

## CALIFORNIA STATE SCIENCE FAIR 2015 PROJECT SUMMARY

Name(s)	Project Number
Alec F. Vercruysse	$\overline{\Lambda}$
	35219
Project Title	
What Is Better for Amateur Video Broadcasting? Testing Qut Isotropic	
vs. Directional Antennas with Varying Polarizations	
	$\sim$
Objectives/Goals Abstract	
My goal was to test different types of antennas with varying polarizations and o	irectivity to see what
works best on the 1280 MHz band. I want to focus on having an isotropic anter	na for the transmitter,
because in something like a moving car for example, it would be very hard to a	in a directional antenna
While steering the vehicle.	$\mathcal{I}$
My dad had the ARRL license so he stood at the end of the backyard ( $\sim$ 65 ft	away) and operated the
transmitter. I used a spectrum analyzer borrowed from a friend to record the tr	rength of the received
signal. We used different antenna combinations with different orientations for o	our testing. The antennas
we used were:	
whip antennas (store bought) Cloverleaf Artennas (Homemade) 8 ( bought) 7 dBi yagi antenna (homemade)	1B1 patch antenna (store
Results	
For all my data presentation and results, when I tak about the antennas, I use T	x/Rx, so if I say
Whip/Yagi, I mean that the transmitter antenna is a whip and the receiver antenna is a yagi. For the	
Isotropic/isotropic category, the results were as follows:	
In the Isotropic/Directional category the results were as the way	
1. Whip/Yagi 2. Whip/Patch	
I expected the Patch to do better, because theoretically it should have. It had me	ore gain. I think this is due
to an error, I might not have aimed the patch well enough, and since the yagi is	less directional and
the efficiency of the antenna is better	
Conclusions/Discussion	
I realized that a homemade antenna ould asily be as good if not better than a	store bought one. They are
also generally quite cheaper, and can be better suited to your needs (directivity	and frequency). There
might have been an error involved, but the homemade / dB1 yagi actually output antenna. In conclusion, the best antenna combination where there is an isotroni	c antenna on the
transmitter is a Whip/Patchantenna.	
Summary Statement	
Testing intenness with different properties to determine the best setup for broad	casting with an isotropic
transmitter an enna	
Help Received	
Mr. Younge let me borrow a spectrum analyzer; My dad held the transmitter at the other side of the	
backyard.	