

The Itty Bitty (Radio) Telescope



Motivation

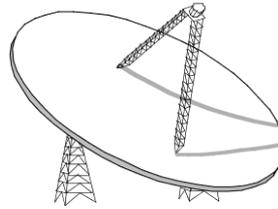
- Astronomy course at Georgia State
- Project required in lab portion of class
- Original Idea on an Astronomy Club Website
- Noticed dish in a trash pile at sis's house

See you at the

WaterHole[™]

Volume 2001 Issue I

ww.RAInfo.net



***Chippewa Valley Astronomical Society star party
introduces the Little Bitty Telescope[™] Version 2 and
LBT Experiment No. 1***

The fall star party of the CVAS group in Fall Creek, WI provided a good time to introduce the LBT 2 radio telescope. The CVAS group has been working on their own 5 meter dish for radio astronomy experiments.

Ten miles east of Eau Claire, Wisconsin, there are hundreds of acres of upland woods, roadside prairies and river bottom forests. The beauty of this region is enhanced by a gently flowing river, sandy beaches, rocky falls, clear cool streams and a multitude of birds, wildlife, and native flowers.

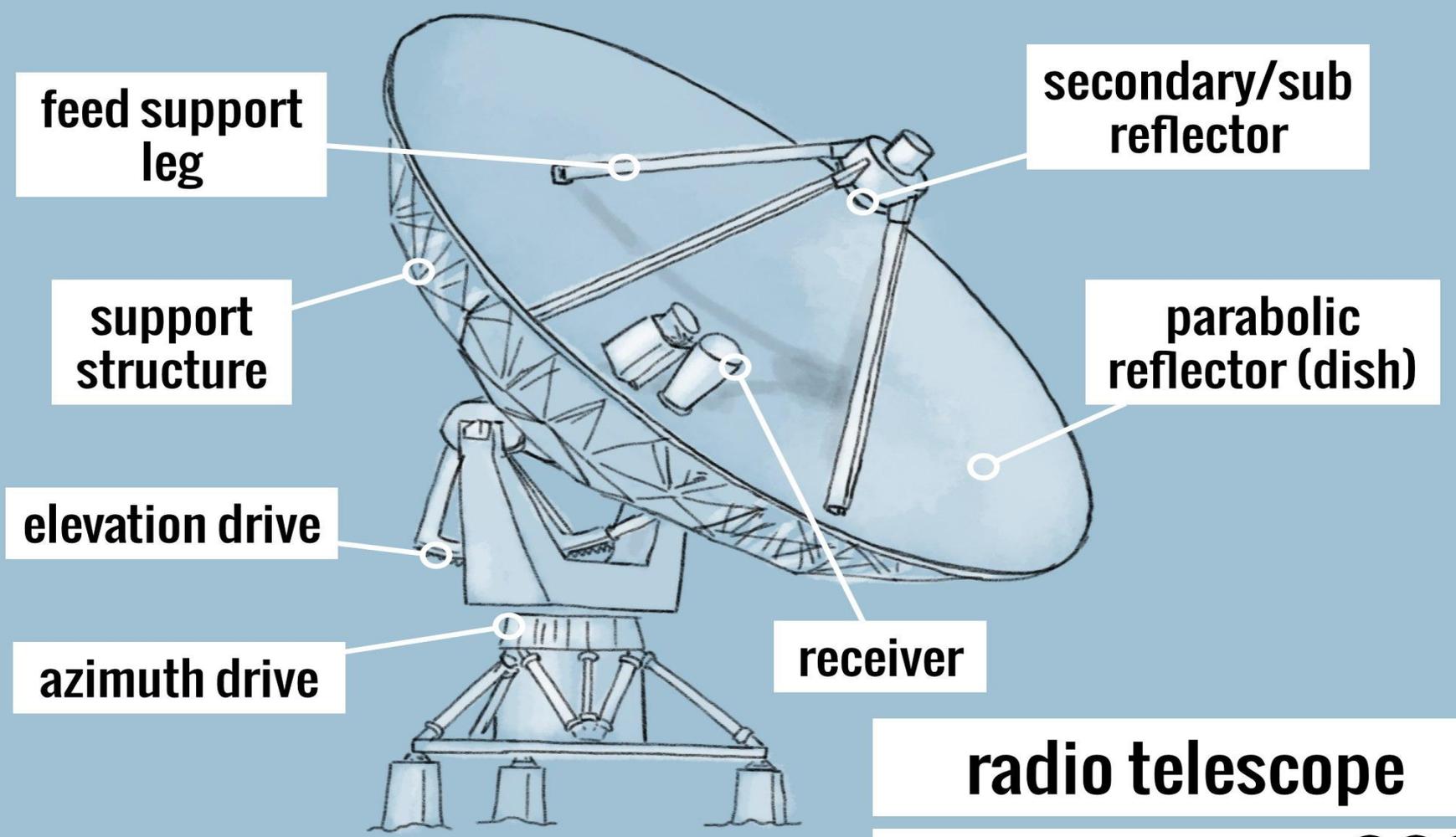
In the heart of this natural setting lies the Beaver Creek Reserve, an environmental center dedicated to maintaining this beautiful area for the enjoyment and appreciation of all who visit. The Reserve encompasses 360 acres of diverse habitats and includes 3 different facilities: The Eau Claire County Youth Camp, the Wise Nature Center, and the Hobbs Observatory. It also includes miles of groomed hiking/ski trails that inner-twine along the Beaver and Deinheimer Creeks within the Reserve.

First Page of Original Article



First Versions of Itty Bitty Telescope

<http://www.setileague.org/articles/lbt.pdf>



radio telescope

www.inchbyinch.de

Typical Radio Telescope



The LNB –
Low Noise
Block

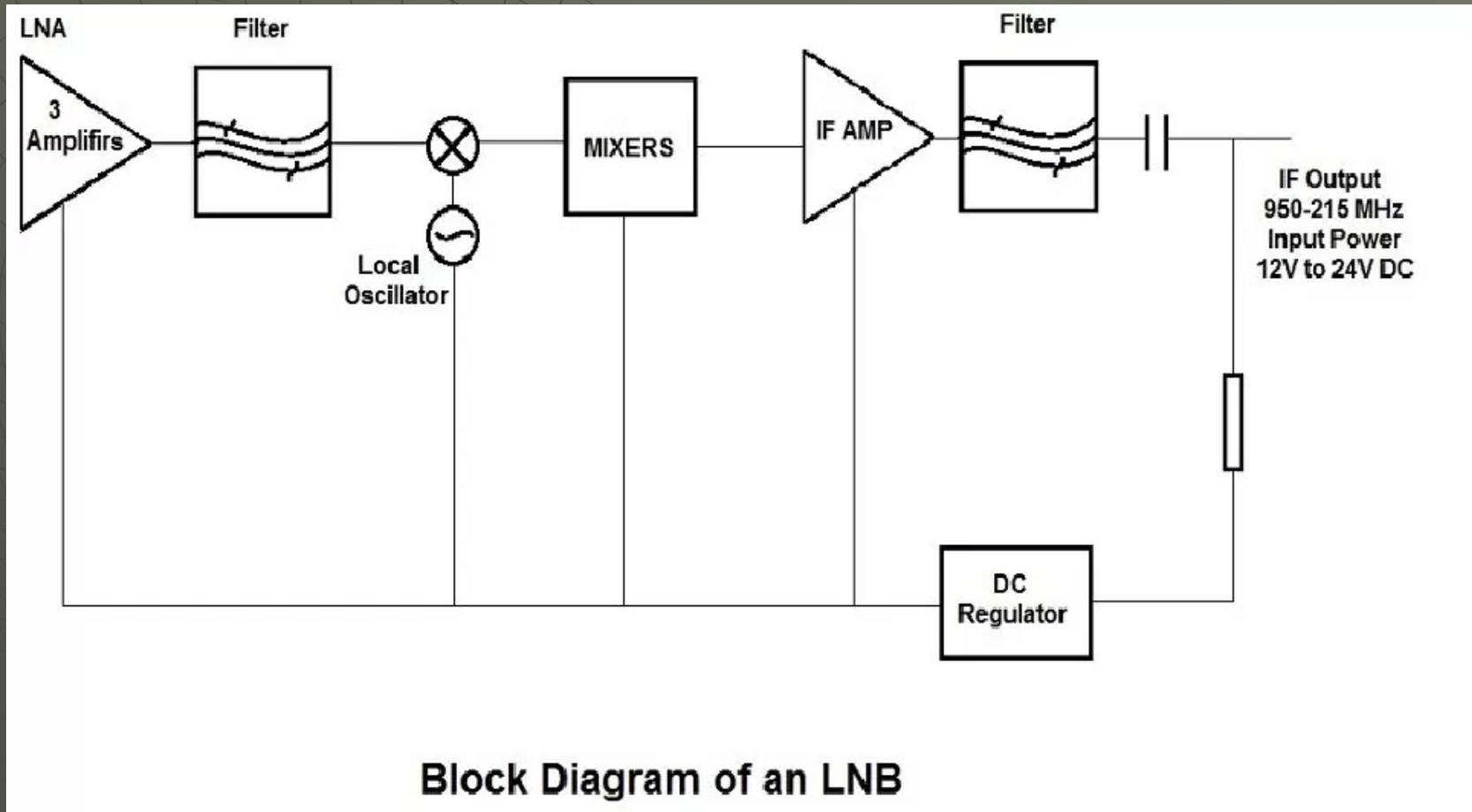


The Dish

LNB to Cable Connections



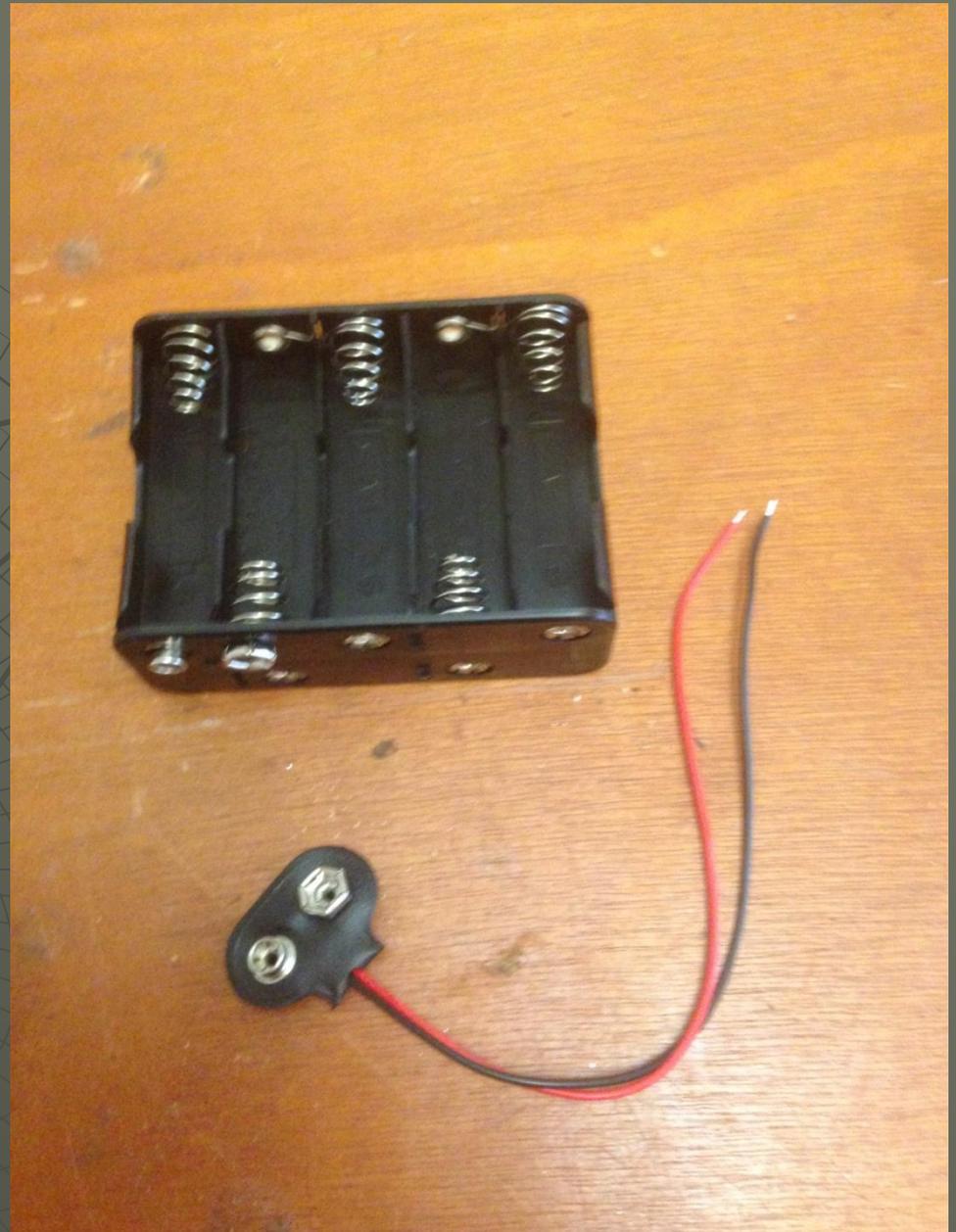
LNB Diagram



Some Numbers

Supply Voltage	Oscillator Frequency	Typical Sat Frequency	Intermediate (Output) Frequency
13 – 18 Volts	3.4 – 4.2 GHZ	5.15 GHZ	950 – 1, 750 MHZ

Battery Box with connector

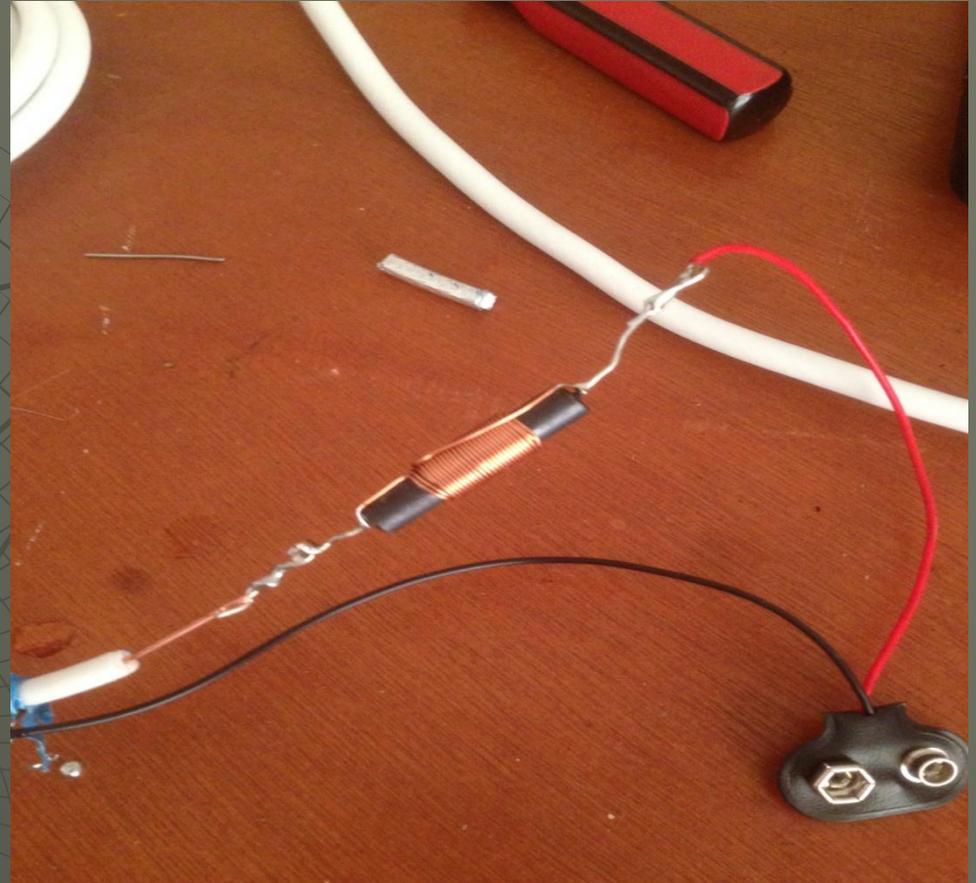


Satellite Finder

Converts Electromagnetic
Signal into needle movement
and noise.



RF Choke
soldered
between
Battery
Connector &
Satellite
Cable



The Stand





IMG_0888

0:00:00



0:03:32





RTL-SDR.COM

QUICKSTART SETUP GUIDE: RTL-SDR.COM/OSG

DVB-T+DAB+FM+SDR

RTL2832U R820T2 TCXO+BIAS T+HF

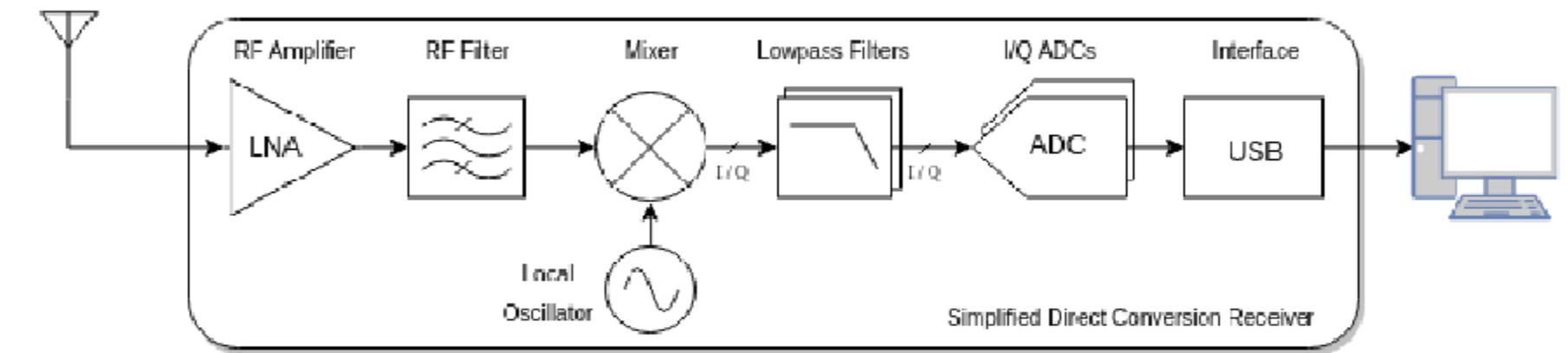
V.3

CE FC X

Antenna

Software Defined Radio Receiver

Host





000.103.000.000 ◀▶



Source: AIRSPY

AIRSPY

Sensitivity Linearity Free

Gain 0



Sample rate

Decimation None

Display Unknown

Bias-Tee Tracking Filter

SpyVerter Enable HDR

PPM 0.00

Radio

NFM AM LSB USB

WFM DSB CW RAW

Shift 0

Filter Blackman-Harris 4

Bandwidth Order

200,000 250

Squelch CW Shift

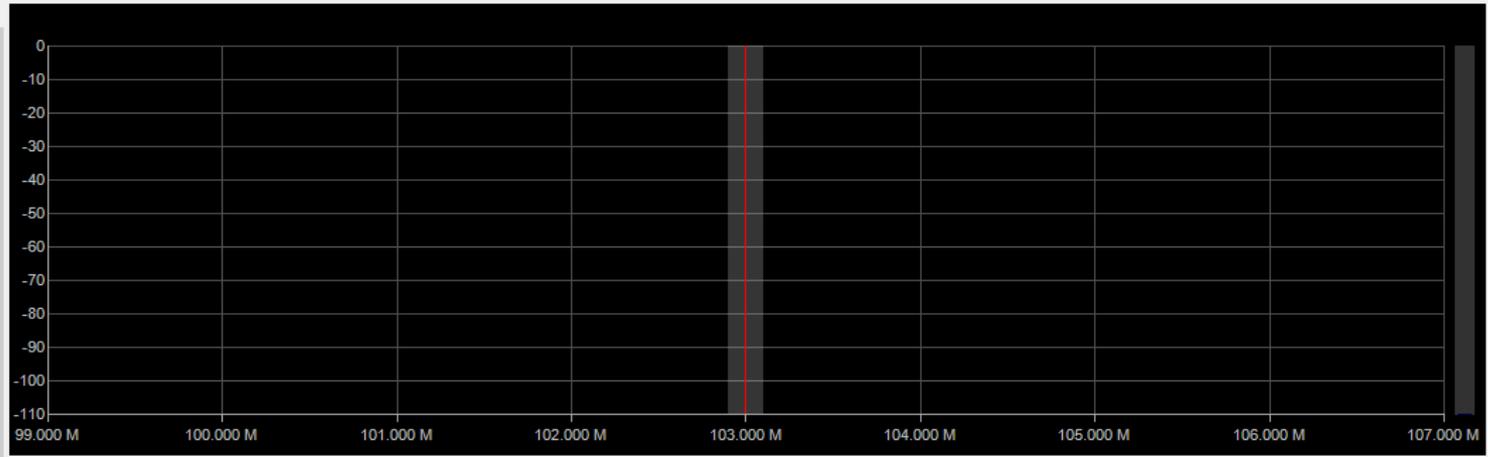
50 1,000

FM Stereo Step Size

Snap to Grid 30 kHz

Lock Carrier Correct IQ

Anti-Fadino Swap I & Q



Zoom

Contrast

Range

Offset

Four vertical sliders are located on the right side of the interface. From top to bottom, they are labeled Zoom, Contrast, Range, and Offset. Each slider has a blue indicator bar and a vertical scale.



The **Arecibo Observatory** is a radio telescope in Arecibo, Puerto Rico, operated by the University of Central Florida





Very Large Array in Socorro, NM.

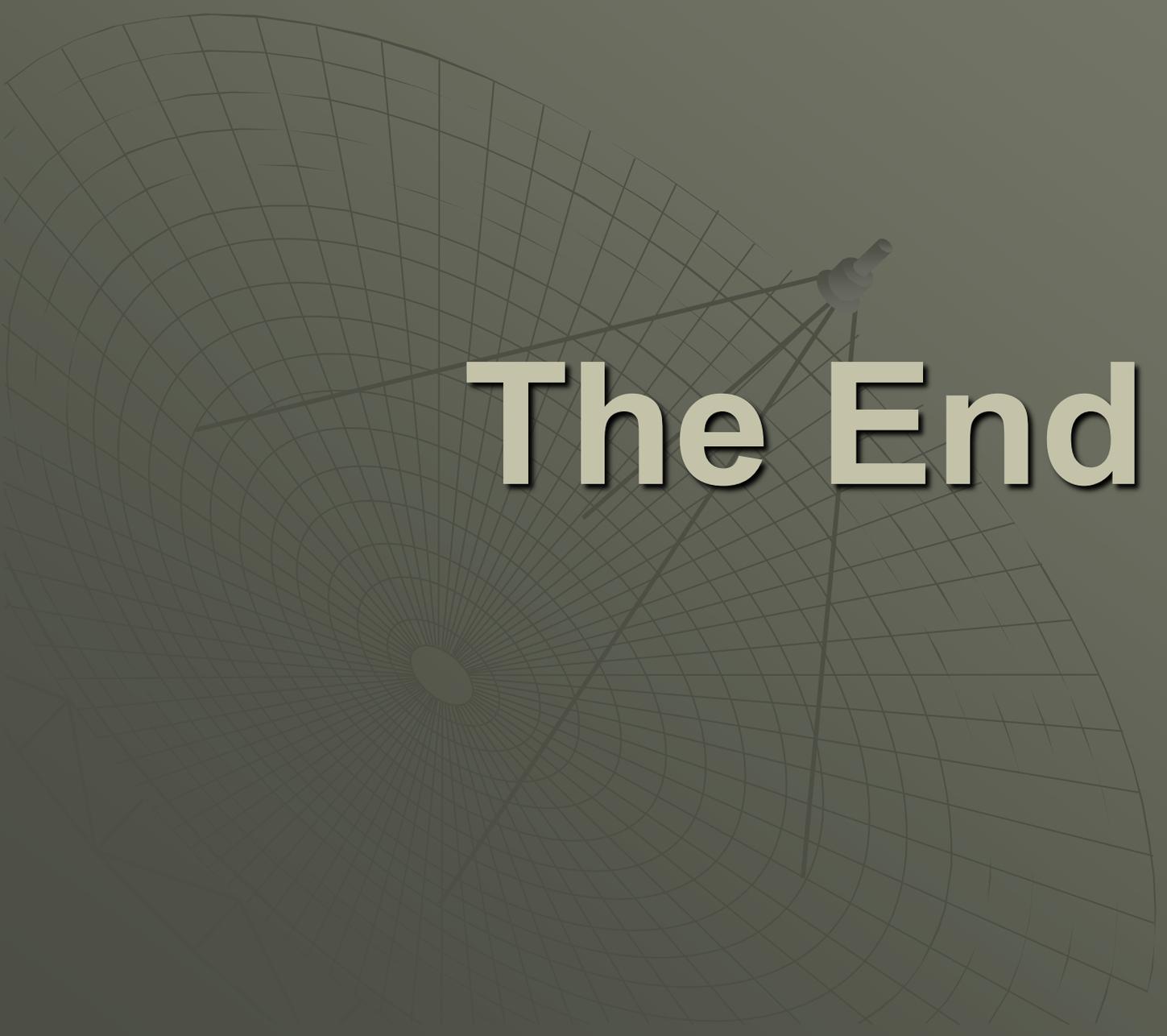


Random Thoughts

The dish is not big enough to collect enough electromagnetic signal to detect & separate signals from stars, although someone has used theirs to detect signals from Jupiter

Could fabricate a computer interface to collect the signal and separate it out into constituent frequencies from the Sun.

Could make a bunch of them cheaply, and combine the signals into an Interferometer, same as the concept in the Very Large Array.



The End