

Table 1. List of horizontally polarized antennas included in the resonant 60-meter group, with model identifications, dimensions referenced to outline figures, resonant impedance, free-space gain, gain differential from a free-space dipole, and calculated allowable power. All antennas use AWG #14 copper wire.

Antenna	Model file name	Dimensions Feet	Meters	Resonant Impedance (Ohms)	Free-Space Gain (dBi)	Delta Gain (dB)	Allowable Power (W)
1/2-wavelength dipole	dpl60-fs	L = 89.2	L=27.19	73.7	2.04	-----	50.0
1-wavelength vertically oriented quad loop, bottom-fed	q60-fs-bf	L=47.9	L=14.6	127.0	3.14	1.10	38.8
1-wavelength equilateral delta loop, bottom-fed	eqd60-fs-bf	L=64.32 H=55.7	L=55.7 H=16.98	117.4	2.80	0.76	42.0
1-wavelength right-angle delta loop, bottom-fed	rad60-fs-bf	LB=79.0 LA=55.86 H=39.5	LB=24.08 LA=17.03 H=12.04	196.4	2.42	0.38	45.8
1-wavelength rectangle, bottom-fed	rect60-fs-bf	L=72.5 H=20.0	L=22.1 H=6.1	259.3	2.25	0.21	47.6
2-element Moxon rectangle	mox60-fs	A=66.99 B=10.36 C=1.48 D=12.32 E=24.16	A=20.42 B=3.16 C=0.45 D=3.75 E=7.36	56.2	5.72	3.68	21.4
2-element driver-reflector Yagi	2lyag60-fs	LR=91.7 LDR=87.64 SP=26.6	LR=27.95 LDR=26.71 SP=8.11	42.0	6.07	4.03	19.8
3-element Yagi	3lyag60-fs	LR=91.2 LDR=89.0 SP1=28.6 LDI=86.0 SP2=32.4	LR=27.8 LDR=27.13 SP1=8.72 LDI=26.21 SP2=9.87	27.1	7.63	5.59	13.8

Table 2. List of antennas included in the horizontally polarized multi-band group, with model identifications, dimensions referenced to outline figures, free-space gain, gain differential from a free-space dipole, and calculated allowable power. All antennas use AWG #14 copper wire. Free-space dipole gain = 2.04 dBi.

Antenna	Model file name	Dimensions Feet	Meters	Impedance (Ohms)	Free-Space Gain (dBi)	Delta Gain (dB)	Allowable Power (W)
135' doublet	dblt135-60-fs	L=135.0	L=41.15	400 + j1128	2.67	0.63	43.2
102' doublet	dblt102-60-fs	L=102.0	L=31.09	113 + j 250	2.18	0.14	48.4
67' doublet	dblt67-60-fs	L=67.0	L=20.42	34.8 - j 439	1.83	-0.21	52.5
extended double Zepp	edz60-fs	L=229.0	L=69.8	176 - j 986	4.96	2.92	25.5
8JK	8jk60-fs	L=183.2 W=45.8	L=55.84 W=13.96	20.3 - j 250	6.92	4.88	16.3
lazy-H	lh60-fs	L=183.2 H=91.6	L=55.84 H=27.92	24.5 + j 1.8	8.00	5.96	12.7
80-m 2-wavelength loop square, corner-fed	hohpl80-60-fs-cf	L=140.0 C=560.0	L=42.67 C=170.69	252 - j 27	4.97	2.93	25.5
80-m 2-wavelength loop square, side-fed	hohpl80-60-fs-sf	L=140.0 C=560.0	L=42.67 C=170.69	248 - j 39	3.04	1.00	39.7
80-m 2-wavelength loop triangle, corner-fed	hohpl80-tri-60-fs-cf	L=186.0 C=560.0	L=56.69 C=170.69	112 + j 19	3.05	1.01	39.6
80-m 2-wavelength loop triangle, side-fed	hohpl80-tri-60-fs-sf	L=186.0 C=560.0	L=56.69 C=170.69	130 + j 6	2.91	0.87	40.9
60-m 2-wavelength loop square, corner-fed	hohpl60-fs-cf	L=90.0 C=360.0	L=27.43 C=109.73	79 - j 334	1.18	-0.86	60.9
60-m 2-wavelength loop square, side-fed	hohpl60-fs-sf	L=90.0 C=360.0	L=27.43 C=109.73	241 - j 216	2.99	0.95	40.2
60-m 2-wavelength loop triangle, corner-fed	hohpl60-tri-fs-cf	L=120.0 C=360.0	L=36.58 C=109.73	256 - j 222	2.30	0.26	47.1
60-m 2-wavelength loop triangle, side-fed	hohpl60-tri-fs-sf	L=120.0 C=360.0	L=36.58 C=109.73	195 - j 315	2.59	0.55	44.1

Table 3. List of antennas included in the vertically polarized, above ground, resonant 60-meter group, with model identifications, dimensions referenced to outline figures, resonant impedance, gain differential from a vertical dipole, and calculated allowable power. All antennas use AWG #14 copper wire with the lowest wire point 5' above average ground.

Antenna	Model file name	Dimensions Feet	Meters	Resonant Impedance (Ohms)	TO Angle (degrees)	Delta Gain (dB)	Allowable Power (W)
1/2-wavelength vertical dipole	vdpl60-5	L=89.3	L=27.22	92.0	17	0.00	50.0
1-wavelength vertically oriented quad loop, side-fed	q60-5-sf	L=47.0	L=14.33	217.7	22	0.92	40.5
1-wavelength equilateral delta loop, side-fed, apex up	eqd60-5-sf	L=63.2 H=54.73	L=19.26 H=16.68	196.8	23	0.78	41.8
1-wavelength equilateral delta loop, side-fed, apex down	eqd60-5-ad-sf	L=64.2 H=54.73	L=19.57 H=16.68	175.5	19	0.68	42.8
1-wavelength right-angle delta loop, side-fed, apex up	rad60-5-sf	LB=79.26 LA=55.99 H=39.6	LB=24.16 LA=17.07 H=12.07	99.4	25	1.03	39.4
1-wavelength right-angle delta loop, side-fed, apex down	rad60-5-ad-sf	LB=80.0 LA=56.56 H=40.0	LB=24.38 LA=17.24 H=12.19	90.4	22	1.00	39.7
1-wavelength rectangle, side-fed	rect60-5-sf	L=72.4 H=20.75	L=22.07 H=6.32	55.1	26	1.42	36.1
Half-square	hs60-5	L=83.0 H=51.55	H=25.3 H=15.71	78.1	20	3.41	22.8
Bobtail curtain	bc60-5	L=166.2 H=50.05	L=50.66 H=15.26	84.5	20	4.91	16.1

Table 4. List of antennas included in the 60-meter vertical monopole group, with model identifications, dimensions referenced to outline figures, resonant impedance, gain, gain differential from a vertical dipole, and calculated allowable power. All antennas use AWG #14 copper wire. All radials are 0.001-wavelength below ground surface (2.2" or 5.6 cm) and are 1/4-wavelength long (45.81' or 13.96 m).

Soil Qualities:	Label	Abbr.	Conductivity (S/m)		Permittivity				
	Very Good	VG	0.0303		20				
	Good	G	0.005		13				
	Poor	P	0.002		13				
	Very Poor	VP	0.001		5				
Antenna	Model File name	Soil Quality	Monopole Length (LM) Feet	Meters	Gain (dBi)	TO Angle (degrees)	Impedance (Ohms)	Delta Gain (dB)	Allowable Power (W)
Reference Vertical Dipole 1/2-wavelength vertical dipole	vdpl60-5	VG	L=89.3	L=27.22	2.40	14	94.7 + j1.3	-----	50.0
		G			0.00	17	92.0 - j0.8	-----	50.0
		P			0.21	18	90.4 - j0.4	-----	50.0
		VP			-0.75	20	87.1 - j2.1	-----	50.0
4-Radial System 1/4-wavelength vertical monopole	vmp60-4b	VG	LM=43.58	LM=13.28	0.80	20	46.1 - j3.7	-1.60	72.3
		G			-2.47	26	64.0 - j0.3	-2.47	88.3
		P			-3.19	27	70.2 - j6.4	-3.40	109.4
		VP			-5.34	29	101 + j16	-4.59	143.9
16-Radial System 1/4-wavelength vertical monopole	vmp60-16b	VG	LM=44.1	LM=13.44	1.94	20	37.6 - j1.2	-0.46	55.6
		G			-0.23	26	40.8 + j0.2	-0.23	52.7
		P			-0.53	27	42.8 + j0.4	-0.74	59.3
		VP			-1.37	29	38.5 + j4.7	-0.62	57.7
64-Radial System 1/4-wavelength vertical monopole	vmp60-64b	VG	LM=44.4	LM=13.53	2.47	20	33.8 + j0.1	0.07	49.2
		G			0.73	26	32.4 - j0.5	0.73	42.3
		P			0.71	27	31.2 - j0.3	0.50	44.6
		VP			-0.44	29	28.9 - j2.3	0.31	46.6