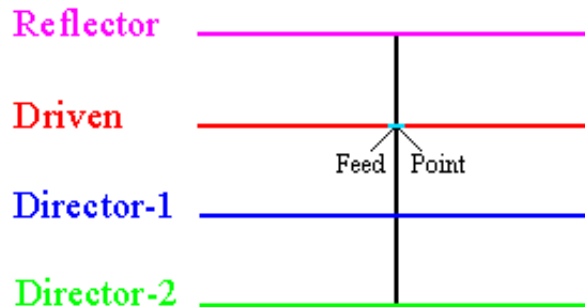
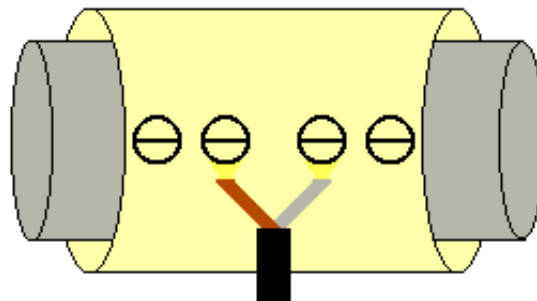


VHF / UHF Direct Connect Beams

Here are some lengths and spacings for various direct connect beams. The layouts are straight forward and are illustrated below. Your SWR should be less than 1.3:1 with these designs.



The driven element is cut into two halves and insulated from the boom with nonmetallic material. Then the two wires of the coax are connected, one to each section of the driven element. You may drill small holes and use sheet metal screws to accomplish this.



The reflector, director 1, and director 2 can be attached directly to the boom by a variety of methods. There are some helpful hints for antenna construction on our [antenna construction tips page](#).

70 Centimeter 2 element beam center frequency 440 MHz

70 Centimeter 2 element beam 1/8" diameter tubing	Element Length	Element spacing from Reflector
Reflector	12-3/8"	*****
Driven	12-1/8"	6-1/2

	Freespace	Over ground 30 feet
Gain	4.17 dbd	8.08 dbd @ 5 degrees 9.48 dbd @ 14 degrees
F / B	4.01 db	4.0 db

70 Centimeter 4 element beam center frequency 440 MHz

70 Centimeter 4 element beam 1/8" diameter tubing	Element Length	Element spacing from Reflector
Reflector	13"	*****
Driven	12"	8-1/16"
Director 1	11-7/8"	16-3/4"
Director 2	11-3/4"	23-3/8"

	Freespace	Over ground 30 feet
Gain	8.19 dbd	12.78 dbd @ 5 degrees 13.05 dbd @ 14 degrees
F / B	11.15 db	11.2 db

2 Meter 4 element quad center frequency 145.000 MHz

2 meter 4 element quad #12 copper wire	Element Length	Element spacing from Reflector
Reflector	21-1/4"	*****
Driven	21"	23-1/8"
Director 1	20-1/4"	46-1/4"
Director 2	20-3/16"	74"

	Freespace	Over ground 30 feet
Gain	8.87 dbd	10.24 dbd @ 5 degrees 13.87 dbd @ 8 degrees
F / B	8.57 db	8.7 db

2 Meter 4 element beam center frequency 146.52 MHz

2 Meter 4 element beam 1/2" diameter tubing	Element Length	Element spacing from Reflector
Reflector	38-1/8"	*****
Driven	36"	24-1/4"
Director 1	34-1/2"	49"
Director 2	34-3/8"	71-1/2"

	Freespace	Over ground 30 feet
Gain	8.43 dbd	10.34 dbd @ 5 degrees 13.71 dbd @ 10 degrees
F / B	13.32 db	13.60 db at 5 degrees

2 and 6 Meter 4 element quad center frequency 146.520 / 52.000 MHz

2 and 6 Meter 4 element quad #12 copper wire	Element Length	Element spacing from Reflector
6 Meter Reflector	60-1/4"	*****
6 Meter Driven	57-9/16"	48-3/8"
2 Meter Reflector	21-1/4"	54"
2 Meter Driven	20-1/2"	77-1/4"
2 Meter Director 1	20-1/4"	100-1/4"
6 Meter Director 1	57-1/16"	104-3/4"
2 Meter Director 2	20-3/16"	128"
6 Meter Director 2	49-1/2"	181-15/16"

	Freespace	Over ground 30 feet
Gain	8.3 / 8.35 dbd	13.97 dbd @ 2 degrees 13.79 dbd @ 8 degrees
F / B	7.86 / 15.84 db	8.12 / 16.59 db

6 Meter 3 element beam center frequency 52.000 MHz

6 Meter 3 element beam 1" diameter tubing	Element Length	Element spacing from Reflector
Reflector	109"	*****
Driven	101-5/8"	64-15/16"
Director 1	96-3/4"	125-3/16"

	Freespace	Over ground 30 feet
Gain	6.5 dbd	9.99 dbd @ 5 degrees 12.01 dbd @ 8 degrees
F / B	8.99 db	9.25 db

6 Meter 4 element beam center frequency 52.000 MHz

6 Meter 4 element beam 1/2" diameter tubing	Element Length	Element spacing from Reflector
Reflector	109-7/8"	*****
Driven	104-1/4"	72"
Director 1	100.5"	138"
Director 2	100"	204"

	Freespace	Over ground 30 feet
Gain	8.2 dbd	11.78 dbd @ 5 degrees 13.76 dbd @ 8 degrees
F / B	14.44 db	15.28 db

10 Meter beam center frequency 28.450 MHz

10 Meter 3 element beam 1/2" diameter tubing	Element Length	Element spacing from Reflector
Reflector	207-1/2"	*****
Driven	192"	105"
Director 1	185"	210"

	Freespace	Over ground 30 feet
Gain	6.33 dbd	5.49 dbd @ 5 degrees 11.49 dbd @ 10 degrees
F / B	10.21 db	10.37 db

Antenna Construction Tips

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[Back to the Home Page](#)

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