 MHz (48′ : $S = 2300 \pm 300$), 635 MHz (31′ : $S = 2360 \pm 300$), 1410 MHz (14′ : $S = 1640 \pm 300$) and 2650 MHz (7′.5 : $S = 1400 \pm 250$), plus discussion of the distance.
 van den Bergh *et al.* 1973, ApJS, 26, 19. Optical.
 Dopita *et al.* 1977, ApJ, 214, 179. Optical spectroscopy.
 Hearn *et al.* 1980, ApJ, 235, L67. X-ray map.
 Milne 1980, A&A, 81, 293. Maps of Vela X with Parkes 64-m at 1.66, 2.7 and 5 GHz (12′, 8′.4 and 4′.4).
 Weiler & Panagia 1980, A&A, 90, 269. Clarify notation of this region and review previous observations.
 Kahn *et al.* 1985, ApJ, 299, 821. IPC observations.
 Harnden *et al.* 1985, ApJ, 299, 828. IPC and HRI observations of Vela X and pulsar.
 Bignami & Caraveo 1988, ApJ, 325, L5. Pulsar proper motion from optical observations.
 Dwarakanath 1991, JApA, 12, 199. Gauribidanur ‘T’ array at 34.5 MHz (26′ × 84′ : $S = 1800$ for Vela X and $S = 3900$ for Vela YZ), plus review of flux densities.
 Bietenholz *et al.* 1991, ApJ, 376, L41. VLA at 5 GHz in vicinity of pulsar.
 Raymond *et al.* 1991, ApJ, 383, 226. UV spectroscopy.
 Willmore *et al.* 1992, MNRAS, 254, 139. Hard X-ray observations.
 Dubner *et al.* 1992, A&AS, 96, 505. Argentine 30-m at 1.4 GHz (30′) of surrounding HI.
 Oberlack *et al.* 1994, ApJS, 92, 433. γ -ray observations.
 Bocchino *et al.* 1994, ApJ, 437, 209. ROSAT observations of NE.
 Aschenbach *et al.* 1995, Natur, 373, 587. ROSAT of X-ray extensions.
 Strom *et al.* 1995, Natur, 373, 590. Radio of X-ray extensions.
 Markwardt & Ögelman 1995, Natur, 375, 40. X-ray jet from pulsar.
 Jenkins & Wallerstein 1995, ApJ, 440, 227. Optical absorption of associated neutral carbon cloud.
 Milne 1995, MNRAS, 277, 1435. Parkes 64-m at 8.4 GHz (3′), including polarization, of Vela X.
 Duncan *et al.* 1996, MNRAS, 280, 252. Parkes 64-m at 2.4 GHz (8′.9).
 Danks & Sembach 1995, AJ, 109, 2627. Optical spectroscopy of background stars.
 de Jager *et al.* 1996, ApJ, 460, 729. γ -ray detection.
 Blair *et al.* 1995, AJ, 110, 312. UV spectroscopy.
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 62″) of part.
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m and ATCA OH observations.
 Frail *et al.* 1997, ApJ, 475, 224. VLA at 330 MHz (1′ × 1′.8) and comparison with ROSAT observations of Vela X.
 Markwardt & Ögelman 1997, ApJ, 480, L13. ASCA observations of pulsar ‘jet’.
 Raymond *et al.* 1997, ApJ, 482, 881. UV spectroscopy.
 Yoshikoshi *et al.* 1997, ApJ, 487, L65. γ -ray observations of pulsar.
 Winkler & Long 1997, ApJ, 491, 829. ROSAT and optical observations.
 Jenkins *et al.* 1998, ApJ, 492, L147. UV absorption to background star.

G272.2 – 3.2**RA:** 09^h05^m15^s
Dec: –51°50′**1-GHz flux/Jy:** 0.4
Spectral index: 0.6**Size/arcmin:** 15?
Type: S?

Radio: Diffuse shell.

X-ray: Centrally brightened.

Optical: Detected.

References:

- Greiner *et al.* 1994, A&A, 286, L35. ROSAT observations, plus optical.
 Duncan *et al.* 1997, MNRAS, 289, 97. Parkes 64-m at 1.4 GHz (18′ : $S = 0.38 \pm 0.09$) 2.4 GHz (10′.6 : $S = 0.25 \pm 0.04$) and 4.8 GHz (5′.7 : $S = 0.17 \pm 0.02$), MOST at 843 MHz (45″ × 70″ : $S = 0.45 \pm 0.10$), and ATCA at 2.4 GHz (37″ × 52″), plus ROSAT observations.

G279.0+1.1**RA:** 09^h56^m00^s**Dec:** –53°00′**1-GHz flux/Jy:** 30?**Spectral index:** 0.6?**Size/arcmin:** 95**Type:** S**Radio:** Faint, incomplete shell.**Point sources:** Pulsar nearby.**References:**

Woermann & Jonas 1988, MNRAS, 234, 971. Hartesbeesthoek 26-m at 1.6 (30′ : $S=25.2\pm4$) and 2.3 GHz (20′ : $S=20.7\pm3$).
 Duncan *et al.* 1995, MNRAS, 277, 319. Parkes 64-m at 1.4 (18′ : $S=28\pm3$) and 2.4 GHz (11′ : $S=20\pm2$), including polarization.
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 53″) of part.
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G284.3–1.8**RA:** 10^h16^m30^s**Dec:** –58°45′**1-GHz flux/Jy:** 11?**Spectral index:** 0.3?

MSH 10–53

Size/arcmin: 24?**Type:** S

Has been called G284.2–1.8.

Radio: Incomplete, poorly defined shell.**References:**

Ruiz & May 1986, ApJ, 309, 667. CO and optical observations.
 Milne *et al.* 1989, PASAu, 8, 187. MOST at 843 MHz (43″ × 50″) and Parkes 64-m at 8.4 GHz (3′ : $S=5.4\pm0.8$) including polarization, plus earlier flux densities.
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m and ATCA OH observations.

G286.5–1.2**RA:** 10^h33^m50^s**Dec:** –59°26′**1-GHz flux/Jy:** 1.4?**Spectral index:** ?**Size/arcmin:** 26 × 6**Type:** S?**Radio:** Double, elongated arc.**References:**

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 50″ : $S=1.6$).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G289.7–0.3**RA:** 10^h59^m10^s**Dec:** –60°02′**1-GHz flux/Jy:** 6.2**Spectral index:** 0.2?**Size/arcmin:** 18 × 14**Type:** S**Radio:** Incomplete shell.**Point sources:** Compact radio source near centre.**References:**

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 50″ : $S=6.4\pm0.5$), plus Parkes 64-m at 4.5 GHz ($S=7.5\pm2.5$) and 8.55 GHz ($S=3.6\pm0.9$).

G290.1 – 0.8

RA: 11^h01^m00^s
Dec: –60°40′

1-GHz flux/Jy: 42
Spectral index: 0.4

MSH 11–61A

Size/arcmin: 19 × 14
Type: S

Radio: Elongated, clumpy shell.

Optical: Filaments detected.

X-ray: Detected.

Point sources: Pulsar nearby.

References:

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).

Milne & Dickel 1975, AuJPh, 28, 209. Parkes 64-m at 5 GHz (4′.4 : S = 20.2).

Elliot & Malin 1979, MNRAS, 186, 45P. Optical image and spectra.

Kirshner & Winkler 1979, ApJ, 227, 853. Optical.

Kesteven & Caswell 1987, A&A, 183, 118. MOST at 843 MHz (44″ × 50″).

Milne *et al.* 1989, PASAu, 8, 187. MOST at 843 MHz (43″ × 49″ : S = 45 ± 11), and Parkes 64-m at 8.4 GHz (3′ : S = 19.5 ± 1.0), including polarization.

Seward 1990, ApJS, 73, 781. IPC observations.

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 49″ : S = 43).

Rosado *et al.* 1996, A&A, 315, 243. Optical kinematics.

Kaspi *et al.* 1997, ApJ, 485, 820. Pulsar detection.

Gothelf & Kaspi 1998, ApJ, 497, L29. ASCA observations of pulsar.

G291.0 – 0.1

RA: 11^h09^m45^s
Dec: –60°22′

1-GHz flux/Jy: 16
Spectral index: 0.29

(MSH 11–62)

Size/arcmin: 15 × 13
Type: C

Radio: Centrally brightened core, with surrounding arcs.

X-ray: Centrally brightened.

Point sources: Central compact X-ray source.

References:

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).

Roger *et al.* 1986, MNRAS, 219, 815. MOST at 843 MHz (43″ × 50″ : S = 17.2 ± 1.0), and Parkes 64-m at 5 and 8.4 GHz (4′.6 and 3′ : S = 10.4 ± 0.4 and 9′.1 ± 0.2), with polarization.

Wilson 1986, ApJ, 302, 718. IPC observations.

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 49″ : S = 12.7).

Harrus *et al.* 1998, ApJ, 499, 273. ASCA observations.

G292.0 + 1.8

RA: 11^h22^m20^s
Dec: –59°00′

1-GHz flux/Jy: 15
Spectral index: 0.4

MSH 11–54

Size/arcmin: 12 × 8
Type: C?

Radio: Centrally brightened source surrounded by a plateau of faint emission.

Optical: Oxygen rich.

X-ray: Ring of emission.

References:

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).

Goss *et al.* 1979, MNRAS, 188, 357. Optical spectra.

Lockhart *et al.* 1977, MNRAS, 179, 147. Fleurs at 1415 MHz (50″ : S = 13.0).

Clark *et al.* 1980, MNRAS, 193, 129. X-ray spectrum.

Tuohy *et al.* 1982, ApJ, 260, L65. HRI observations.

Dopita & Tuohy 1984, ApJ, 282, 135. Optical spectra.

Braun *et al.* 1986, A&A, 162, 259. MOST at 843 MHz (0′.8) and IRAS.

Hughes & Singh 1994, ApJ, 422, 126. EXOSAT spectrum.

Sutherland & Dopita 1995, ApJ, 439, 365. Spectrophotometry.

G293.8+0.6**RA:** 11^h32^m40^s**Dec:** –60°37′**1-GHz flux/Jy:** 5?**Spectral index:** 0.6?**Size/arcmin:** 20**Type:** C**Radio:** Central source, with faint extended plateau.**References:**Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz (3′ : $S=9.0$) and Parkes 64-m at 5 GHz (4′ : $S=2.1$).

Kesteven & Caswell 1987, A&A, 183, 118. MOST at 843 MHz (44″ × 51″).

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 49″ : $S=2.6$).**G294.1 – 0.0****RA:** 11^h33^m50^s**Dec:** –61°22′**1-GHz flux/Jy:** >2?**Spectral index:** ?**Size/arcmin:** 40**Type:** S**Radio:** Faint shell.**References:**Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 49″ : $S > 2$).**G296.1 – 0.5****RA:** 11^h48^m40^s**Dec:** –62°17′**1-GHz flux/Jy:** 8?**Spectral index:** 0.6?**Size/arcmin:** 37 × 25**Type:** S

Incorporates the previously catalogued remnant G296.1–0.7. Has been called G296.05–0.50.

Radio: Irregular shell, with nearby HII regions.**Optical:** Detected.**X-ray:** Detected.**References:**Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz (3′ : $S=6.9$) and Parkes 64-m at 5 GHz (4′ : $S > 0.74$) poor 5-GHz map (of G296.1–0.7).Longmore *et al.* 1977, MNRAS, 181, 541. Optical spectra.

van den Bergh 1978, ApJS, 38, 119. Optical.

Markert *et al.* 1981, ApJ, 248, L17. IPC observations.Caswell & Barnes 1983, ApJ, 271, L55. Molonglo at 408 MHz (3′ : $S=12.4$).Biggami *et al.* 1986, ApJ, 302, 606. EXOSAT, IPC and HRI observations.

Hwang & Markert 1994, ApJ, 431, 819. ROSAT observations.

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 48″ : $S > 2.4$).Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G296.5+10.0**RA:** 12^h07^m00^s**Dec:** –52°18′**1-GHz flux/Jy:** 48**Spectral index:** 0.5

PKS 1209–51/52

Size/arcmin: 90 × 65**Type:** S

Has been called G296.5+9.7.

Radio: Shell with two bright limbs.**Optical:** Detected.**X-ray:** Incomplete shell, with central compact source.**Point sources:** Central neutron star.**References:**

Irvine & Irvine 1974, ApJ, 192, L111. Optical.

Danziger & Dennefeld 1976, PASP, 88, 44. Optical spectra.

Dickel & Milne 1976, AuJPh, 29, 435. Comparison of earlier Parkes 64-m maps at 2.7 GHz (8′.4) and 5 GHz (4′.4).

Tuohy *et al.* 1979, ApJ, 230, L27. X-ray detection with HEAO-1 A2 experiment.

Ruiz 1983, AJ, 88, 1210. Optical spectra.

Dubner *et al.* 1986, AJ, 91, 343. Argentine 30-m dish at 1.4 GHz (34′), plus HI.Kellett *et al.* 1987, MNRAS, 225, 199. EXOSAT of the west of the remnant, including the compact source.

Kesteven & Caswell 1987, A&A, 183, 118. MOST at 843 MHz (44″ × 56″).

Matsui *et al.* 1988, ApJ, 329, 838. IPC and HRI observations, including compact source.Roger *et al.* 1988, ApJ, 332, 940. MOST at 843 MHz (44″ × 56″).Bignami *et al.* 1992, ApJ, 389, L67. Optical in vicinity of X-ray source.

Milne & Haynes 1994, MNRAS, 270, 106. Parkes 64-m at 2.4 GHz (8′.3 : S=33±3), 4.8 GHz (4′.5 : S=23.3±3) and 8.4 GHz (3′.0 : 18.8±3), including polarization and review of flux densities.

Mereghetti *et al.* 1996, ApJ, 464, 842. Radio, optical and X-ray observations of central source.Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m and ATCA OH observations.Vasisht *et al.* 1997, ApJ, 476, L43. ASCA observations of neutron star.Zavlin *et al.* 1998, A&A, 331, 821. ROSAT and ASCA observations of neutron star.**G296.8 – 0.3****RA:** 11^h56^m00^s**Dec:** –62°18′**1-GHz flux/Jy:** 9**Spectral index:** 0.6

1156–62

Size/arcmin: 20 × 14**Type:** S**Radio:** Shell, brighter to the NW.**Distance:** HI absorption gives 9.6 ± 0.6 kpc.**X-ray:** Detected.**References:**Caswell *et al.* 1975, AuJPA, 37, 39. Molonglo at 408 MHz (3′ : S=15.0) and Parkes 64-m at 5 GHz (4′ : S=3.2).

Dickel & Milne 1976, AuJPh, 29, 435. Comparison of earlier Parkes 64-m maps at 2.7 GHz (8′.4) and 5 GHz (4′.4).

Hwang & Markert 1994, ApJ, 431, 819. ROSAT observations.

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 48″ : S=9.2).

Gaensler *et al.* 1998, MNRAS, 296, 813. ATCA at 1.3 GHz (22″ × 24″ : S=7.0±0.3), including polarisation and HI observations, plus review of flux densities.**G298.5 – 0.3****RA:** 12^h10^m00^s**Dec:** –62°35′**1-GHz flux/Jy:** 5?**Spectral index:** 0.4?**Size/arcmin:** 5?**Type:** ?**Radio:** Not well resolved, may be part of a larger ring?**References:**

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).

Hwang & Markert 1994, ApJ, 431, 819. ROSAT upper limit.

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 48″ : S=1.8).

G298.6 – 0.0**RA:** 12^h11^m00^s**Dec:** –62°20′**1-GHz flux/Jy:** 5?**Spectral index:** 0.3**Size/arcmin:** 12 × 9**Type:** S

Has been called G298.6–0.1.

Radio: Incomplete shell, in complex region.**References:**

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).

Kesteven & Caswell 1987, A&A, 183, 118. MOST at 843 MHz (44″ × 50″).

Hwang & Markert 1994, ApJ, 431, 819. ROSAT upper limit.

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 48″ : $S=7.4$).**G299.2 – 2.9****RA:** 12^h12^m30^s**Dec:** –65°13′**1-GHz flux/Jy:** 0.5?**Spectral index:** ?**Size/arcmin:** 18 × 11**Type:** S**Radio:** Faint source.**X-ray:** Centrally brightened.**Optical:** Filaments in W.**References:**Busser *et al.* 1996, A&A, 310, L1. ROSAT detection, plus optical studies.Slane *et al.* 1996, ApJ, 465, 840. Einstein, IRAS and radio observations.**G299.6 – 0.5****RA:** 12^h19^m00^s**Dec:** –62°52′**1-GHz flux/Jy:** 1.0?**Spectral index:** ?**Size/arcmin:** 13**Type:** S**Radio:** Faint shell, brightest to E.**References:**Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 48″ : $S=1.1$).**G301.4 – 1.0****RA:** 12^h35^m00^s**Dec:** –63°33′**1-GHz flux/Jy:** 2.1?**Spectral index:** ?**Size/arcmin:** 37 × 23**Type:** S**Radio:** Faint, incomplete shell, with possible extension to southwest.**References:**Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 48″ : $S=2.3$).**G302.3 + 0.7****RA:** 12^h42^m55^s**Dec:** –61°52′**1-GHz flux/Jy:** 5?**Spectral index:** 0.4?**Size/arcmin:** 17**Type:** S**Radio:** Distorted shell, in complex region, with possibly associated filament.**References:**Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz (3′ : $S=7.5$) and Parkes 64-m at 5 GHz (4′ : $S=3.0$).Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 49″ : $S=3.2$).Frail *et al.* 1996, AJ, 111, 1651. OH emission near remnant.

G304.6+0.1

Kes 17

RA: 13^h02^m50^s**1-GHz flux/Jy:** 14**Size/arcmin:** 8**Dec:** –62°26′**Spectral index:** 0.5**Type:** S**Radio:** Incomplete shell.**Distance:** Possible limit of > 9.7 kpc from HI absorption.**References:**

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).

Milne & Dickel 1975, AuJPh, 28, 209. Parkes 64-m at 5 GHz (4′.4: S=6.9).

Caswell *et al.* 1975, A&A, 45, 239. Parkes HI absorption.

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 48″: S=18).

Frail *et al.* 1996, AJ, 111, 1651. OH emission near remnant.**G308.1 – 0.7****RA:** 13^h34^m10^s**1-GHz flux/Jy:** 1.2?**Size/arcmin:** 13**Dec:** –62°49′**Spectral index:** ?**Type:** S**Radio:** Faint shell.**References:**

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 48″: S=1.3).

G308.8 – 0.1**RA:** 13^h39^m00^s**1-GHz flux/Jy:** 15?**Size/arcmin:** 20 × 30?**Dec:** –62°08′**Spectral index:** 0.4?**Type:** C?

Incorporates previous catalogued remnant G308.7+0.0.

Radio: Bright ridge in north, and arc to south.**Point sources:** Pulsar near centre of remnant.**References:**Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz (3′: S=16.7) and Parkes 64-m at 5 GHz (4′: S=7.0).

Milne & Dickel 1975, AuJPh, 28, 209. Parkes 64-m at 5 GHz (4′.4: S=6.5).

Caswell *et al.* 1981, MNRAS, 195, 89. FIRST at 1415 MHz (50″).

Wilson 1986, ApJ, 302, 718. Lack of detection with IPC.

Caswell *et al.* 1992, ApJ, 399, L151. MOST at 843 MHz (43″ × 49″).Kaspi *et al.* 1992, ApJ, 399, L155. Pulsar observations.Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.**G309.2 – 0.6****RA:** 13^h43^m00^s**1-GHz flux/Jy:** 7?**Size/arcmin:** 15 × 12**Dec:** –62°39′**Spectral index:** 0.4?**Type:** S

Has been called G309.2–0.7.

Radio: Distorted shell.**References:**Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz (3′: S=10.0) and Parkes 64-m at 5 GHz (4′: S=3.9).Caswell *et al.* 1981, MNRAS, 195, 89. FIRST at 1415 MHz (1′.5).

Kesteven & Caswell 1987, A&A, 183, 118. MOST at 843 MHz (44″ × 50″).

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 48″: S=6).

Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G309.8+0.0

RA: 13^h47^m00^s
Dec: –61°50′

1-GHz flux/Jy: 17
Spectral index: 0.5

Size/arcmin: 25 × 19
Type: S

Radio: Distorted shell.

Point sources: Steep radio spectrum source near the centre of the remnant.

References:

Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz ($3' : S=26.4$) and Parkes 64-m at 5 GHz ($4' : S=7.4$).
 Caswell *et al.* 1980, MNRAS, 190, 881. FIRST at 1415 MHz ($1'$).
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz ($43'' \times 49'' : S > 8.8$).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G310.6 – 0.3

RA: 14^h01^m40^s
Dec: –62°23′

1-GHz flux/Jy: 5?
Spectral index: ?

Kes 20B
Size/arcmin: 8
Type: S

Radio: Asymmetric shell.

References:

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz ($43'' \times 49'' : S=5.4$).

G310.8 – 0.4

RA: 14^h03^m40^s
Dec: –62°31′

1-GHz flux/Jy: 6?
Spectral index: ?

Kes 20A
Size/arcmin: 12
Type: S

Radio: Arc in E, in complex region.

References:

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz ($43'' \times 49'' : S=6.9$).

G311.5 – 0.3

RA: 14^h02^m00^s
Dec: –61°44′

1-GHz flux/Jy: 3?
Spectral index: 0.5

Size/arcmin: 5
Type: S

Radio: Shell, not well resolved.

References:

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz ($3'$) and Parkes 64-m at 5 GHz ($4'$).
 Caswell & Barnes 1985, MNRAS, 216, 753. Molonglo at 408 MHz ($3'$).
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz ($43'' \times 49'' : S=2.9$).

G312.4 – 0.4

RA: 14^h09^m20^s
Dec: –61°29′

1-GHz flux/Jy: 45
Spectral index: 0.36

Size/arcmin: 38
Type: S

Radio: Irregular, incomplete shell.

References:

Caswell & Barnes 1985, MNRAS, 216, 753. Molonglo at 408 MHz ($3' : S=56$).
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz ($43'' \times 49'' : S > 19$), plus Parkes 64-m at 4.5 GHz ($S=30 \pm 2$) and 8.55 GHz ($S=17 \pm 4$).
 Frail *et al.* 1996, AJ, 111, 1651. OH emission near remnant.

G315.4 – 2.3

RCW 86, MSH 14–63

RA: 14^h39^m00^s**1-GHz flux/Jy:** 49**Size/arcmin:** 42**Dec:** –62° 17′**Spectral index:** 0.6**Type:** S

Possibly the remnant of the SN of AD185?

Radio: Shell, brightest to the SW.**Optical:** Bright, radiative filaments, with some faint Balmer dominated filaments.**X-ray:** Partial shell, with bright patch.**Distance:** Possible association with OB stars suggests 2.5 kpc.**References:**

van den Bergh *et al.* 1973, ApJS, 26, 19. Optical.
 Caswell *et al.* 1975, AuJPA, 37, 39. Molonglo at 408 MHz (3′ : $S=86$) and Parkes 64-m at 5 GHz (4′ : $S=18.2$).
 Dickel & Milne 1976, AuJPh, 29, 435. Comparison of earlier Parkes 64-m maps at 2.7 GHz (8′.4) and 5 GHz (4′.4).
 Winkler 1978, ApJ, 221, 220. X-ray detection.
 Leibowitz & Danziger 1983, MNRAS, 204, 273. Optical spectra.
 Pisarski *et al.* 1984, ApJ, 277, 710. IPC and HRI observations
 Nugent *et al.* 1984, ApJ, 284, 612. X-ray spectrum.
 Kesteven & Caswell 1987, A&A, 183, 118. MOST at 843 MHz (44″ × 50″).
 Long & Blair 1990, ApJ, 358, L13. Balmer dominated optical filaments.
 Greidanus & Strom 1990, A&A, 240, 385. IRAS observations.
 Kaastra *et al.* 1992, A&A, 264, 654. Ginga X-ray spectra.
 Strom 1994, MNRAS, 268, L5. Historical association
 Chin & Huang 1994, Natur, 371, 398. Questioning of historical association.
 Schaefer 1995, AJ, 110, 1793. Questioning of historical association.
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 48″ : $S > 22$).
 Rosado *et al.* 1996, A&A, 315, 243. Optical kinematics.
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.
 Smith *et al.* 1997, AJ, 114, 2664. Observations of Balmer dominated filaments.
 Vink *et al.* 1997, A&A, 328, 628. ASCA spectroscopy.

G315.4 – 0.3**RA:** 14^h32^m10^s**1-GHz flux/Jy:** 8**Size/arcmin:** 24 × 13**Dec:** –60° 23′**Spectral index:** 0.4**Type:** ?**Radio:** Irregular non-thermal emission, with HII region superposed in E.**References:**

Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz (3′ : $S=15.9$) and Parkes 64-m at 5 GHz (4′ : $S=4.9$).
 Caswell *et al.* 1981, MNRAS, 195, 89. FIRST at 1415 MHz (50″ : $S=6.25$), re-assessment of earlier flux densities.
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 49″ : $S=3.1$).
 Frail *et al.* 1996, AJ, 111, 1651. OH emission near remnant.

G315.9 – 0.0**RA:** 14^h34^m40^s**1-GHz flux/Jy:** 0.8?**Size/arcmin:** 25 × 14**Dec:** –59° 58′**Spectral index:** ?**Type:** S

Has been called G315.8–0.0.

Radio: Faint, distorted shell, with steep-spectrum ‘jet’?**References:**

Kesteven *et al.* 1987, AuJPh, 40, 855. MOST at 843 MHz (44″ × 50″).
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 50″ : $S=0.9$).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m and ATCA OH observations.

G316.3 – 0.0

(MSH 14–57)

RA: 14^h37^m40^s**1-GHz flux/Jy:** 20?**Size/arcmin:** 29 × 14**Dec:** –59°47′**Spectral index:** 0.4**Type:** S**Radio:** Distorted shell, with possible ‘blowout’.**Distance:** HI absorption data suggests > 7.2 kpc.**References:**

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).

Caswell *et al.* 1975, A&A, 45, 239. Parkes HI absorption.

Milne & Dickel 1975, AuJPh, 28, 209. Parkes 64-m at 5 GHz (4′.4 : S = 16.7).

Kesteven & Caswell 1987, A&A, 183, 118. MOST at 843 MHz (44″ × 51″).

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 50″ : S = 20).

Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.**G317.3 – 0.2****RA:** 14^h45^m50^s**1-GHz flux/Jy:** 4.7?**Size/arcmin:** 11**Dec:** –59°34′**Spectral index:** ?**Type:** S**Radio:** Incomplete shell.**References:**

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 50″ : S = 5.2).

G318.2 + 0.1**RA:** 14^h51^m00^s**1-GHz flux/Jy:** >3.9?**Size/arcmin:** 40 × 35**Dec:** –58°51′**Spectral index:** ?**Type:** S**Radio:** Faint shell, with central HII region.**References:**

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 50″ : S > 4.3).

Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.**G318.9 + 0.4****RA:** 14^h54^m40^s**1-GHz flux/Jy:** 4?**Size/arcmin:** 30 × 14**Dec:** –58°17′**Spectral index:** 0.2?**Type:** C

May not be a SNR?

Radio: Complex arcs, with off-centre core.**References:**

Whiteoak 1990, Natur, 347, 157. MOST at 843 MHz (43″ × 51″).

Whiteoak 1993, ApJ, 415, 701. MOST at 843 MHz (43″ × 51″ : S = 4.8 ± 0.6), Parkes 64-m at 4.5 GHz (4′.7 : S = 3.7 ± 0.2) and 8.4 GHz (2′.8 : S = 3.0 ± 0.4) including polarization, and ATCA at 1.4 GHz and 4.8 GHz (11″ × 13″) of core.

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 50″ : S = 4.8).

Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G320.4 – 1.2**RA:** 15^h10^m30^s**Dec:** –58°58′**1-GHz flux/Jy:** 60?**Spectral index:** 0.4

MSH 15–52, RCW 89

Size/arcmin: 35**Type:** C

Has been suggested as the remnant of the SN of AD185?

Radio: Ragged shell.

Optical: RCW 89 is the H α emitting region to the NW.

X-ray: Partial shell, central nebula and pulsar and possible ‘jet’.

Point sources: Radio and X-ray pulsar, plus IR compact source.

Distance: HI absorption indicates 4.2 kpc.

References:

Caswell *et al.* 1975, A&A, 45, 239. Parkes HI absorption.

Dickel & Milne 1976, AuJPh, 29, 435. Comparison of earlier Parkes 64-m maps at 2.7 GHz (8′.4) and 5 GHz (4′.4).

Dopita *et al.* 1977, ApJ, 214, 179. Optical spectra.

Caswell *et al.* 1981, MNRAS, 195, 89. FIRST at 1415 MHz (50′′).

Seward & Harnden 1982, ApJ, 256, L45. X-ray of pulsar.

Manchester *et al.* 1982, ApJ, 262, L31. Radio of pulsar.

Seward *et al.* 1983, ApJ, 267, 698. X-ray, Optical and IR.

Kamper & van den Bergh, 1980, ApJ, 280, L51. Optical expansion.

Seward *et al.* 1984, ApJ, 281, 650. X-ray observations of pulsar and nebulosity.

Lortet *et al.* 1987, A&A, 180, 65. Optical observations.

Trussoni *et al.* 1990, A&A, 234, 403. EXOSAT observations.

Asaoka & Koyama 1990, PASJ, 42, 625. Ginga X-ray spectrum.

Arendt 1991, AJ, 101, 2160. IRAS observations, including compact source.

Milne *et al.* 1993, MNRAS, 264, 853. Parkes 64-m at 4.8 GHz (4′.5 : $S = 37 \pm 7$) and 8.4 GHz (3′.0 : $S = 24 \pm 4$), including polarization and review of flux densities.

Strom 1994, MNRAS, 268, L5. Historical association.

Chin & Huang 1994, Natur, 371, 398. Questioning of historical association.

Matz *et al.* 1994, ApJ, 434, 288. X-ray observations of pulsar.

Schaefer 1995, AJ, 110, 1793. Questioning of historical association.

Du Plessis *et al.* 1995, ApJ, 453, 746. Hartesbeesthoek 26-m at 2.3, 5 and 8.5 GHz ($S = 42, 35.6, 14.5$).

Greiveldinger *et al.* 1995, ApJ, 454, 855. ROSAT observations.

Trassoni *et al.* 1996, A&A, 306, 581. ROSAT observations.

Tamura *et al.* 1996, PASJ, 48, L33. ASCA observations.

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43′′ × 50′′ : $S = 62$).

Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

Marsden *et al.* 1997, ApJ, 491, L39. X-ray spectroscopy.

Brazier & Becker 1997, MNRAS, 284, 335. ROSAT observations.

G320.6 – 1.6**RA:** 15^h21^m50^s**Dec:** –59°27′**1-GHz flux/Jy:** ?**Spectral index:** ?**Size/arcmin:** 60 × 30**Type:** S

Radio: Faint shell, overlapping G320.4–1.2 in W.

References:

Milne *et al.* 1993, MNRAS, 264, 853. Parkes 64-m at 4.8 GHz (4′.5) and 8.4 GHz (3′.0), including polarization.

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43′′ × 50′′ : $S > 9.3$).

G321.9 – 1.1**RA:** 15^h19^m50^s**Dec:** –58°02′**1-GHz flux/Jy:** >3.4?**Spectral index:** ?**Size/arcmin:** 28**Type:** S

Radio: Faint shell.

References:

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43′′ × 51′′ : $S > 3.8$).

Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G321.9 – 0.3**RA:** 15^h16^m45^s**Dec:** –57°23′**1-GHz flux/Jy:** 13**Spectral index:** 0.3**Size/arcmin:** 31 × 23**Type:** S**Radio:** Shell brighter to the W, with Cir X-1 to N.**Point sources:** Compact, probably thermal source at S edge.**References:**

Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz (3′ : S = 18.3) and Parkes 64-m at 5 GHz (4′ : S = 7.8).
 Kesteven & Caswell 1987, A&A, 183, 118. MOST at 843 MHz (44″ × 52″).
 Stewart *et al.* 1993, MNRAS, 261, 593. ATCA at 1.5 GHz (21″).
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 51″ : S > 8.3).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G322.5 – 0.1**RA:** 15^h19^m30^s**Dec:** –56°55′**1-GHz flux/Jy:** 1.5**Spectral index:** 0.4**Size/arcmin:** 15**Type:** C**Radio:** Shell with central extended source.**Point sources:** PN Pe 2-8 within boundary.**References:**

Whiteoak 1992, MNRAS, 256, 121. MOST at 843 MHz (43″ × 51″ : S = 2.0 ± 0.3).
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 51″ : S = 1.7), plus Parks 64-m at 4.5 GHz (= 0.89 ± 0.13).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G323.5 + 0.1**RA:** 15^h24^m50^s**Dec:** –56°11′**1-GHz flux/Jy:** 3?**Spectral index:** 0.4?**Size/arcmin:** 13**Type:** S**Radio:** Distorted shell, confused with thermal emission.**Point sources:** Compact, probably thermal source near centre.**References:**

Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz (3′ : S = 4.2) and Parkes 64-m at 5 GHz (4′ : S = 1.5).
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 52″ : S = 4.2).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G326.3 – 1.8**RA:** 15^h49^m00^s**Dec:** –56°00′**1-GHz flux/Jy:** 145**Spectral index:** varies**MSH 15–56****Size/arcmin:** 38**Type:** C

Has been called G326.2–1.7.

Radio: Shell, with flat spectrum core.**Optical:** Emission around the shell.**X-ray:** Shell, with central extended emission.**References:**

Clark *et al.* 1975, AuJPA, 37, 75. Molonglo at 408 MHz (3′ : S = 180).
 Caswell *et al.* 1975, A&A, 45, 239. Parkes HI absorption.
 Milne *et al.* 1979, MNRAS, 188, 437. FIRST at 1415 MHz (0′.8 : S > 95) and Parkes 64-m at 14.7 GHz (2′.2 : S = 69 ± 8).
 van den Bergh 1979, ApJ, 227, 497. Optical observations.
 Zealey *et al.* 1979, A&AS, 38, 39. Optical observations.
 Dennefeld 1980, PASP, 92, 603. Optical spectra.
 Kesteven & Caswell 1987, A&A, 183, 118. MOST at 843 MHz (44″ × 53″).
 Milne *et al.* 1989, PASAu, 8, 187. MOST at 843 MHz (43″ × 52″ : S = 153 ± 40), and Parkes 64-m at 8.4 GHz (3′ : S = 68 ± 5), including polarization.
 Seward 1990, ApJS, 73, 781. IPC observations.
 Kassim *et al.* 1993, ApJ, 419, 733. ROSAT image.
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 52″ : S > 130).
 Rosado *et al.* 1996, A&A, 315, 243. Optical kinematics.
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G327.1 – 1.1**RA:** 15^h50^m30^s**Dec:** –55°00′**1-GHz flux/Jy:** 7?**Spectral index:** ?**Size/arcmin:** 18**Type:** C**Radio:** Shell, with off-centre core.**X-ray:** Diffuse, with core.**References:**Milne & Dickel 1974, AuJPh, 27, 549. Parkes 64-m at 2.7 GHz (8′.4: $S=10\pm 15\%$).Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz (3′: $S=10.6$) and Parkes 64-m at 5 GHz (4′: $S=4.3$).

Lamb & Markert 1981, ApJ, 244, 94. IPC observations.

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 52″: $S=7.6$).Seward *et al.* 1996, ApJ, 471, 887. ROSAT observations.Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.**G327.4+0.4****RA:** 15^h44^m30^s**Dec:** –53°40′**1-GHz flux/Jy:** 30?**Spectral index:** 0.6

Kes 27

Size/arcmin: 21**Type:** S

Has been called G327.3+0.4 and G327.3+0.5.

Radio: Incomplete, multi-arc shell, brightest to the SE.**X-ray:** Diffuse, best defined to E.**References:**Caswell *et al.* 1975, AuJPA, 37, 39. Molonglo at 408 MHz (3′: $S=58$) and Parkes 64-m at 5 GHz (4′: $S=12.4$).

Dickel & Milne 1976, AuJPh, 29, 435. Comparison of earlier Parkes 64-m maps at 2.7 GHz (8′.4) and 5 GHz (4′.4).

Lamb & Markert 1981, ApJ, 244, 94. IPC observations.

Kesteven & Caswell 1987, A&A, 183, 118. MOST at 843 MHz (44″ × 55″).

Milne *et al.* 1989, PASAu, 8, 187. MOST at 843 MHz (43″ × 53″: $S=32.2\pm 6$), and Parkes 64-m at 8.4 GHz (3′: $S=9.4\pm 0.8$), including polarization.Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 53″: $S=25$).Seward *et al.* 1996, ApJ, 471, 887. ROSAT observations.Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m and ATCA OH observations.**G327.4+1.0****RA:** 15^h43^m00^s**Dec:** –53°11′**1-GHz flux/Jy:** 1.9?**Spectral index:** ?**Size/arcmin:** 14**Type:** S**Radio:** Asymmetric shell.**References:**Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 54″: $S=2.1$).Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G327.6+14.6

SN1006, PKS 1459–41

RA: 14^h59^m35^s**1-GHz flux/Jy:** 19**Size/arcmin:** 30**Dec:** –41°44′**Spectral index:** 0.6**Type:** S

This is the remnant of the SN of AD1006.

Radio: Shell, with two bright arcs.

Optical: Filaments to the NW, with broad H α component.

X-ray: Thermal shell, with non-thermal limb-brightened arcs.

Point sources: The background Schweizer-Middleditch star is near the middle of the remnant.

Distance: Optical spectra and proper motion indicate 1.7–3.1 kpc, modelling spectra gives 1.8 ± 0.3 kpc.

References:

- van den Bergh 1976, ApJ, 208, L17. Optical.
 Dickel & Milne 1976, AuJPh, 29, 435. Comparison of earlier Parkes 64-m maps at 2.7 GHz (8'.4) and 5 GHz (4'.4).
 Becker *et al.* 1980, ApJ, 240, L33. X-ray spectroscopy.
 Schweizer & Middleditch 1980, ApJ, 241, 1039. Possible stellar remnant.
 Pye *et al.* 1981, MNRAS, 194, 569. IPC observations.
 Caswell *et al.* 1983, MNRAS, 204, 921. FIRST at 1415 MHz (77").
 Reynolds & Gilmore 1986, AJ, 92, 1138. VLA at 1.37 and 1.67 GHz (16" \times 20").
 Kirshner *et al.* 1987, ApJ, 315, L135. Broad H α optical component.
 Kesteven & Caswell 1987, A&A, 183, 118. MOST at 843 MHz (44" \times 66").
 Fesen *et al.* 1988, ApJ, 327, 164. UV absorption spectra of the Schweizer-Middleditch star.
 Roger *et al.* 1988, ApJ, 332, 940. MOST at 843 MHz (44" \times 66" : $S = 17.5 \pm 1.5$).
 Long *et al.* 1988, ApJ, 333, 749. Optical proper motion for distance.
 Jones & Pye 1989, MNRAS, 238, 567. EXOSAT observations.
 Leahy *et al.* 1991, ApJ, 374, 218. HEAO-1 X-ray spectra.
 Wu *et al.* 1993, ApJ, 416, 247. UV spectra.
 Ozaki *et al.* 1994, PASJ, 46, 367. X-ray observations.
 Reynolds & Gilmore 1993, AJ, 106, 272. VLA at 1.37 and 1.67 GHz (24"), including polarization.
 Moffett *et al.* 1993, AJ, 106, 1566. VLA at 1.37 and 1.67 GHz (10" \times 14"), for proper motion studies.
 Raymond *et al.* 1995, ApJ, 454, L31. Far UV spectroscopy.
 Koyama *et al.* 1995, Natur, 378, 255. ASCA observations.
 Willingale *et al.* 1996, MNRAS, 278, 749. ROSAT observations.
 Blair *et al.* 1996, ApJ, 468, 871. Optical absorption studies.
 Laming *et al.* 1996, ApJ, 472, 267. Modelling of optical spectra, including distance.
 Wu *et al.* 1997, ApJ, 477, L53. Far UV absorption spectra of the Schweizer-Middleditch star.
 Winkler & Long 1997, ApJ, 486, L137. UV absorption spectra of background quasar.
 Tanimori *et al.* 1998, ApJ, 497, L25. γ -ray detection.

G328.4+0.2

(MSH 15–57)

RA: 15^h51^m40^s**1-GHz flux/Jy:** 16?**Size/arcmin:** 6**Dec:** –53°08′**Spectral index:** 0.2**Type:** F

Radio: Amorphous emission.

References:

- Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3') and Parkes 64-m at 5 GHz (4').
 Caswell *et al.* 1980, MNRAS, 190, 881. FIRST at 1415 MHz (50").
 Wilson 1986, ApJ, 302, 718. Lack of detection with IPC.
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43" \times 54" : $S = 15$).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G329.7+0.4**RA:** 15^h57^m30^s**1-GHz flux/Jy:** >34?**Size/arcmin:** 40 \times 33**Dec:** –52°11′**Spectral index:** ?**Type:** S

Radio: Diffuse shell, in complex region.

References:

- Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43" \times 53" : $S > 38$).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G330.0+15.0**RA:** 15^h05^m00^s**Dec:** –39°30′**1-GHz flux/Jy:** 350?**Spectral index:** 0.5?

Lupus Loop

Size/arcmin: 180?**Type:** S**Radio:** Low surface brightness loop with HI shell.**X-ray:** Detected.**References:**

Milne 1971, AuJPh, 24, 757. Parkes 64-m at 408 MHz (48′), 635 MHz (31′) and 1410 MHz (15′).

Milne & Dickel 1974, AuJPh, 27, 549. Parkes 64-m at 2.7 GHz (8′.4: $S=120\pm 30\%$).

Toor 1980, A&A, 85, 184. X-ray image and spectrum.

Colomb & Dubner 1982, A&A, 112, 141. Argentine 30-m dish at 1.42 GHz (30′), HI observations.

Leahy *et al.* 1991, ApJ, 374, 218. HEAO-1 X-ray spectra.Ozaki *et al.* 1994, PASJ, 46, 367. X-ray observations.**G330.2+1.0****RA:** 15^h57^m20^s**Dec:** –51°26′**1-GHz flux/Jy:** 5?**Spectral index:** 0.3**Size/arcmin:** 11**Type:** S?**Radio:** Clumpy non-thermal emission, possibly a distorted shell.**References:**Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz (3′: $S=8.6$) and Parkes 64-m at 5 GHz (4′: $S=4.0$).Caswell *et al.* 1983, MNRAS, 204, 915. FIRST at 1415 MHz (52″ × 47″), and MOST at 843 MHz (43″ × 55″).Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 55″: $S=4.7$).Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.**G332.0+0.2****RA:** 16^h09^m30^s**Dec:** –50°45′**1-GHz flux/Jy:** 8?**Spectral index:** 0.5**Size/arcmin:** 12**Type:** S**Radio:** Incomplete shell.**References:**

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).

Kesteven & Caswell 1987, A&A, 183, 118. MOST at 843 MHz (44″ × 57″).

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 55″: $S=8.9$).Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G332.4 – 0.4

RCW 103

RA: 16^h13^m45^s**1-GHz flux/Jy:** 28**Size/arcmin:** 10**Dec:** –50°55′**Spectral index:** 0.5**Type:** S**Radio:** Shell, brightest to the S.**Optical:** Filaments correspond well to the radio shell.**X-ray:** Detected, with point source near centre.**Point sources:** Central X-ray source, and nearby pulsar.**Distance:** HI absorption indicates 3.3 kpc.**References:**

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).
 Caswell *et al.* 1975, A&A, 45, 239. Parkes HI absorption.
 Tuohy & Garmire 1980, ApJ, 239, L107. HRI detection of X-ray point source.
 Caswell *et al.* 1980, MNRAS, 190, 881. FIRST at 1415 MHz (50″).
 Lamb & Markert 1981, ApJ, 244, 94. IPC observations.
 Ruiz 1983, AJ, 88, 1210. Optical spectra.
 Tuohy *et al.* 1983, ApJ, 268, 778. X-ray observations.
 Leibowitz & Danziger 1983, MNRAS, 204, 273. Optical spectra.
 Nugent *et al.* 1984, ApJ, 284, 612. X-ray spectrum (and HRI image from Tuohy, private communication).
 Meaburn & Allen 1986, MNRAS, 222, 593. Optical spectra.
 Kesteven & Caswell 1987, A&A, 183, 118. MOST at 843 MHz (44″ × 57″).
 Oliva *et al.* 1990, A&A, 240, 453. IR spectroscopy.
 Dickel *et al.* 1996, AJ, 111, 340. ATCA at 1.36 (8″) and 2.37 GHz (4″.5″), including polarization.
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 55″ : S=34).
 Frail *et al.* 1996, AJ, 111, 1651. OH emission near remnant.
 Gotthelf *et al.* 1997, ApJ, 487, L175. ASCA observations of compact X-ray source.
 Torii *et al.* 1998, ApJ, 494, L207. ASCA detection of nearby pulsar.
 Kaspi *et al.* 1998, ApJ, 503, L161. Pulsar observations.

G332.4 + 0.1

MSH 16–51, Kes 32

RA: 16^h11^m30^s**1-GHz flux/Jy:** 26**Size/arcmin:** 15**Dec:** –50°35′**Spectral index:** 0.5**Type:** S

Has been called G332.4+0.2.

Radio: Distorted shell, with thermal jet and plume adjacent.**Point sources:** Pulsar nearby.**References:**

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).
 Roger *et al.* 1985, Natur, 316, 44. MOST at 843 MHz (44″ × 57″).
 Caraveo 1993, ApJ, 415, L111. Nearby pulsar.
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 56″ : S=29).
 Frail *et al.* 1996, AJ, 111, 1651. OH emission near remnant.

G335.2 + 0.1**RA:** 16^h24^m00^s**1-GHz flux/Jy:** 16**Size/arcmin:** 21**Dec:** –48°40′**Spectral index:** 0.5**Type:** S**Radio:** Well defined shell.**Point sources:** Old pulsar within remnant boundary.**References:**

Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz (3′ : S=27.1) and Parkes 64-m at 5 GHz (4′ : S=8.6).
 Kaspi *et al.* 1996, AJ, 111, 2028. Pulsar observations.
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 57″ : S=16).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G336.7+0.5

RA: 16^h28^m30^s
Dec: –47°13′

1-GHz flux/Jy: 6
Spectral index: 0.5

Size/arcmin: 14 × 10
Type: S

Radio: Irregular shell.

References:

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).
 Kesteven & Caswell 1987, A&A, 183, 118. MOST at 843 MHz (44″ × 60″).
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 58″ : S=6.1).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G337.0–0.1

(CTB 33)

RA: 16^h32^m15^s
Dec: –47°30′

1-GHz flux/Jy: 1.5
Spectral index: 0.6?

Size/arcmin: 1.5
Type: S

This entry refers to a small (1′.5) SNR, not the larger previously catalogued G337.0–0.1.

Radio: Shell, in a complex region.

Distance: Association with CRB 33 gives 11 kpc.

References:

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 58″ : S=21).
 Frail *et al.* 1996, AJ, 111, 1651. OH emission near remnant, including masers.
 Sarma *et al.* 1997, ApJ, 483, 335. ATCA at 1.4 GHz (12″) including H_i, and 8.9 GHz (13″ × 15″) for recombination lines, clarifying extent of the remnant.

G337.2–0.7

RA: 16^h35^m45^s
Dec: –47°45′

1-GHz flux/Jy: 2?
Spectral index: 0.7

Size/arcmin: 6
Type: S

Radio: Shell, not well resolved.

References:

Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz (3′ : S=3.8) and Parkes 64-m at 5 GHz (4′ : S=0.70).
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 58″ : S=2.0).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G337.3+1.0

Kes 40

RA: 16^h29^m00^s
Dec: –46°30′

1-GHz flux/Jy: 16
Spectral index: 0.55

Size/arcmin: 15 × 12
Type: S

Radio: Nearly complete shell.

References:

Caswell *et al.* 1975, AuJPA, 37, 39. Molonglo at 408 MHz (3′ : S=24.6) and Parkes 64-m at 5 GHz (4′ : S=7.2).
 Dickel & Milne 1976, AuJPh, 29, 435. Comparison of earlier Parkes 64-m maps at 2.7 GHz (8′.4) and 5 GHz (4′.4).
 Kesteven & Caswell 1987, A&A, 183, 118. MOST at 843 MHz (44″ × 61″).
 Milne *et al.* 1989, PASAu, 8, 187. MOST at 843 MHz (43″ × 59″ : S=14.8 ± 3.0), and Parkes 64-m at 8.4 GHz (3′ : S=5.1 ± 0.6), including polarization.
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 59″ : S=20).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G337.8–0.1

Kes 41

RA: 16^h35^m20^s
Dec: –46°53′

1-GHz flux/Jy: 18
Spectral index: 0.5

Size/arcmin: 9 × 6
Type: S

Radio: Distorted shell.

Distance: H_i absorption suggests > 9.3 kpc.

References:

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).
 Caswell *et al.* 1975, A&A, 45, 239. Parkes H_i absorption.
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 59″ : S=18).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G338.1+0.4**RA:** 16^h34^m20^s**Dec:** –46°18′**1-GHz flux/Jy:** 4?**Spectral index:** 0.4**Size/arcmin:** 15?**Type:** S**Radio:** Arc in NE, merging with thermal emission in S.**Optical:** Detected.**References:**

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).

Zealey *et al.* 1979, A&AS, 38, 39. Optical detection.

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 59″ : S=3.8).

Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.**G338.3–0.0****RA:** 16^h37^m20^s**Dec:** –46°28′**1-GHz flux/Jy:** 7?**Spectral index:** ?**Size/arcmin:** 8**Type:** S**Radio:** Irregular shell, in complex region.**References:**

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 59″ : S=7.4).

Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.**G338.5+0.1****RA:** 16^h37^m30^s**Dec:** –46°13′**1-GHz flux/Jy:** 12?**Spectral index:** ?**Size/arcmin:** 9**Type:** ?**Radio:** Circle of non-thermal emission in complex region, not well defined.**References:**

Shaver & Goss 1970, AuJPA, 14, 133. Molonglo at 408 MHz (3′) and Parkes 64-m at 5 GHz (4′).

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 59″ : S=13).

Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.**G340.4+0.4****RA:** 16^h42^m55^s**Dec:** –44°34′**1-GHz flux/Jy:** 5**Spectral index:** 0.4**Size/arcmin:** 10 × 7**Type:** S**Radio:** Distorted shell, elongated east–west.**References:**Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz (3′ : S=8.2) and Parkes 64-m at 5 GHz (4′ : S=2.9).Caswell *et al.* 1983, MNRAS, 203, 595. FIRST at 1415 MHz (50″).Dubner *et al.* 1996, AJ, 111, 1304. VLA at 330 MHz (75″ × 48″ : S=9.8±0.9) and 1.4 GHz (27″ × 9″ : S=3.6±0.1).

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 61″ : S=5.9).

Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.**G340.6+0.3****RA:** 16^h44^m05^s**Dec:** –44°29′**1-GHz flux/Jy:** 5?**Spectral index:** 0.4?**Size/arcmin:** 6**Type:** S**Radio:** Incomplete shell.**Optical:** Possible associated filaments.**References:**Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz (3′ : S=7.0) and Parkes 64-m at 5 GHz (4′ : S=2.8).Caswell *et al.* 1983, MNRAS, 203, 595. FIRST at 1415 MHz (50″).Zealey *et al.* 1979, A&AS, 38, 39. Optical.Dubner *et al.* 1996, AJ, 111, 1304. VLA at 330 MHz (75″ × 48″ : S=9.2±0.9) and 1.4 GHz (27″ × 9″ : S=5.8±0.1).

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 61″ : S=4.5).

Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G341.2+0.9

RA: 16^h44^m00^s
Dec: –43°42′

1-GHz flux/Jy: 1.5?
Spectral index: 0.6?

Size/arcmin: 16 × 22
Type: C?

Radio: Incomplete shell, with extension to SW.

Point sources: Pulsar in W.

References:

Frail *et al.* 1994, ApJ, 437, 781. VLA at 330 MHz (54'' × 116'' : $S=3.0\pm 0.1$) and 1.4 GHz (21'' × 25'' : $S=12.5\pm 0.05$).

G341.9 – 0.3

RA: 16^h51^m25^s
Dec: –43°56′

1-GHz flux/Jy: 2.5
Spectral index: 0.5

Size/arcmin: 7
Type: S

Radio: Incomplete shell, brightest to NE.

References:

Caswell *et al.* 1975, AuJPA, 37, 39. Molonglo at 408 MHz (3' : $S=7.4$) and Parkes 64-m at 5 GHz (4' : $S=1.7$), see Caswell & Clark 1975, AuJPA, 37, 57 for the maps.

Caswell *et al.* 1983, MNRAS, 203, 595. FIRST at 1415 MHz (50''), revision of previous flux densities.

Dubner *et al.* 1996, AJ, 111, 1304. VLA at 1.4 GHz (35'' × 11'' : $S=2.2\pm 0.1$).

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43'' × 62'' : $S=2.7$).

Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G342.0 – 0.2

RA: 16^h51^m15^s
Dec: –43°48′

1-GHz flux/Jy: 3.5?
Spectral index: 0.4?

Size/arcmin: 12 × 9
Type: S

Radio: Distorted shell.

References:

Caswell *et al.* 1983, MNRAS, 203, 595. FIRST at 1415 MHz (50''), estimate $S(408)=5$, $S(5000)=2$ from previous maps.

Dubner *et al.* 1996, AJ, 111, 1304. VLA at 1.4 GHz (35'' × 11'').

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43'' × 62'' : $S=3.5$).

Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G342.1+0.9

RA: 16^h47^m10^s
Dec: –42°59′

1-GHz flux/Jy: 0.5?
Spectral index: ?

Size/arcmin: 10 × 9
Type: S

Radio: Incomplete shell.

References:

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43'' × 63'' : $S=0.6$).

Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G343.1 – 2.3

RA: 17^h04^m25^s
Dec: –44°12′

1-GHz flux/Jy: 8?
Spectral index: 0.5?

Size/arcmin: 32?
Type: C?

Radio: Incomplete shell?

Point sources: Pulsar near edge.

References:

McAdam *et al.* 1993, Natur, 361, 516. MOST at 843 MHz (smoothed to 2').

Frail *et al.* 1994, ApJ, 437, 781. VLA at 330 MHz (56'' × 111'' : $S=10.6$) and 1.4 GHz (22'' × 27'') near pulsar.

Becker *et al.* 1995, A&A, 298, 528. ROSAT of pulsar, and limit for remnant.

G343.1 – 0.7

RA: 16^h56^m50^s
Dec: –43°10′

1-GHz flux/Jy: 7.8
Spectral index: 0.55

Size/arcmin: 27 × 21
Type: S

Radio: Shell, with smaller thermal shell adjacent.

References:

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 63″ : $S=8.5 \pm 0.6$), plus Parkes 64-m at 4.5 GHz ($S=3.9 \pm 0.6$) and 8.55 GHz ($S=2.4 \pm 0.5$)
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G344.7 – 0.1

RA: 17^h00^m20^s
Dec: –41°38′

1-GHz flux/Jy: 2.5?
Spectral index: 0.5

Size/arcmin: 10
Type: C?

Radio: Aysmmetric shell, with possible core.

References:

Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz (3′ : $S=4.7$) and Parkes 64-m at 5 GHz (4′ : $S=1.3$).
 Dubner *et al.* 1993, AJ, 105, 2251. VLA at 1.47 GHz (30″ × 43″ : $S=1.7 \pm 0.1$).
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 65″ : $S=2.5$).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G345.7 – 0.2

RA: 17^h03^m50^s
Dec: –40°49′

1-GHz flux/Jy: 0.6?
Spectral index: ?

Size/arcmin: 6
Type: S

Radio: Poorly defined diffuse shell.

Point sources: Old pulsar nearby.

References:

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 66″ : $S=0.7$).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G346.6 – 0.2

RA: 17^h06^m50^s
Dec: –40°07′

1-GHz flux/Jy: 8?
Spectral index: 0.5?

Size/arcmin: 8
Type: S

Radio: Irregular shell.

References:

Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz (3′ : $S=14.9$) and Parkes 64-m at 5 GHz (4′ : $S=4.3$).
 Dubner *et al.* 1993, AJ, 105, 2251. VLA at 1.47 GHz (31″ × 43″ : $S=8.1 \pm 0.9$).
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 67″ : $S=8.7$).
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G348.5 – 0.0

RA: 17^h12^m00^s
Dec: –38°25′

1-GHz flux/Jy: 10?
Spectral index: 0.4?

Size/arcmin: 10?
Type: S?

Radio: Arc, overlapping G348.5+0.1.

References:

Kassim *et al.* 1991, ApJ, 374, 212. VLA at 333 MHz (46″ × 53″), 1.4 GHz (18″ × 33″) and part at 5 GHz (2″.5 × 3″.9).
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 69″ : $S=10.2$).
 Frail *et al.* 1996, AJ, 111, 1651. OH emission near remnant, including masers.
 Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G348.5+0.1

RA: 17^h10^m40^s
Dec: –38°29′

1-GHz flux/Jy: 72
Spectral index: 0.3

CTB 37A
Size/arcmin: 15
Type: S

Radio: Shell, poorly define to S and W, overlapping G348.5–0.0 in E.

Distance: HI absorption indicates 10.2±3.5 kpc.

References:

Clark *et al.* 1975, AuJPA, 37, 75. Molonglo at 408 MHz (3′:S=97).
 Milne & Dickel 1975, AuJPh, 28, 209. Parkes 64-m at 5 GHz (4′.4:S=43).
 Caswell *et al.* 1975, A&A, 45, 239. Parkes HI absorption.
 Milne *et al.* 1979, MNRAS, 188, 437. FIRST at 1415 MHz (0′.8:S>50) and Parkes 64-m at 14.7 GHz (2′.2:S=18±5).
 Downes 1984, MNRAS, 210, 845. VLA at 1465 MHz (20″×45″).
 Kassim *et al.* 1991, ApJ, 374, 212. VLA at 333 MHz (46″×53″), 1.4 GHz (18″×33″) and part at 5 GHz (2″.5×3″.9).
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″×69″:S=71).

G348.7+0.3

RA: 17^h10^m30^s
Dec: –38°08′

1-GHz flux/Jy: 26
Spectral index: 0.3

CTB 37B
Size/arcmin: 17?
Type: S

Radio: Incomplete shell with faint eastern extensions.

Distance: HI absorption indicates 10.2±3.5 kpc.

References:

Clark *et al.* 1975, AuJPA, 37, 75. Molonglo at 408 MHz (3′:S=34).
 Milne & Dickel 1975, AuJPh, 28, 209. Parkes 64-m at 5 GHz (4′.4:S=32).
 Caswell *et al.* 1975, A&A, 45, 239. Parkes HI absorption.
 Milne *et al.* 1979, MNRAS, 188, 437. FIRST at 1415 MHz (0′.8:S>20) and Parkes 64-m at 14.7 GHz (2′.2:S=8±3).
 Downes 1984, MNRAS, 210, 845. VLA at 1465 MHz (20″×45″).
 Kassim *et al.* 1991, ApJ, 374, 212. VLA at 333 MHz (46″×53″).
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″×69″:S=33).
 Frail *et al.* 1996, AJ, 111, 1651. OH emission near remnant.

G349.2–0.1

RA: 17^h13^m50^s
Dec: –38°01′

1-GHz flux/Jy: 1.4?
Spectral index: ?

Size/arcmin: 9×6
Type: S

Radio: Elongated shell, adjacent to bright HII region.

References:

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″×70″:S=1.6).
 Frail *et al.* 1996, AJ, 111, 1651. OH emission near remnant.

G349.7+0.2

RA: 17^h14^m35^s
Dec: –37°23′

1-GHz flux/Jy: 20
Spectral index: 0.5

Size/arcmin: 2.5×2
Type: S

Radio: Incomplete clumpy shell, with enhancement to the S.

Distance: HI absorption indicates 18.3±4.6 kpc.

References:

Becker & Kundu 1975, AJ, 80, 679. NRAO 140-ft at 10.6 GHz (3′).
 Caswell *et al.* 1975, AuJPA, 37, 39. Molonglo at 408 MHz (3′:S=31.0) and Parkes 64-m at 5 GHz (4′:S=9.1), no maps.
 Caswell *et al.* 1975, A&A, 45, 239. Parkes HI absorption.
 Shaver *et al.* 1985, Natur, 313, 113. VLA at 1.4 GHz (3″.4×14″.5).
 Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″×71″:S=22).
 Frail *et al.* 1996, AJ, 111, 1651. OH emission near remnant, including masers.

G350.0 – 2.0**RA:** 17^h24^m20^s**Dec:** –38°30′**1-GHz flux/Jy:** 26**Spectral index:** 0.4**Size/arcmin:** 45**Type:** S

Incorporates the previously catalogued G350.0–1.8 in the NW.

Radio: Shell, brightest in NW.

References:

Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz (3′: $S=49.5$) and Parkes 64-m at 5 GHz (4′: $S=13.6$).

Milne & Dickel 1975, AuJPh, 28, 209. Parkes 64-m at 5 GHz (4′.4).

Gaensler 1998, ApJ, 493, 781. VLA and Parkes 64-m at 1.4 GHz (18″ × 21″: $S=22.3 \pm 0.3$), clarifying extent of remnant.

G351.2+0.1**RA:** 17^h19^m05^s**Dec:** –36°08′**1-GHz flux/Jy:** 5?**Spectral index:** 0.4**Size/arcmin:** 7**Type:** C?

Has been called G351.3+0.2.

Radio: Distorted shell, with possible flat-spectrum core.

References:

Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz (3′: $S=8.1$) and Parkes 64-m at 5 GHz (4′: $S=3.1$).

Caswell *et al.* 1984, PASAu, 5, 227. MOST at 843 MHz (43″ × 77″).

Becker & Helfand 1988, AJ, 95, 883. VLA at 5 GHz (15″), and at 15 GHz of core.

Dubner *et al.* 1993, AJ, 105, 2251. VLA at 1.47 GHz (32″ × 36″: $S=4.8 \pm 0.2$).

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 73″: $S=5.5$).

Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

G351.7+0.8**RA:** 17^h17^m40^s**Dec:** –35°24′**1-GHz flux/Jy:** 10?**Spectral index:** ?**Size/arcmin:** 18 × 14**Type:** S

Radio: Elongated shell, adjacent to bright HII region.

Point sources: Pulsar nearby.

References:

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 74″: $S=11$).

G351.9 – 0.9**RA:** 17^h25^m30^s**Dec:** –36°14′**1-GHz flux/Jy:** 1.8?**Spectral index:** ?**Size/arcmin:** 12 × 9**Type:** S

Radio: Asymmetric shell.

References:

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 73″: $S=2.0$).

G352.7 – 0.1**RA:** 17^h24^m20^s**Dec:** –35°05′**1-GHz flux/Jy:** 4**Spectral index:** 0.6**Size/arcmin:** 8 × 6**Type:** S

Radio: Distorted shell.

X-ray: Detected.

References:

Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz (3′: $S=9.6$) and Parkes 64-m at 5 GHz (4′: $S=2.3$).

Caswell *et al.* 1983, MNRAS, 203, 595. FIRST at 1415 MHz (1′.1).

Dubner *et al.* 1993, AJ, 105, 2251. VLA at 1.47 GHz (34″: $S=3.4 \pm 0.4$).

Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43″ × 75″: $S=4.4$).

Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.

Kinugasa *et al.* 1998, PASJ, 50, 249. ASCA observations.

G354.1 + 0.1**RA:** 17^h27^m10^s**Dec:** –33°44′**1-GHz flux/Jy:** ?
Spectral index: varies?**Size/arcmin:** 15 × 3?**Type:** C?

Is this a SNR?

Radio: Elongated N–S.**Point sources:** Pulsar at S tip.**References:**Frail *et al.* 1994, ApJ, 437, 781. VLA at 330 MHz (47'' × 99'') and 1.4 GHz (8'' .8 × 21'').**G354.8 – 0.8****RA:** 17^h32^m40^s**Dec:** –33°40′**1-GHz flux/Jy:** 2.8?**Spectral index:** ?**Size/arcmin:** 19**Type:** S**Radio:** Distorted shell.**References:**Whiteoak & Green 1996, A&AS, 118, 329. MOST at 843 MHz (43'' × 78'' : S=3.1).
Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.**G355.6 – 0.0****RA:** 17^h32^m00^s**Dec:** –32°36′**1-GHz flux/Jy:** 3?**Spectral index:** ?**Size/arcmin:** 6 × 8**Type:** S**Radio:** Well defined shell.**References:**

Gray 1994, MNRAS, 270, 847. MOST at 843 MHz (43'' × 80'' : S=2.6).

G355.9 – 2.5**RA:** 17^h42^m35^s**Dec:** –33°42′**1-GHz flux/Jy:** 8**Spectral index:** 0.5**Size/arcmin:** 13**Type:** S**Radio:** Distorted shell, brightest to SE.**References:**Clark *et al.* 1975, AuJPA, 37, 1. Molonglo at 408 MHz (3' : S=12.3) and Parkes 64-m at 5 GHz (4' : S=3.4).
Caswell *et al.* 1984, PASAu, 5, 227. MOST at 843 MHz (43'' × 77'').
Dubner *et al.* 1993, AJ, 105, 2251. VLA at 1.47 GHz (32'' × 34'' : S=5.0 ± 0.3).
Gray 1994, MNRAS, 270, 836. MOST at 843 MHz (43'' × 77'').
Green *et al.* 1997, AJ, 114, 2058. Parkes 64-m OH observations.**G356.3 – 0.3****RA:** 17^h34^m40^s**Dec:** –32°14′**1-GHz flux/Jy:** 3?**Spectral index:** ?**Size/arcmin:** 7 × 11**Type:** S**Radio:** Elongated shell, brighter in N.**References:**

Gray 1994, MNRAS, 270, 847. MOST at 843 MHz (43'' × 81'' : S=2.6).

G356.3 – 1.5**RA:** 17^h39^m20^s**Dec:** –32°51′**1-GHz flux/Jy:** 3?**Spectral index:** ?**Size/arcmin:** 15 × 20**Type:** S**Radio:** Double arc.**References:**

Gray 1994, MNRAS, 270, 847. MOST at 843 MHz (43'' × 79'' : S=2.8).

G357.7 – 0.1

MSH 17–39

RA: 17^h37^m15^s**1-GHz flux/Jy:** 37**Size/arcmin:** 3 × 8?**Dec:** –30°56′**Spectral index:** 0.4**Type:** ?

Has been suggested that this is not a SNR.

Radio: Multiple arcs and filaments.

Point sources: Peripheral compact source (possibly a compact HII region).

References:

Caswell *et al.* 1975, AuJPA, 37, 39. Molonglo at 408 MHz ($3' : S=54.2$) and Parkes 64-m at 5 GHz ($4' : S=18.5$).
 Milne & Dickel 1975, AuJPh, 28, 209. Parkes 64-m at 5 GHz ($4'.4 : S=14.6$).
 Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz ($2'.6$).
 Caswell *et al.* 1980, MNRAS, 190, 881. FIRST at 1415 MHz ($50''$).
 Weiler & Panagia 1980, A&A, 90, 269. Effelsberg 100-m at 9 GHz ($1'.5$) (private communication from Baker).
 Shaver *et al.* 1985, Natur, 313, 113. VLA at 1.4 GHz ($3''.8 \times 10''.9$) and 5 GHz ($12'' \times 26''$).
 Becker & Helfand 1985, Natur, 313, 115. VLA at 1.4 GHz and 5 GHz, suggest it is not a SNR, see Helfand & Becker 1985 Natur, 313, 118.
 Shaver *et al.* 1985, A&A, 147, L23. Observations of peripheral compact source.
 Caswell *et al.* 1989, PASAu, 8, 184. MOST at 843 MHz ($43'' \times 83''$).
 Gray 1994, MNRAS, 270, 836. MOST at 843 MHz ($43'' \times 84''$).
 Stewart *et al.* 1994, ApJ, 432, L39. ATCA at 4.79 and 5.84 GHz ($12'' \times 22''$) and Effelsberg 100-m at 10.6 GHz ($1'$), including polarization.
 Frail *et al.* 1996, AJ, 111, 1651. OH emission near remnant, including masers.

G357.7 + 0.3**RA:** 17^h35^m20^s**1-GHz flux/Jy:** 10**Size/arcmin:** 24**Dec:** –30°42′**Spectral index:** 0.4?**Type:** S

Radio: Non-thermal shell in complex region.

References:

Reich & Fürst 1984, A&AS, 57, 165. Effelsberg 100-m at 2.7 GHz ($4'.3 : S=7 \pm 1.5$), $S(5000)=5.5 \pm 1.5$ from surveys.
 Gray 1994, MNRAS, 270, 836. MOST at 843 MHz ($43'' \times 84''$).

G359.0 – 0.9**RA:** 17^h43^m35^s**1-GHz flux/Jy:** 23**Size/arcmin:** 23**Dec:** –30°15′**Spectral index:** 0.5**Type:** S

Radio: Incomplete shell.

References:

Reich *et al.* 1988, in SNRISM, p293. Summary of parameters.
 Reich *et al.* 1990, A&AS, 85, 633. Effelsberg 100-m at 2.7 GHz ($4'.3$).
 Gray 1994, MNRAS, 270, 836. MOST at 843 MHz ($43'' \times 86''$).

G359.1 – 0.5**RA:** 17^h42^m20^s**1-GHz flux/Jy:** 14**Size/arcmin:** 24**Dec:** –29°56′**Spectral index:** 0.4?**Type:** S

Radio: Non-thermal shell in complex region, crossed by the ‘snake’.

Point sources: Several compact radio sources near centre, OH masers around edge.

References:

Downes *et al.* 1979, A&AS, 35, 1. From observations by Altenhoff *et al.* 1979, A&AS, 35, 23. Effelsberg 100-m at 4.9 GHz ($2'.6 : S=13$).
 Reich & Fürst 1984, A&AS, 57, 165. Effelsberg 100-m at 2.7 GHz ($4'.3 : S=10 \pm 1.5$) and 4.8 GHz ($2'.4 : S=8.1 \pm 0.5$).
 Uchida *et al.* 1992, ApJ, 398, 128. VLA at 1.5 GHz ($11'' \times 10''$), and observations of nearby molecular material.
 Uchida *et al.* 1992, AJ, 104, 1533. VLA at 1.4 GHz.
 Gray 1994, MNRAS, 270, 836. MOST at 843 MHz ($43'' \times 85''$).
 Yusef-Zadeh *et al.* 1995, Sci, 270, 1801. VLA at 1.4 GHz ($33'' \times 31''$), and 1.7 GHz for OH survey.

G359.1+0.9**RA:** $17^{\text{h}}36^{\text{m}}25^{\text{s}}$ **Dec:** $-29^{\circ}09'$ **1-GHz flux/Jy:** 5?**Spectral index:** ?**Size/arcmin:** 11×12 **Type:** S**Radio:** Shell, brightest in E.**References:**Gray 1994, MNRAS, 270, 847. MOST at 843 MHz ($43'' \times 88''$; $S=4.3$).