

BVO2 Yagis by DJ9BV

The latest and best for 144MHz

from [DUBUS Technik V](#)



Introduction

The Yagis were developed by means of NEC optimization and evaluation. All models have been constructed and tested successfully. They feature **higher gain** ([see table](#)) and **better pattern** than former designs, which have been published in [DUBUS Technik III](#).

Because of their **near 50 ohm input impedance**, they all can be successfully driven by an appropriate folded dipole. Experiments can be performed by constructing a T-type dipole with 4:1 balun. This could be the starting point for the final [folded dipole](#).

For practical construction details, see the [VHF/UHF Long Yagi Workshop](#) page, and also [DF8GH's BVO page](#).

Common Mechanical Data

- Boom-Length: 4.245m (2wl), 6.264m (3wl), 8.300m (4wl), 10.455m (5wl), 12.480m (6wl)
- Boom-Diameter: From 25 mm up to 40 mm
- Element lengths include [correction](#) for indicated boom diameter
- Element-Diameter: 5mm or 3/16"
- Folded Dipole: 8mm or 9.5mm (3/8")
- Element-Mounting: Insulated through boom with [plastic rivets](#)

Electrical Data

Electrical Data at 144.1MHz

- Efficiency: >98% (internal skin loss <0.1dB, 6K)
- Input Impedance: 45...55 ohms (intrinsic antenna), 180...220 ohms with folded dipole
- Back-Panorama: (specified as F/R from 90deg ...270deg) >23dB for 2wl, 3wl; >28dB for 4wl or longer boom - see table

- Gain Peak: >144.5MHz
- Stacking Gain: >5.9dB (2x2), >7.6dB (2x3), >8.9dB (2x4), >11.9db (4x4)

Performance

Model, elements	Length		Gain [dBd] dB ref DL6WU	Front/ Rear ratio [dB]	Beamwidth		Stacking 2x2		
	[m]	[wl]			E [deg]	H [deg]	E [m]	H [m]	Gain [dB]
BVO2-2 8	4.245	2	12.1 +0.4	>23	35.4	38.8	3.36	3.16	5.97
BVO2-3 10	6.264	3	13.4 +0.4	>23	30.8	32.8	3.90	3.70	5.98
BVO2-4 15	8.300	4	14.2 +0.2	>28	28.8	30.4	4.20	4.05	5.94
BVO2-5 18	10.455	5	15.0 +0.3	>29	26.0	27.2	4.58	4.44	5.94
BVO2-6 20	12.480	6	15.65 +0.3	>32	24.8	25.6	4.84	4.68	5.90

More information

- [BVO2-3](#) and [BVO2-5](#): click for dimensions.
- BVO2-2 (**Warning**: [Errors in printed data](#)), BVO2-4 and BVO2-6: see [DUBUS Technik V](#).
- Radiation patterns for all yagis, including (2), 4, 8, 16 stacks: see [DUBUS Technik V](#)

Boom-Correction

According to boom diameter, add the following corrections to the free space lengths
(valid only for [insulated mount through boom!](#)):

- 20mm: +2mm
- 25mm: +3mm

- 30mm: +5mm
- 35mm: +6mm
- 40mm: +8mm

BVO2-3wl (10 EI)

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Element	Position [mm]	Free Space Length [mm]	Length [mm] for 25 mm Boom
R	0	1010	1013
DE	391	968	968
D1	669	954	957
D2	1244	932	935
D3	2000	915	918
D4	2847	904	907
D5	3734	898	901
D6	4625	894	897
D7	5503	890	893
D8	6264	906	909

BVO2-5wl (18 EI)

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Element	Position [mm]	Free Space Length [mm]	Length [mm] for 30 mm Boom
R	0	1018	1023
DE	385	980	980
D1	535	957	962
D2	905	942	947
D3	1365	916	927
D4	1847	914	919
D5	2480	911	916
D6	3130	895	900
D7	3770	890	895
D8	4450	890	895
D9	5190	893	898
D10	5957	884	889
D11	6770	880	885
D12	7585	880	885
D13	8343	877	882
D14	9072	886	891

D15	9800	878	883
D16	10455	868	873

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Updated 15 July 2005
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