

20140525 - Hot Wheels 10.525ghz radar gun - Update #2

<http://www.edparadis.com/radar/>

The above website takes apart one of the Hot Wheels radar guns, and has some great pictures of the components. Something that you might notice is that the gun itself is very much like the little gun we have. The biggest difference is it's in a waveguide that helps to direct where the radar signal goes. But otherwise it is very much like what we have.

One other thing you'll notice is that he also had to add an amplifier to get a signal he could use, I believe that there is an amp on the "control board" but it may not have been easy to access that.

You'll also note that his IF is also in the 10Hz to 150Hz range, which makes believe the hot wheels gun is using the HB100 or at least something that is very close to it.

There are quite a few projects that are using the Hot Wheels gun, including a Weather Radar (well sort of),

https://instruct1.cit.cornell.edu/Courses/ee476/FinalProjects/s2009/cdl32_mjc89/cdl32_mjc89/index.html

Does make me wonder if we could use what we have as a mirror the above project, looks like it might be a big project.

And here's someone that "made" a speed gun out of the Hot Wheels radar gun (What, this is already a speed gun???)

<http://makezine.com/projects/radar-speed-detector/>

To make a real gun, we need more power which we are limited to using this unit. But we might be able to focus the waves better using something like this: It's a 10ghz (X-band) radar cone, it's tuned for the X-Band, and will direct the waves much better. This is very much like what is in a commercial radar gun (IF the cops were still using X-Band)

It's still not going to be perfect, not with this unit, but it will be better.

http://www.ebay.com/itm/10-GHZ-X-BAND-17-DB-GAIN-HORN-ANTENNA-MA86551-NEW-/141295562369?pt=US_Radio_Comm_Antennas&hash=item20e5df2e81

I would like to try to tune the gun, but for that we need tuning forks (Any should work, I think) as long as we know at what Hz they vibrate. (IE: a fork vibrating at 200Hz should be about 6.3 or 6.4 MPHs $\text{Hz}/31.36 = \text{MPH}$) Short of having any tuning forks there is no sure way to know that what we are doing is working correctly or not.

One Idea I have is to roll a hot wheels car, see what the hot wheels guns says, and then roll it again and see what our gun says. Hopefully they will be the same or close to the same - But that method has a problem that is the push was a little more or a little less then results would be a little different.

SO if anyone has any tuning forks that we know the vibration of bring them to this Thursdays meeting and we will see if we can figure out!