

Suggested SCG Antennas HF & VHF/UHF

**SCG Ham Radio SIG
April 26th, 2019**

HF Verticals – No Radials required

- **Diamond BB7V** – 22 feet, telescoping sections (shorten by 1')
 - Covers 10M to 160M
 - Max power: 250 watts PEP
 - Requires remote tuner at base – unless you want to put down radials
 - \$360 at most dealers
- **Comet CHA 250B** – 23.5 feet (exceeds current limits unless shortened)
 - Covers 6M to 80M
 - Max power: 250 watts PEP
 - Uses a matching transformer
 - \$380 at most dealers
- Both Antennas give very reasonable SWR's over a wide range but the trade-off is reduced efficiency (i.e. reduced actual radiated R/F)

Hy-Gain (MFJ) Verticals – requires Radials

- **AV-14AVQ** – 18 feet
 - Covers 10, 15, 20, 40M using traps
 - Max Power: 1500 watts
 - Will need to leave off top capacitance hat
 - \$190 at most dealers
- **AV-18VS** – 18 feet
 - Covers 10, 15, 20, 40, 80M – no traps
 - Max power: 1500 watts
 - Change bands manually with clip on base tuning coil
 - \$120 at most dealers
- **MFJ-2386** – 23.5 feet – shorten top to comply with height limit
 - Covers 6 to 80M, 250 Watts limit
 - Advertised as No-Radial but will work better with radials
 - \$219 – most dealers

Hustler Trapped Vertical Series – needs radials

- Very popular antenna with many decades of production
- **4BTV** – 21'
 - Covers 10-15-20-40M
 - Need to leave off top capacitance hat
 - \$190 – most dealers
- **6BTV** – 24' but leave off 80 meter coil to give 21' height
 - Covers 10-15-20-30-40-80M
 - \$573 – most dealers
- Both rated at 1500 watts
- Consider using a radial plate and tilt base (DX Engineering)

Misc. HF Verticals

- **Comtek 20VA** - 17' – needs radials
 - Single band – choose 10, 12, 15, 17, or 20M during installation
 - Rated at 3000 watts PEP
 - \$148 at most dealers
- **Homebrew** – 21' vertical aluminum mast with radials
 - Use radials, possibly use a tuning coil or trap
 - Tune with remote tuner, refer to various antenna books, articles
- **SteppIR – Small IR Mark III** – 19'
 - Covers 6M to 80M continuous with optional 30/40/80M coils – needs radials
 - Green in color so very attractive in community
 - Rated at 1500 watts or 500 watts with 80M coil
 - \$921 to \$1571 depending on options

SCREWDRIVER HF VERTICALS – requires radials

- **Tarheel Antennas** – a number of different models
 - Maximum height with 102” whip approx. 13.5 feet
 - Continuous coverage 10-80M
 - Power rating varies by model – large models = 1500 watts
 - Price range: \$470 to \$790
- **Scorpion Antennas** – local Phoenix manufacturer
 - Maximum height with 102” whip approx. 13.5 feet
 - Continuous coverage 10-80M
 - Power rating: 1500 watts
 - List price: \$850
- All screwdriver antennas are tuned remotely from your ham shack to reach minimum SWR – requires a 4-conductor cable.
- You can tune manually with a simple switch or use an automatic controller such as TuneMatic™ (Lite version: \$140, Full version \$290) <http://www.tunematic.us/>



Flagpole Antennas

- Grayline – OCF 16' vertical dipole – no radials
 - Requires a base-mounted remote tuner
 - Rated at 1500 watts – covers 10-80M
 - Caution: 50% (40M) to 75% (80M) of transmit power will be consumed in the tuner
- Homebrew – put a Screwdriver antenna inside PVC or Fiberglass pole
 - 16' height – make it look just like a flagpole
 - Will need radials – covers 10-80M
 - Can handle 1500 watts PEP
 - New prototype with Scorpion Antennas is in design stage
- Zero-Five Antennas – 20' [Informational only]
 - Exceeds flagpole height limit
 - 6 to 30M
 - \$700



Considerations for HF radial fields

- Ground radials do not need to be cut to specific length, 9' -12' will work however try to match the vertical antenna height if you can
- Minimum of 4 radials will work - however for good antenna performance, put down at least 8 and 16 or more if you can.
- Radials do not all have to be the same length if you have space constrictions
- Wire mesh also works well – lay in 4 directions if possible
- Radials for elevated verticals will need to be cut to specific lengths
- A ring of #10 or #12 bare copper wire around the antenna base can work as a radial connector – just solder your radials to the ring – and the ground side of the antenna
- Option: Radial plate from DX Engineering or Tarheel Antennas
- Can install a lightning arrestor in a radial plate
- Put in a 4' or longer ground rod by antenna base
- Tilt-plate base helps with tuning Hustler antennas (DX Engineering)

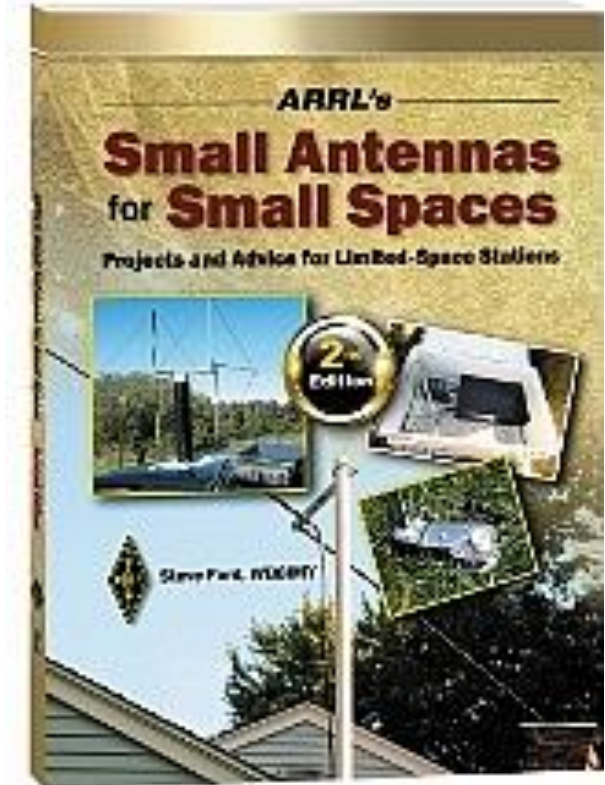
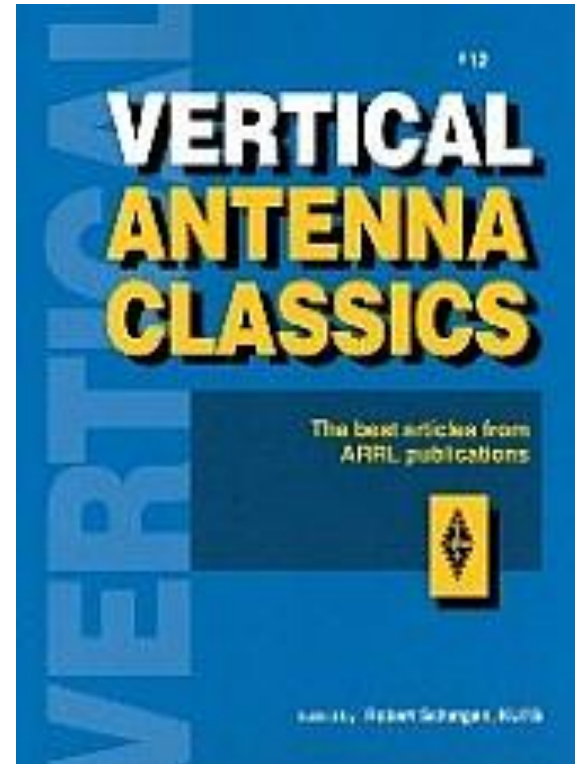
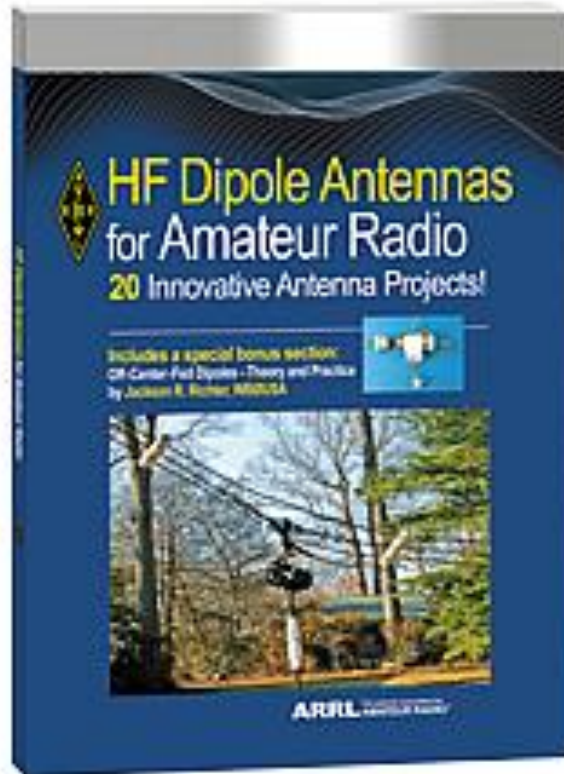
Wire Antennas – up to 5' above roof top

- G5RV – (MFJ)
 - 12, 15, 20, 40, 80M
 - 1500 watt PEP
 - \$50 – many vendors
- Off-Center Fed (OCF) dipole
 - Buckmaster and other vendors
 - Covers , 6, 10, 12, 17,20, 40, (80M option) [Note: 15M missing]
 - 300 or 3000 watt options
 - Homebrew with a 4:1 balun
- Others
 - Sloper
 - Single band center-fed dipole
 - End-fed

VHF/UHF – 2M and 70 cm – Omni-directional

- Two major vendors: Comet and Diamond
- Heights from 4' to 16.6' feet
- Prices from \$70 to \$215 – most major vendors
- Power ratings 150 to 200 watts
- Mounting: Higher is better so main roof or patio roof mount is best
- MESH network for our community is being considered so tri-band 2M, 70 cm, 23 cm antennas might be attractive. This is still TBD.

Further Reading – ARRL Books



VERTICALS							
Manufacturer	MODEL	Height	Bands	POWER PEP	Price	Vendor Code	NOTES
Diamond	BB7V	22'	10M to 160M	250	\$360	GP, DX, HRO	Requires Tuner, 6 telescoping sections, no radials, 5' collapsed, need to shorten by 1' for height restriction
Comet	CHA-250B	23.5'	6M to 80M	250	\$380	GP, DX, HRO	<i>NOTE: INFORMATIONAL ONLY - Exceeds SCG antenna height limits for most SCG homes. No Radials required.</i>
Hy-Gain (MFJ)	AV-14AVQ	18'	10-15-20-40M	1500	\$190	GP, DX, HRO, MFJ	Will need to leave off top Hat, uses Traps, needs Radials
Hy-Gain (MFJ)	AV-18VS	18'	10-15-20-40-80M	1500	\$120	GP, DX, HRO	No traps, change bands manually with clip on base loading coil
Hustler	4BTV, 5BTV, 6BTV	21'	10-15-20-40M	1500	\$190	GP, DX, HRO	Will need to leave off 4BTV top Hat, and 80M coil on 6BTV. Uses Traps, needs Radials
COMTEK	20-VA	17'	10,, 12, 15, 17, or 20M	3000	\$148	GP, DX, HRO	Single band, adjust during installation for any band 10 to 20M, needs radials
MFJ	MFJ-2386	23.5'	6 to 80 M	250	\$219	GP, DX, HRO, MFJ	Advertised as "no radials" but will work better with radials, shorten top to comply with height restriction
Scorpion	SA-680	13.5'	10-80M	1500	\$850	Scorpion	Screwdriver antenna with 72" or 102" whip. Needs radials. List price shown. Lifetime warranty
Tarheel	Many	6' to 13.5'	10-80M	Varies	\$470-\$790	TH, GP, DX, HRO	Screwdriver antenna with 9 different models, various whip sizes. Needs radials
SteppIR	SmallIR Mark III	19'	6 to 80 M	500 to 1500	\$921 - \$1570	SteppIR	Continuous 1/4 coverage, with optional 80/40/30M coil - green in color - needs radial wires
Home-brew	Home-brew	21'	TBD	TBD	TBD	Self	Use a 21' aluminum mast with radials, use remote tuner - home-brew project
FLAGPOLE ANTENNAS							
Manufacturer	MODEL	Height	Bands	POWER PEP	Price	Vendor	NOTES
Greyline	16' DX	16'	10 to 80M	1500	\$600	Greyline	Requires remote tuner, approx. total cost with MFJ tuner: \$1800 Performance still being researched
Home-brew		16'	10 to 80M	1500	TBD		Install Scorpion or Tarheel screwdriver inside PVC or Fiberglass flagpole - home-brew project
Zerofive-Antennas	20 foot	20'	6-30M	2000	\$700	ZeroFive	<i>NOTE: INFORMATIONAL ONLY - too tall for Sun City Grand flagpole antenna limits. Needs remote tuner</i>
WIRE DIPOLE							
Manufacturer	MODEL	Height	Bands	POWER PEP	Price	Vendor Code	NOTES
MFJ GSRV	MFJ-1778	21'	12, 15, 20, 40, 80M	1500	\$50	GP, DX, HRO, MFJ	102' length, feed with 300 ohm twinlead. Can be mounted in "V" shape over roof. Needs choke in shack
Buckmaster	BMT-DX-OCF	21'	6, 10,12,17,20,40,80M	300/3000	\$242/350	GP, DX, HRO	135' length off-center feed dipole. Low & High power versions. Legs can be at right angles.
Buckmaster	BMT-DX-OCF-40	21'	6, 10,12,17,20,40M	300/3000	\$237/343	GP, DX, HRO	68' length off-center feed dipole. Low & High power versions. Legs can be at right angles.
MFJ	MFJ 1779B	21'	40 or 80M	1500	\$50	GP, DX, HRO, MFJ	Single band wire dipole 143' long, can be used as sloper, inverted V, or horizontal
DUAL BAND VHF/UHF VERTICAL BASE ANTENNAS:							
Manufacturer	MODEL	Height	Bands	POWER	Price	Vendor	NOTES
Comet	GP-1	4'2"	2m/440	200	\$74.95	GP, DX, HRO	1 Section; PL-259
Comet	GP-3	5'11"	2m/440	200	\$99.95	GP, DX, HRO	1 Section; PL-259
Comet	GP-6	10'5"	2m/440	200	\$149.95	GP, DX, HRO	2 Sections; PL-259
Comet	GP-9	16'6"	2m/440	200	\$214.95	GP, DX, HRO	3 Sections; PL-259; GP-9N uses N Connectors
Diamond	X-30A	4.5"	2m/440	150	\$69.95	GP, DX, HRO	1 Section; PL-259
Diamond	X-50A	5.6'	2m/440	200	\$94.95	GP, DX, HRO	1 Section; PL-259; X-50NA uses N Connectors
Diamond	X-200A	8.3'	2m/440	200	\$124.95	GP, DX, HRO	2 Sections; PL-259; X-200NA uses N Connectors
Diamond	X-300A	10'	2m/440	200	\$139.95	GP, DX, HRO	2 Sections; PL-259; X-300NA uses N Connectors
DEALERS:							
CODE	WEB						
Giga Parts	GP	https://www.gigaparts.com/				866-535-4442	Las Vegas, NV and Huntsville, AL
DX Engineering	DX	https://www.dxengineering.com/				1-800-777-0703	Tallmadge, Ohio
Ham Radio Outlet	HRO	https://www.hamradio.com				602-242-3515	Phoenix, many other cities
MFJ	MFJ	www.mfjenterprises.com/				1-800-647-1800	Starkville, MS
Scorpion Antennas	Scorpion	https://www.scorpionantennas.com/				623-326-8780	1614 E Dolores Rd. Phoenix, AZ 85086
Tarheel	TH	https://www.tarheelantennas.com/				877-671-9409	St. Joseph, MO
SteppIR	SteppIR	https://www.steppir.com/				425-453-1910	Bellevue, WA
Greyline	Greyline	https://greylineperformance.com/				435-200-4902	Salt Lake City ??
MISC:							
Wireman		https://www.thewireman.com/				1-800-727-9473	Landrum, SC - longterm reliable provider of coax, connectors, misc. cables and wire