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To: VSRT Group  
 From: Alan E.E. Rogers and Preethi Pratap  
 Subject: Parts for basic of VSRT

The list below is sufficient for the initial set-up of a single baseline (2 dish) VSRT interferometer.

VSRT parts:

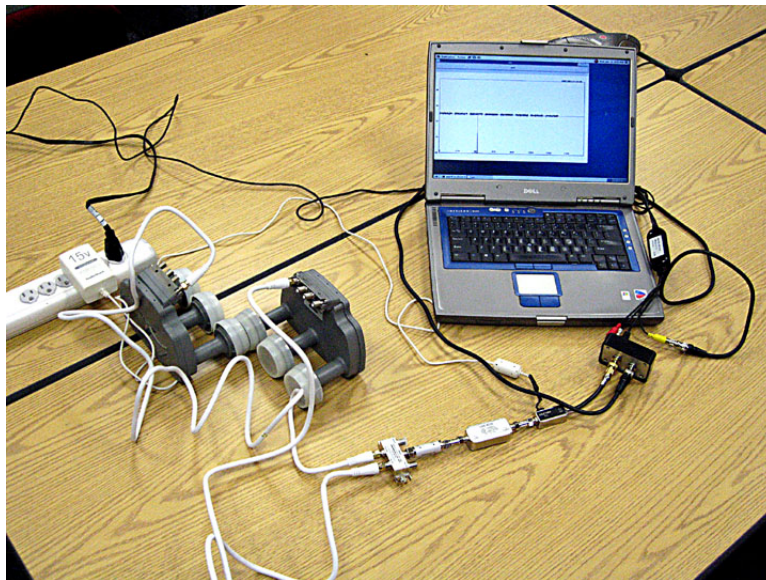
Description	Part No	#rec	Source	\$ each
18"x20" DIRECTV Satellite Dish Antenna with 3 dual LNBs	WNC AU2-F1 or equiv	2	Amazon.com Sadoun.com	\$68
4-way splitter DC pass all port	Channel vision HS-4	1	Amazon.com	\$10
In-line amplifier and power injector	15-1170	1	Radio shack	\$37
In-line amplifier	CAE-9220	1	Amazon.com	\$7
CompUSA video Grabber USB 2.0	SKU318714 CompUSA	1	Haystack	(see note)
15v AC-to-DC power adapter	273-1691	1	Radio shack	\$25
3-amp barrel diodes 1N5404 (3 in pack)	276-1114	1	Radio shack	\$2
Male-to-male "F" connector adapter	278-219	2	Radio shack	\$3
"F" connector to BNC jack adapter	278-277	1	Radio shack	\$5
Coaxial Adapter, BNC female/RCA male	278-250	1	Radio shack	\$5
Detector diode IN6263	497-2508-1-ND	2	Digikey.com	\$1
M61235 6' RG-6 cables with F connectors	M61235	2	Amazon.com	\$3
100pf capacitor	272-123	1	Radio shack	\$2

Project enclosure (3x2x1)	270-1801	1	Radio shack	\$2
F-connector	F-61A with nut & washer	2	Showmecables.com	\$1
Plywood base	¾"x16"x16"	2	Home depot	
27 watt CFL	FLE27QBX/2/SW /CD	2	Home depot	
			Total	~\$305
			Shipping est.	~\$80
			Total	~\$380

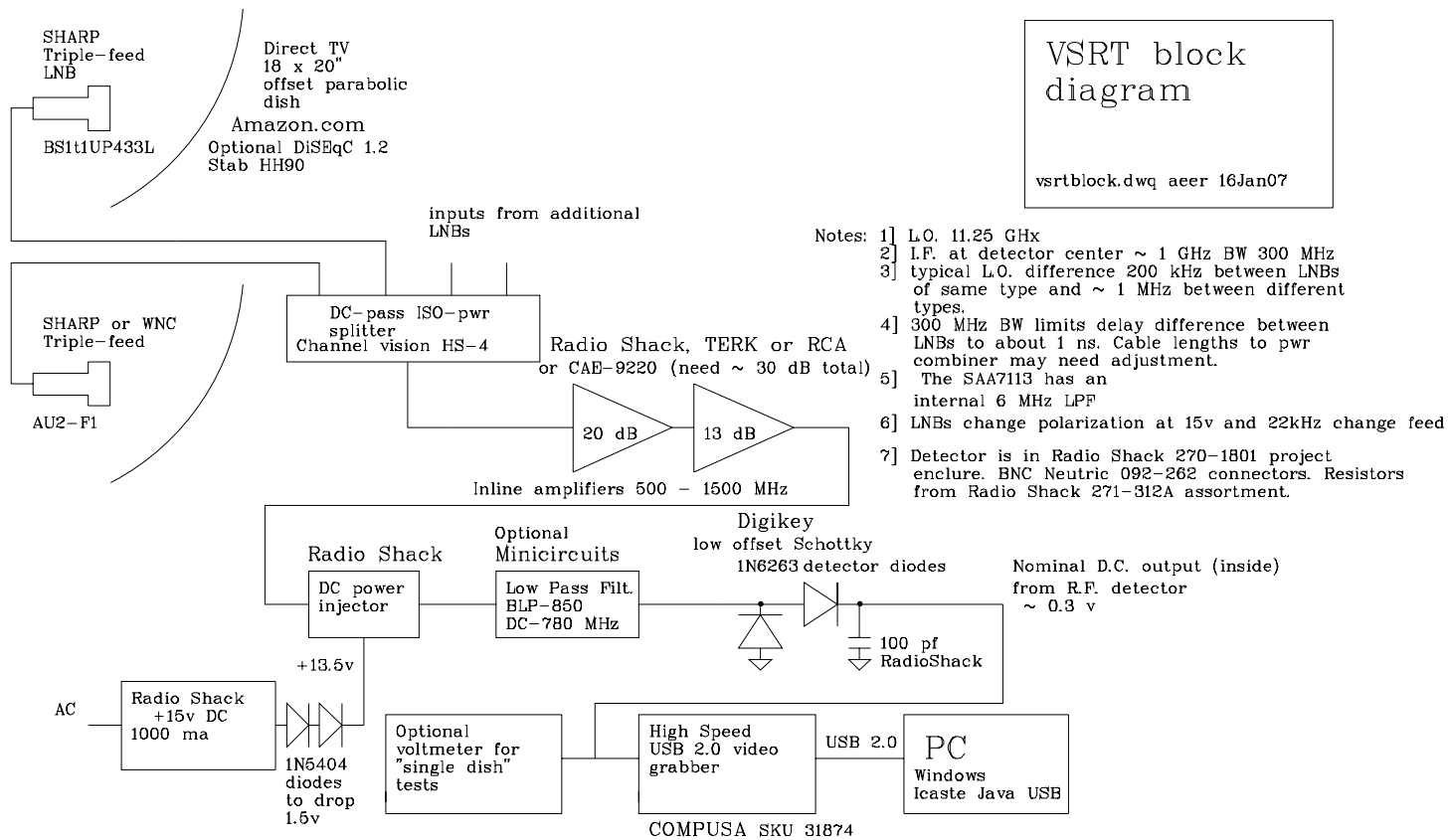
Note:

1. These units are obsolete but can be obtained from Haystack. There are other manufacturers and we are in the process of verifying software compatibility with these units. In future these may be replaced by USB scope from [www.parallax.com](http://www.parallax.com) when support software becomes available.
2. The CompUSA video Grabber USB 2.0 is only occasionally available on ebay.

The GrabBee X+ USB 2.0 audio/video grabber "deluxe" from Amazon is compatible. Approximate price \$60. The unit comes from [www.ruby-electronics.com](http://www.ruby-electronics.com) and doesn't have a part number on the box. However, the Ruby Web site lists a parts number as Sku: GRBEEDX-001 and it also specifies the chips Philips SAA7113 and Empia 2820, which are compatible with our software. Other suppliers may be found on the Internet.



All these parts were recently procured and set-up as shown in figure 1.



According to the block diagram in Figure 2.

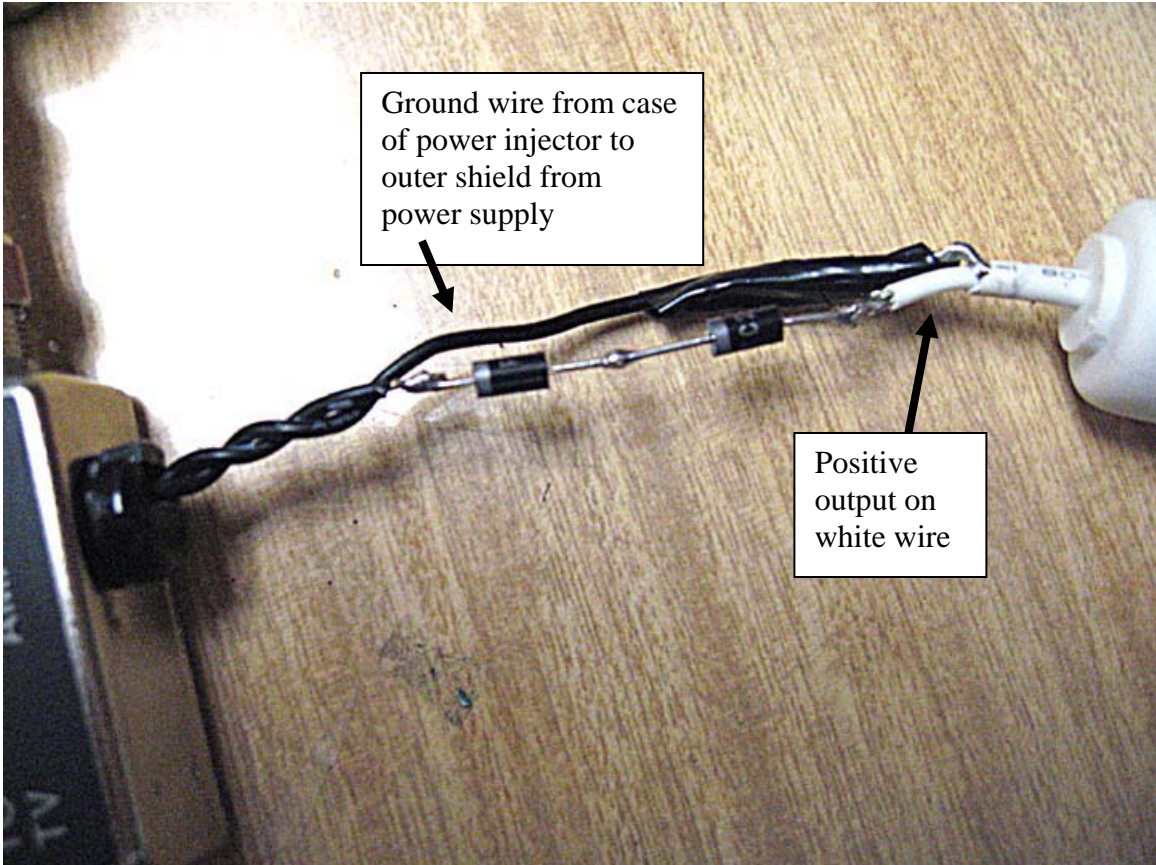


Figure 3 shows the detail of the diodes (before using electrical tape to cover the connections) used to reduce the 15 v to 13.5 v. You will need a soldering iron to make the connections. Be sure to observe the correct polarity of the diodes. The white band is the cathode. The radio shack power supply positive output is the white wire inside the outer ground shield. This positive voltage is connected to the anode of the first diode whose cathode (white band) is connected to the anode of the second diode whose cathode is connected to the positive input (wire marked with white stripes) on the power injector. The negative (or ground) of the injector is connected to the ground shield of the power supply. Use a ohm meter to test your connections and a voltmeter to test the output to the LNBF. The voltage to the LNBF should be positive – see the schematic in figure 2.

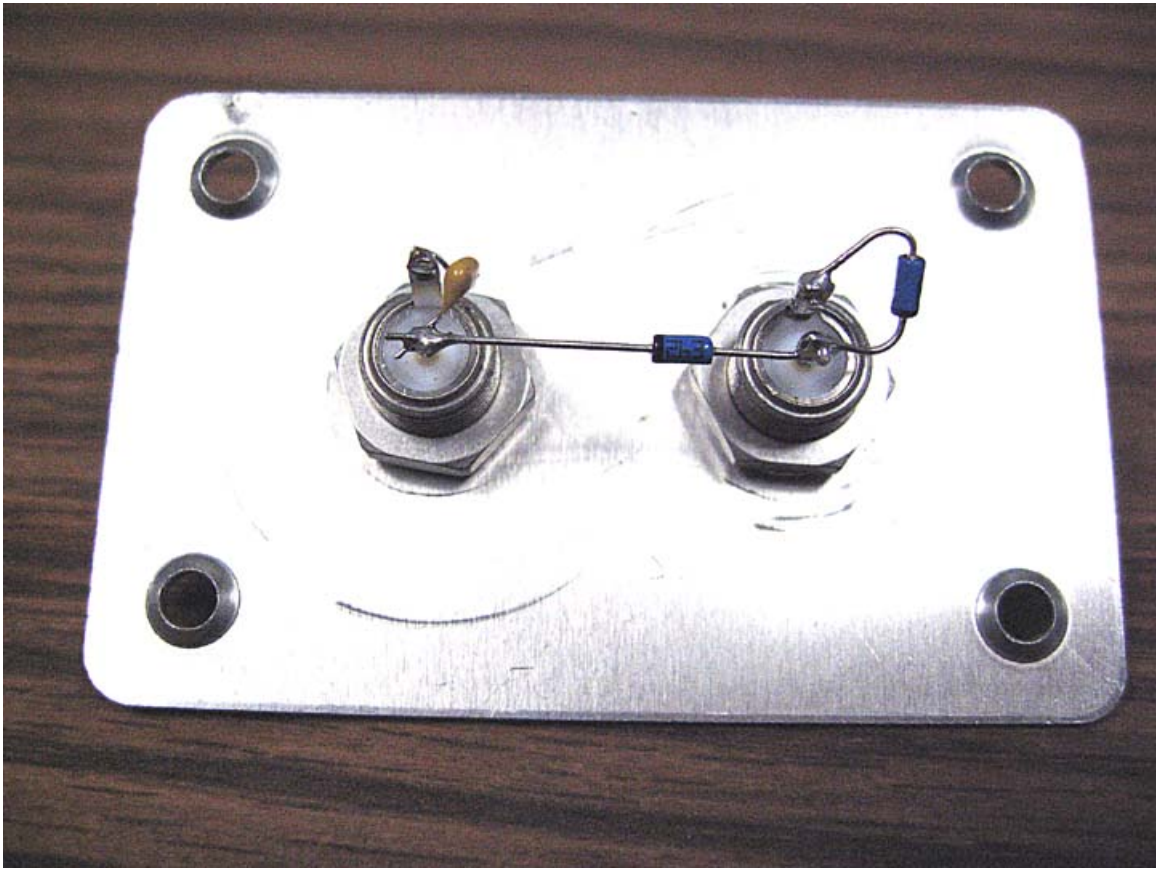


Figure 4 shows the detail of the detector with the plastic base of the project box (270-1801) removed. You will need a soldering iron to make the connections. Be sure to observe the polarity of the diodes. See schematic in figure 2. Black bands mark the cathode of each diode.



Figure 5. Set-up to observe the Sun.

Figure 6. Step 1: Attach cables to LNBS





Figure 7. Step 2: Attach splitter to cables



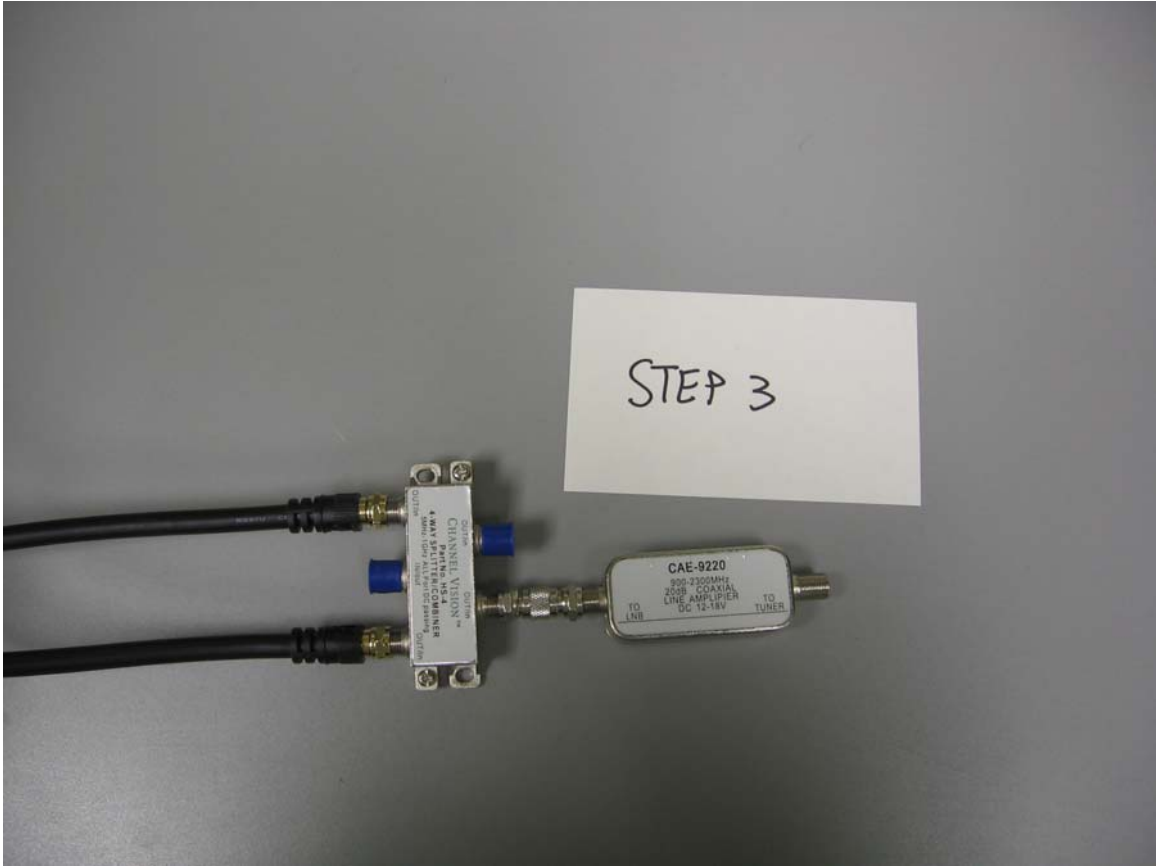


Figure 7. Step 3: Attach line amplifier. Make sure correct end is connected. You will need a “male to male” connector.



Figure 8. Remove DC block from inline amplifier. You will need to remove the plastic covering and unscrew.



Figure 9. Step 4: Attach the inline amplifier and another “male to male” connector.

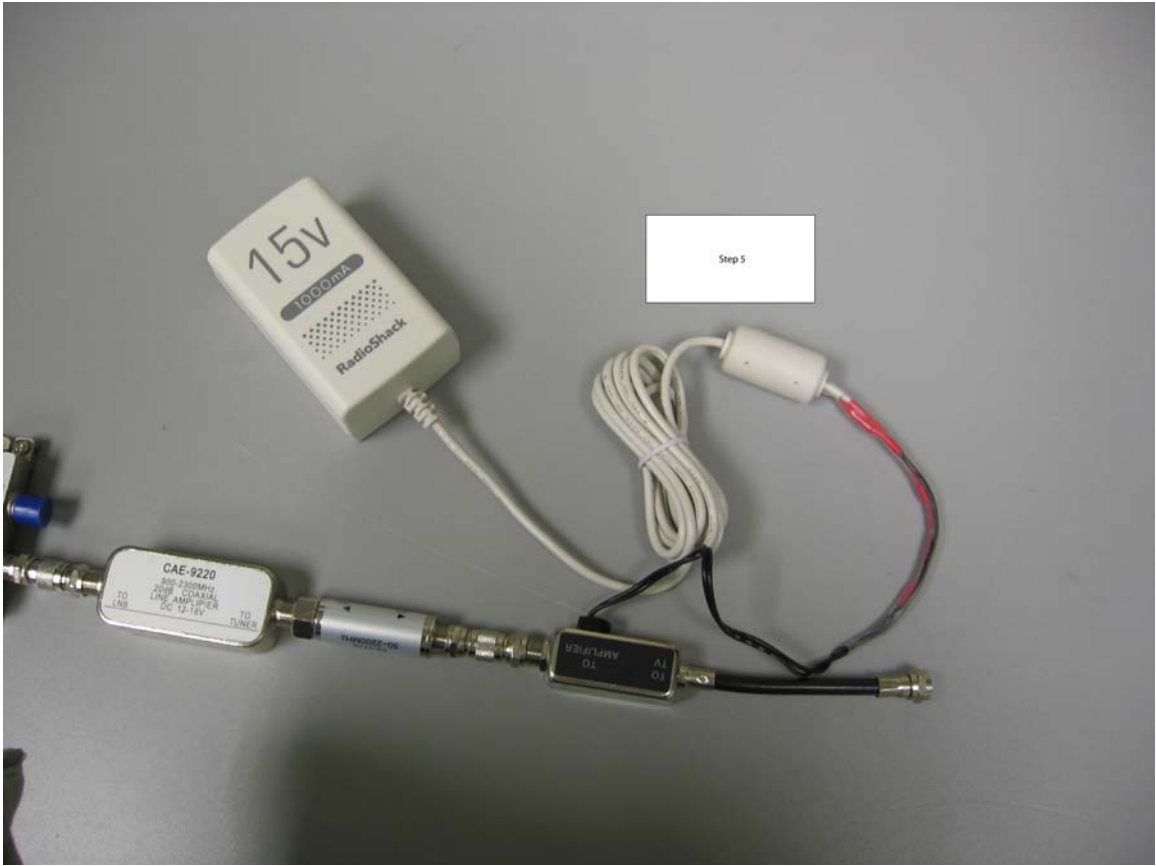


Figure 10. Step 5: Attach the power splitter. The power supply that comes with it will need to be replaced with the Radio Shack 15V supply.



Figure 11. Step 6: Attach the detector. Details of the inside of the box are shown in Figure 4. Also attach the necessary connectors.



Figure 12. Step 7: Attach the video frame grabber. The USB end of the frame grabber will go into the computer.