

Ham 60 – VHF/UHF Station Checklist

Dr. Marc & Rosemary © 221013

1. You are following the ham advice of *Be Prepared: Get licensed, Get a real-radio, Get radio-active.*
2. You have the license, but need a station to exercise your privileges. All the info can be overwhelming. This is a simple check list.

<input checked="" type="checkbox"/>	id	Component	Basic	Optimal
	a.	Antenna	1/4 wave ham-brew	Not-line-of-sight (Compactenna 9" or 7")
	b.	Counterpoise	Ham-brew stainless	
	c.	Location	In top of attic	Move a few inches to solve problems
	d.	Coax	RG-213/U w/ PL259 ends	
	e.	Mast	1" or 1-1/4" PVC	1" EMT thin conduit does not flex in heat
	f.	Mounting base	Pipe flange mount	
	g.	Coax flex hook-up	3' RG-8X	RG-213/U
	h.	Connector	Barrel connector w/ SO-239	
	i.	Ferrite beads, if needed		4 or 5 Mix-31 snap-on
	j.	Ground bar & connectors	Copper, bronze, stainless	
	k.	Bar bonding conductor	Connect bar to rod or intersystem	
	l.	Ground rod & clamp	8' copper clad in flower bed	
	m.	Rod bonding conductor	Connect rod to utility ground	
	n.	Antenna discharge unit	Connect coax to ground bar	PolyPhaser IS-50UX-C0
	o.	VHF/UHF radio	TYT TH-7800	Icom 2730
	p.	Power supply 13.8 VDC	TekPower TP30SWI	Astron RS-35

3. The Icom 2730 gives the best performance to cost ratio with VHF/UHF, cross-band, two receivers, large crisp brighter numbers, ease of controls, better mic audio, and decent power at 50 Watts.
4. A quick primer introduces signal (S) to noise (N) ratio (S/N). If the noise is high, a weak signal may not be above the noise and becomes unhearable. Many factors influence one or the other.
5. Some switch-mode power supplies may add 2-bars of noise when there is no signal. If that blocks low level signals, replace with a linear power supply.
6. If you have noise, crackle, cannot hit repeater, or cannot hear, several things are critical to squeeze the last bit of signal. Earth is the other-half of the antenna system. Different from a power (60 Hz) ground, a radio-frequency (RF) ground network requires a ground rod, single-point ground bar, bonding all-metal, and bonding coax. Then, add ferrite beads to coax. Next, use 'not line-of-sight' antenna. If still noise issue, add ferrite beads to power cords. A *properly installed* radio can still be used in inclement weather, when you need it most. Ours stay on. So does Channel 7 (Wx5TUL) and TV 6.
7. For weak signals, RG-213/U is necessary. If you are in a strong signal, RG-8X may work for a short distance.
8. An elliptical polarization, NLOS antenna can get through where a vertical polarization may suffer. Generally, the 9" Compactenna is better. But the 7" has lower gain, making take-off angles different, which counteracts some RF noise resulting in better S/N (signal to noise ratio) performance.
9. A story always makes the illustration more relatable. This week, another ham got his station working. He lives behind a big hill. Expectedly, he was having normal difficulty communicating. So, he went through the steps. First, he obtained the top-notch Icom 2730 radio which assures reliable, easy to see, easy to use operation. He made a ham-brew counter-poise and added the 'not-line-of-sight' 9" Compactenna. With the antenna on his table, he could hear and talk to some stations. He added 4 ferrite beads and much of the background noise was gone. He installed the antenna in the top of the attic. He could hit several repeaters, but not Evergreen. Then he installed a RF single-point ground bar, connected it to a ground rod, and bonded his coax to further quieten. His story repeats often.
10. Relax. You are not unique if you do not understand everything.
Everyone, yep everyone, is still trying to figure what works best for their location. Talk to an Elmer.
11. For newcomers, it is difficult to believe that other hams will actually help you. 'Ham Rescue' will even help with your install, at no charge. They made our initial repeater installation at Evergreen. Why? With more radios on, there are more options to connect with in an emergency. It is the culture, communications, and camaraderie.
12. If you want more details or additional info, you can find most anything from our numerous other articles.
13. Life is good. Enjoy!

