Ken Reitz, KS4ZR
ks4zr@firstva.com

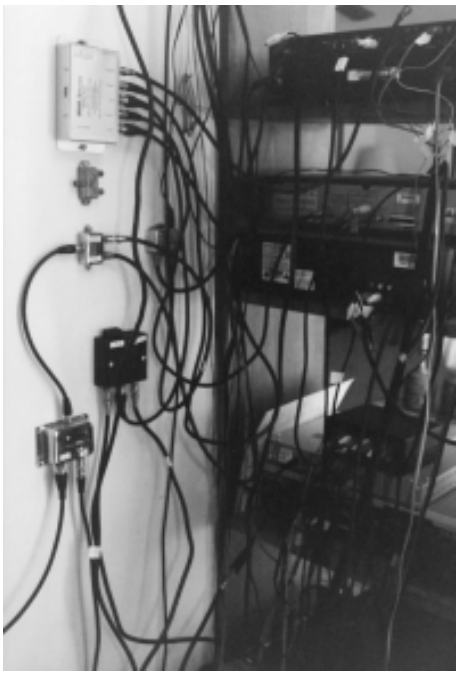


# Is This Mess Necessary?

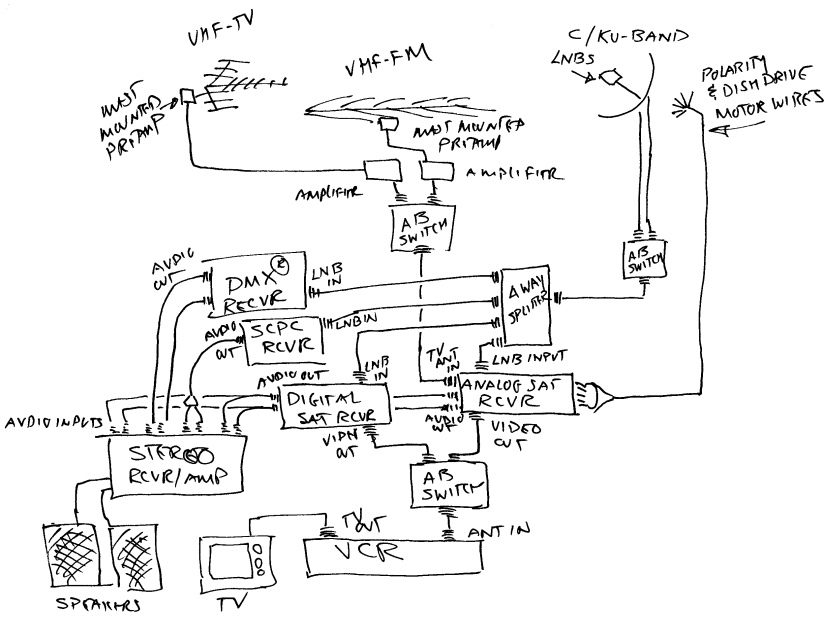
There comes a time in the life of every hobbyist when everyone in the family has to come to terms with your obsession. Certain rules of order and standards of neatness will simply have to be suspended. Now, I want you to take a close look at State's Exhibit "A" (see photo so labeled) and ask yourself, "What level of cheerfulness may I expect from my spouse when he/she is confronted with *this*!"

In my defense I will tell you that I showed the alleged photograph to a battery of professionals at the Institute for the Study of Electronic Hobbyists and Assorted Disorders, which consisted of a psychiatrist, a psychologist, and a trained chimpanzee. The psychiatrist believed it indicated an acute sense of confusion resulting from being dropped on my head as a child; the psychologist declined to offer an opinion but billed me anyway; and the trained chimpanzee correctly identified the source of on-screen interference I was getting as a result of improper connections on the third set of visible coaxial switches.

So, I say to you, "Yes, ladies and gentlemen, every single connection box, every inch of coax, indeed, every receiver and electronic gizmo depicted in this picture is of the upmost importance. And, that without all of *that* none of *this* would be necessary!" I was, of course, acquitted on the grounds that, as my mother has said, "Kenneth, I don't understand hardly anything that you've ever written."



*State's Exhibit "A" (Photo courtesy The Accused)*




***Do-it-yourself Mess is also the solution to all your video/audio problems.***

## Do-It-Yourself Mess

If you're just starting out in satellite communications monitoring you may want to give some consideration to how and where various lead-in cables will enter your home. I suggest about 10 minutes, or however long it takes to quaff your favorite beverage. Don't dwell on it long because it really won't matter. You'll find that over the years so many things will change that it's not worth trying to reason out a "master plan."

If you're trying to run four satellite receivers off two or three dishes and bring in UHF and VHF over-the-air antenna signals, as well as routing all the audio through your stereo and speakers, you'll soon find yourself in the same predicament I'm in. The only thing you need to know is what switches and connectors you'll need and where you can get them.

It might be helpful to study the block diagram above to get an idea of what it is we're doing and how we do it. First, I'll start with the off-air antennas. I recommend separate UHF and VHF-FM antennas if you're in any kind of fringe area. If you live in a major city, a small UHF/VHF/FM antenna will do fine.

For best reception the antennas should be mast mounted outside the house and controlled by a rotator. You'll find that transmitters in most cities are quite a few miles apart, which can mean several degrees difference in aiming the antenna. Over-the-air antennas should be amplified using a mast-mounted preamp with indoor power supply unless, again, you're in the city, in which case you would overdrive the signal and create more reception problems than you had to start with.

Look for amplifiers with the highest dB gain (20 to 30 dB is typical). Mast mounted preamps deliver about twice as much gain as indoor amplifiers. Because I use separate UHF and VHF-FM antennas, I use separate amplifiers for them. I also use RG-6 coax cable for all antenna feed lines because, even at FM band radio frequencies, the signal loss per hundred feet of RG-6 is less than half that of RG-58 and at UHF frequencies RG-6 performs even better. RG-6 is not that much more expensive, and you'll really see the difference!

For satellite signals, the usual practice is to have a C-band and Ku-band LNB (Low Noise Block Downconverter) on the same feed horn of the same dish but fed with separate feeds of

***Drake Amplified four-way splitter which replaces the two-way splitter below it. (Photo courtesy the Guilty Party)***

RG-6. I use a heavy duty "A-B" switch (RS cat. #15-1249) to switch between C and Ku-bands and feed the output of that into a Drake power divider (model #2613 available from Universal Electronics). To this I connect an analog satellite TV receiver, a DVB digital satellite receiver, a Universal SCPC-200 SCPC (Single Channel Per Carrier) receiver, and a DMX® digital satellite audio receiver.

The audio output of the DMX® receiver goes into the stereo receiver as does the audio output of the SCPC receiver (using a "Y" mono to stereo adapter). The audio output from the digital and analog satellite receiver goes into the stereo receiver as well. I can now listen to the audio of any four sources just by pressing the appropriate auxiliary button on the stereo.

The video signals from the two over-the-air antenna amplifiers go into a simple "A-B" switch the output of which is fed into the antenna input of the analog satellite receiver. By toggling the TV/SAT button on the analog receiver's remote control I can receive either over-the-air or satellite signals. The video output of the analog and digital satellite receivers go into another "A-B" switch, the output of which goes into the VCR. By flipping that "A-B" switch I can watch either the digital or analog satellite receiver; the audio comes out of the stereo speakers.

### Nothing to It!

Well, almost nothing to it. There are a few details I left out of the diagram because I knew it would be confusing enough as it is. But, for those who must know, I split the output of the VCR into two different runs of coax going in different directions.

On one run, to another part of the house, I use an infra-red remote extender which allows me to change channels on either the analog or digital satellite receiver as well as operate the VCR or DMX® receiver from that remote location. I use a small FM transmitter which gets its input from the headphones jack of the stereo and transmits that audio to any FM radio within a 50 ft. radius of the transmitter (which is to say, all over the house). And, there's a Universal SC-50 satellite radio receiver which tunes the audio subcarriers of analog satellite channels as well as FM$^2$ signals using the baseband output of the analog satellite receiver.

If you just stick to the diagram as depicted you'll be prepared for reception in virtually every television band and mode of transmission there is. The important thing is to label all of your splitters and wires. If, for any reason, you need to rearrange your setup you'll save yourself countless hours of frustration by having labeled everything. Put labels on the polarotor and dish drive wires, too, as this makes it easy to connect and disconnect everything when thunderstorm season is upon us.

### Now, let's go to the Mailbag

First, a brief apology to those who were trying to contact me via the E-mail address which wasn't listed at the top of the column. Oops! Sorry about that; well, it's there now and you'll notice it's different from the one listed previously in *ST*. Those who responded to the old address may want to resend to this new address. At any rate you can always reach me via the U.S. Post Office address for this magazine.

• Ralph Siebert, K1TV of Georgia, wants to know about new MPEGII digital receivers on the horizon and noticed that in the November column picture of the dish farm I wasn't using any LNB covers on any of the dishes.

Well, Ralph, there's always been divided opinion on the use of LNB covers. One camp believes that the covers extend the operating life of the feed horn components by protecting them from the elements and preventing rain and moisture from getting into the feed line, LNB and feed horn. The other camp believes that the excess heat generated inside the usually black plastic covers increases the ambient noise temperature and degrades the performance of the components.

Manufacturers build these components to take a beating in the great outdoors and you'll notice that most commercial installations don't use LNB covers. My experience is that the components have a better chance of becoming obsolete before the weather gets to them. As to new MPEGII receivers, watch this space next month for a review of the new Samsonics MPEGII digital receiver.

• Tom Deal writes via the Internet that he noticed that digital receivers indicate transponder or channel numbers which are considerably over the number of transponders on the satellites. What gives?

The age of digital satellite transmissions has turned our understanding of a lot of things upside down. Digital transmissions are grouped in what are called "bouquets." There may be one or 10 program channels in a bouquet depending on the programmer. Since each transponder is actually two channels (vertical and horizontal polarity) the twenty four "channels" usually found on a satellite, if converted to digital could end up being as many as 240 channels. Ten such satellites could add up to 2,400 channels! No wonder commercial entities are so anxious to develop a digital connection!

### AUDIO AND VIDEO SOURCES

Radio Shack: UHF/VHF-FM antennas, rotators, masts, pre-amps, coaxial cable, splitters and connectors. 1-800-THE-SHACK

SkyVision: C and Ku-band satellite coax, splitters, connectors, LNBs, feed horns, 1-800-500-9275

Universal Electronics: Drake 4 way splitter, SCPC and satellite audio receivers 800-241-8171.