

The background features a dark blue gradient with a starry pattern. On the left side, there are several overlapping circular elements. A prominent one is a large circle with a scale around its perimeter, ranging from 140 to 260 in increments of 10. Other circles are smaller and some are dashed, with arrows indicating a clockwise direction. The overall aesthetic is technical and futuristic.

GROUNDS AND GROUNDING

KARS PRESENTATION

FEBRUARY 4TH, 2021 – THURSDAY

ROBERT J. "CORKY" SARVIS, WB5CIT

MARK W. EARLE, WA2MCT

OUR AGENDA

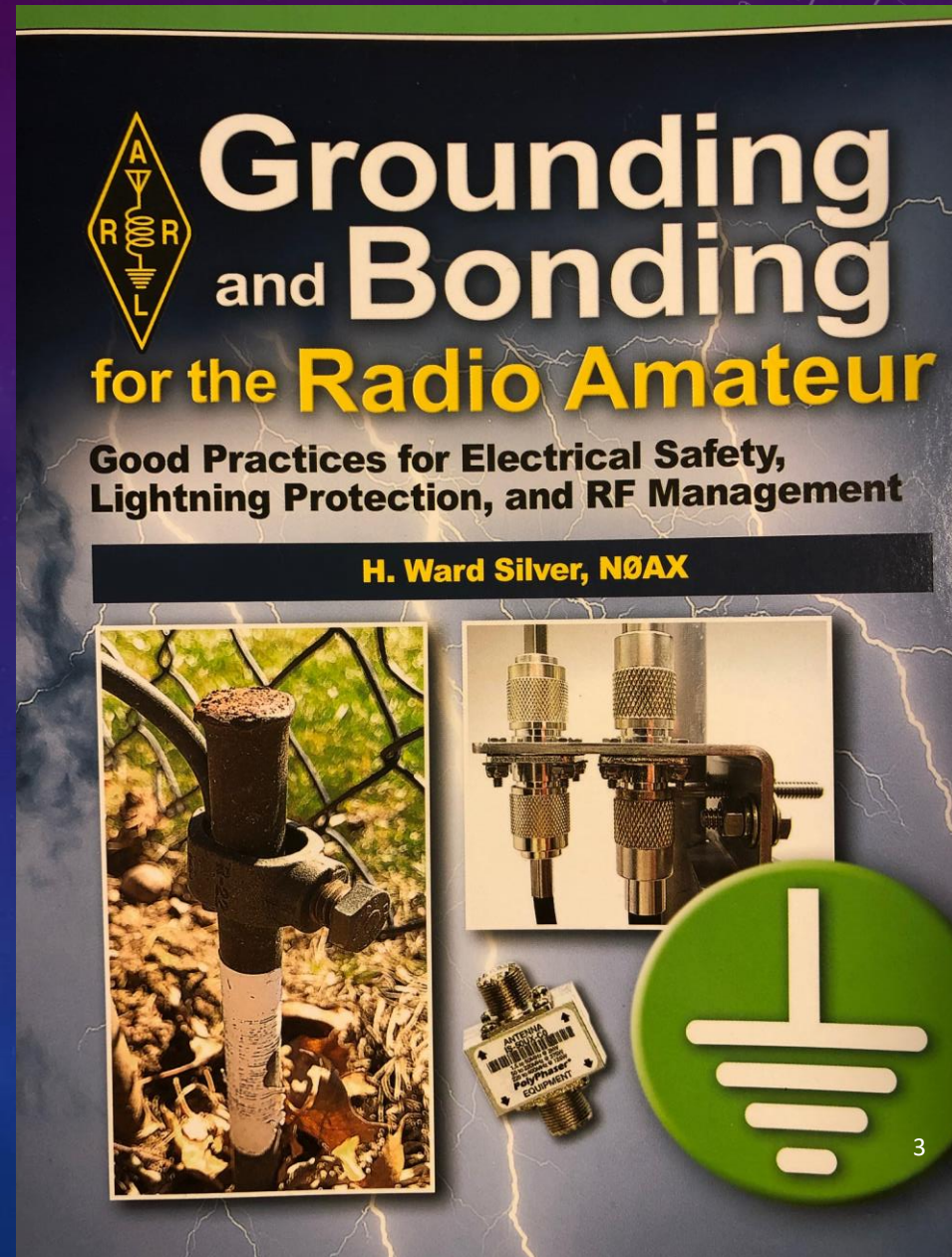
- History / Background Information
- Picking-up the Pieces
- Path Forward
- What was Accomplished?
- Current State of “The Station”
- Your Questions – Our Answers + Discussion

THANKS! AND REFERENCES

- Mark W. Earle, WA2MCT
- Robert J. “Rob” Sarvis, Jr., KG5DLA
- Lawrence S. Higgins, W5EX

References

- Silver, H. W. (2017). *Grounding and bonding for the radio amateur: Good practices for electrical safety, lightning protection, and RF management*. Newington, CT: The American Radio Relay League.



A CAVEAT FROM ME...

- Work on my station is an ongoing process
- I will probably always be working on it
- But I have the sense that I am making progress on it – At least, I'm able to get on the air and “work” other stations!

HISTORY / BACKGROUND INFORMATION

- Electrical Storm, May of 2015
- Direct “Hit” on the Tower
- Messed-up a great deal of “stuff”
- Some obvious, some not-so-obvious
- Thus, the real-work began!

PICKING-UP THE PIECES + WHAT WAS LEARNED

- House not **really** grounded per **any** code, local, state, national or international
- We were missing the required **two** ground rods, per the code
- So, we fixed that by hiring a master electrician to do the installation



PATH FORWARD

- Finding the obvious equipment / systems that were “zapped”
- Controller on the Heat Pump and a circuit board in the outside unit
- Lights and outlets in the house
- Some systems transformers (“wall warts”)
- Some Appliances or subsystems in some others
- Some of the computer networking gear (at the time were still on GVTC DSL)
- Over half of the equipment in “the shack” was either “toast” or “flaky / intermittent”
- So, what did we do next?

- Fixed the obvious
- Determined:
 - What to replace
 - What to trash
 - What to upgrade
- Total time: from “strike” to “final ‘okay’, we’re done – connect everything back-up” was about two-years
- Efforts were in parallel – meaning the master electrician worked on the electrical while the a/c technician worked on the heat pump.
- My son, Rob, KG5DLA helped with the computers and networking gear. What to repair, what to recycle
- A great number of landline conversations with Mark, WA2MCT and Larry, W5EX.
- At Mark’s suggestion, purchased a “Gilastat” from Nott, Ltd.



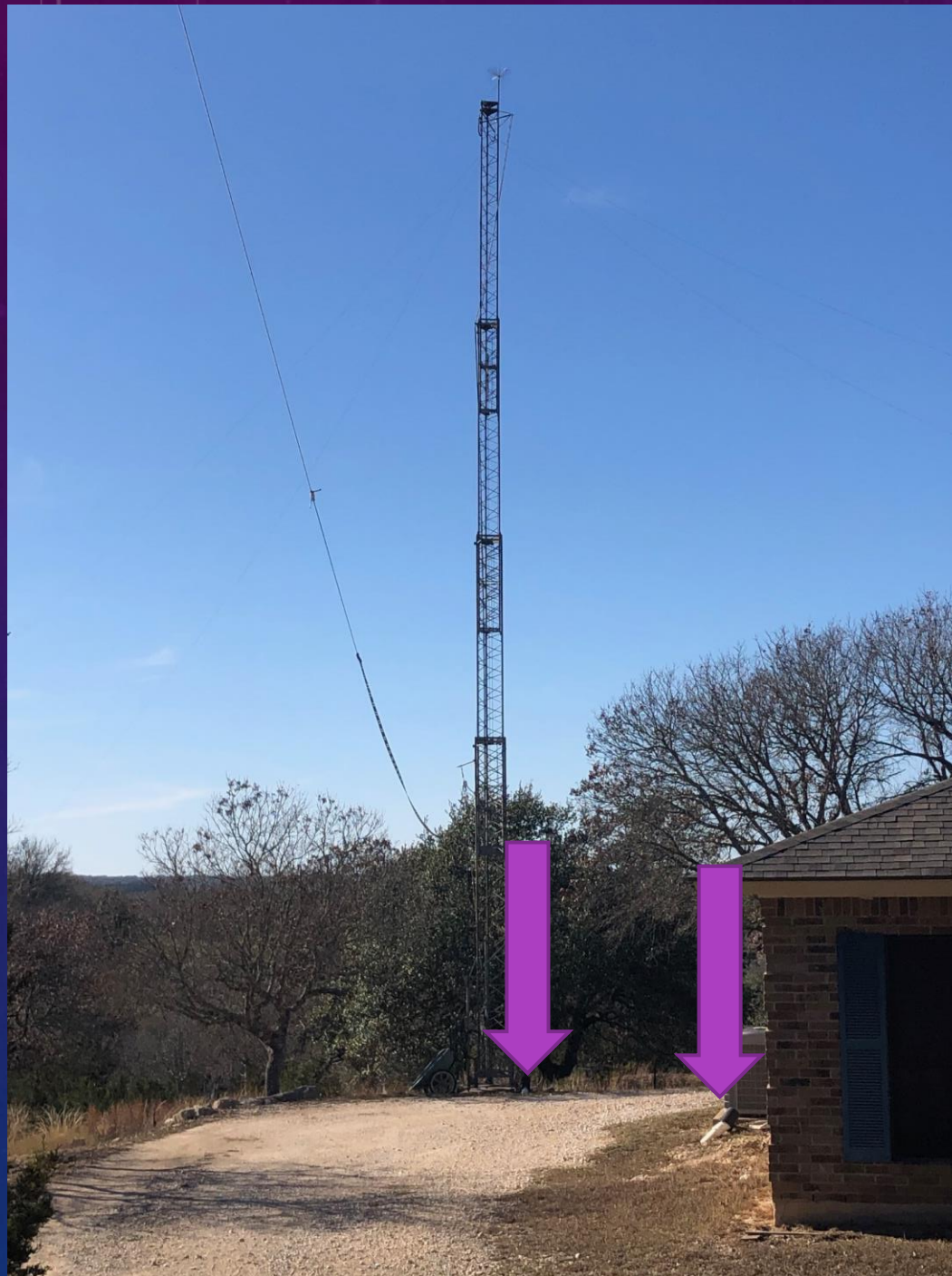
NOTT, LTD.

- The “Gilastat”, pronounced “hee-lah-stat”

WHAT DOES THIS CONTRAPTION LOOK LIKE ON THE TOWER?







WHAT WAS ACCOMPLISHED? LET'S TALK "STANDARDS"

SOUTHWIRE

Bare Copper Grounding Wire, 4 AWG, Solid, 200 ft

Item # 4WZU5

Mfr. Model # 10644302

UNSPSC # 26121517

Catalog Page # 347

Country of Origin USA. Country of Origin is subject to change.

Bare copper grounding wire is a stranded wire without insulation or a jacket that is used to connect a circuit to a grounding rod in the earth. It is installed in parallel to hot and neutral wires in the circuit, providing a direct path for electrical current to follow to the ground in the even [View More](#) ✓

Compare this product





MUST HAVES – NOT NEGOTIABLES!

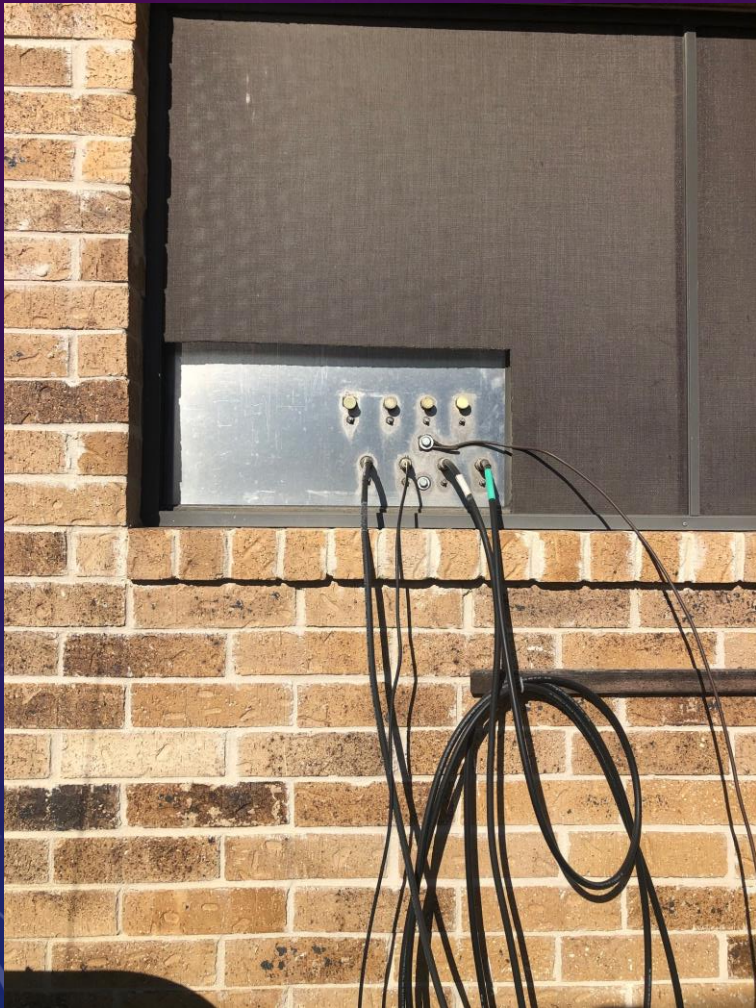
- Single point of grounding
- # 4 Solid for outdoors
- Green # 10 for indoors and connections
- Antioxidant compound
- <10 ohms of resistance difference between your station ground and your utility provider ground. Less is much better!
- Do NOT use braid or “old coax” braid – NO! NO! NO!
- Feedlines and control lines underground – not run overhead – NO! NO! NO!

THE “INFAMOUS” CIRCLE

- Any turn in any ground conductor should be NO tighter or smaller than 16-inches
- I built my heavy steel wire guide
- I’ve taken it with me to friends QTH when assisting them
- If a ground conductor is tighter or less than this turn, then it needs to be fixed to fit or exceed my guide



WHAT ABOUT THAT “PANEL” BUSINESS?

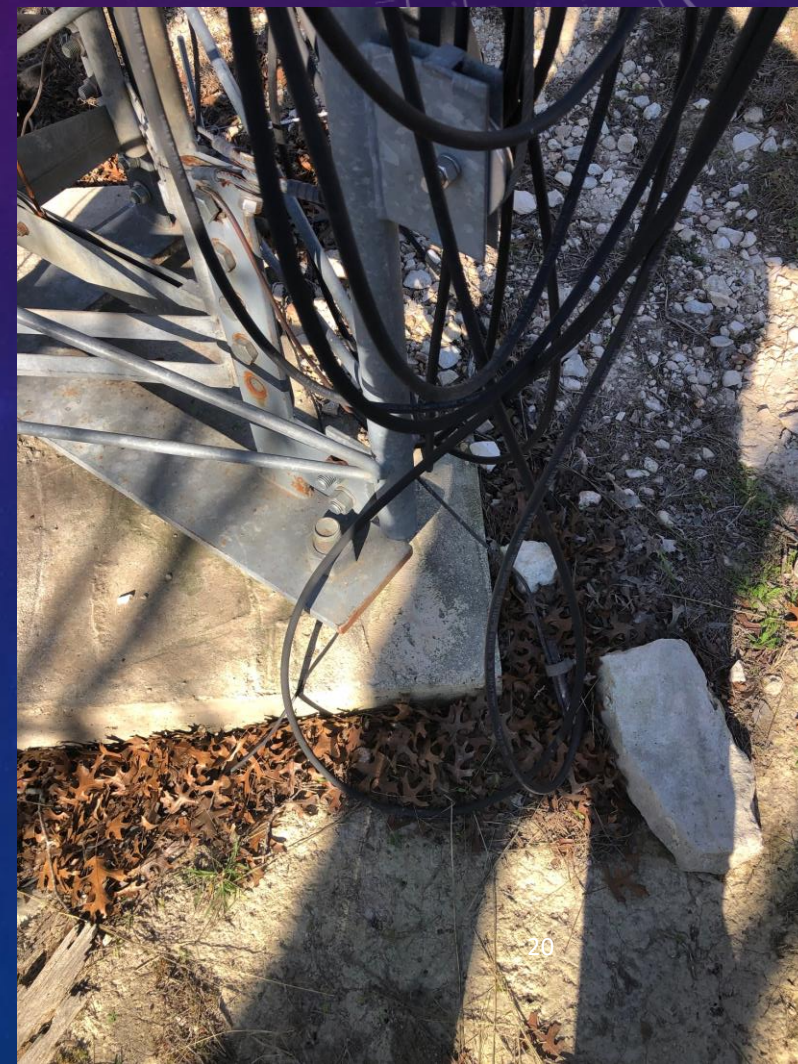


“THE PANEL”

- Aluminum
- Grounded, of course
- Polyphasers bolted to it
- Some are SO239 and some are Type N
- Rotator surge protector is on “standby” – just haven’t installed the new triband antenna, yet

WHAT ABOUT THE TOWER? HOW IS IT GROUNDED?



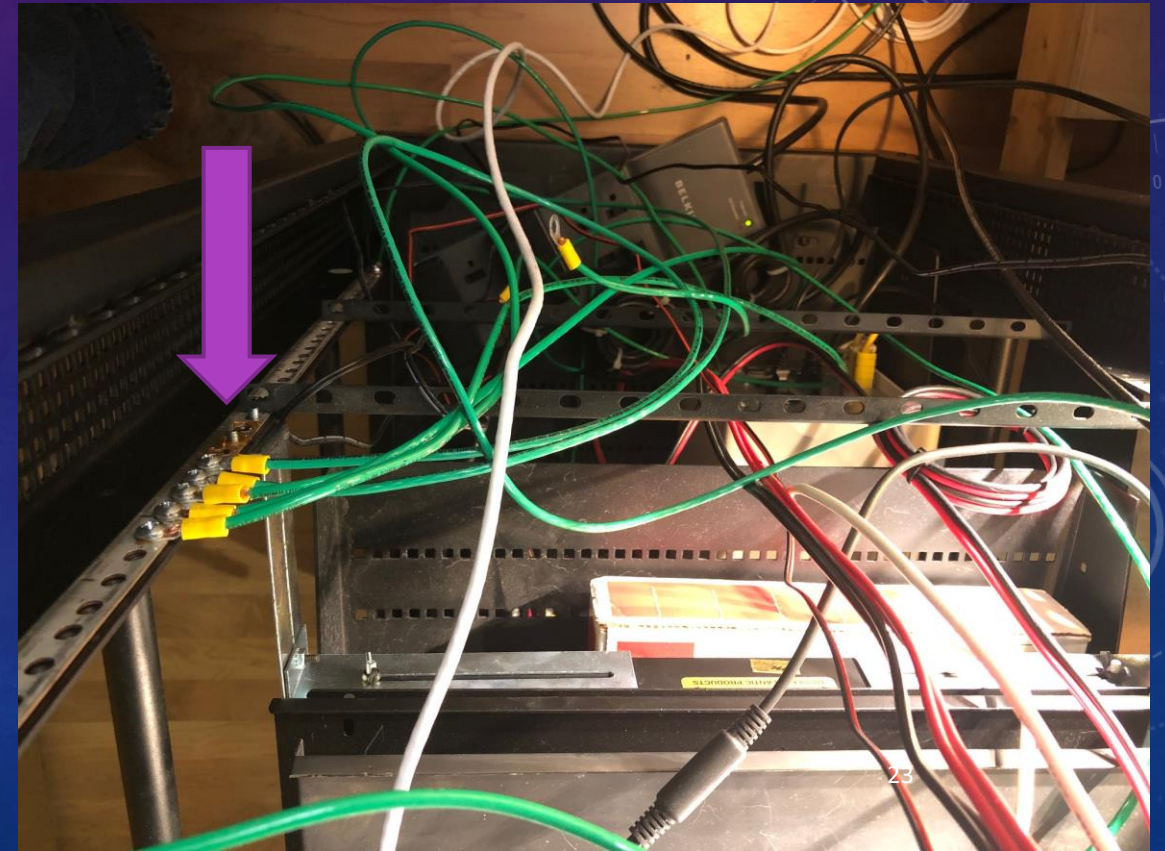




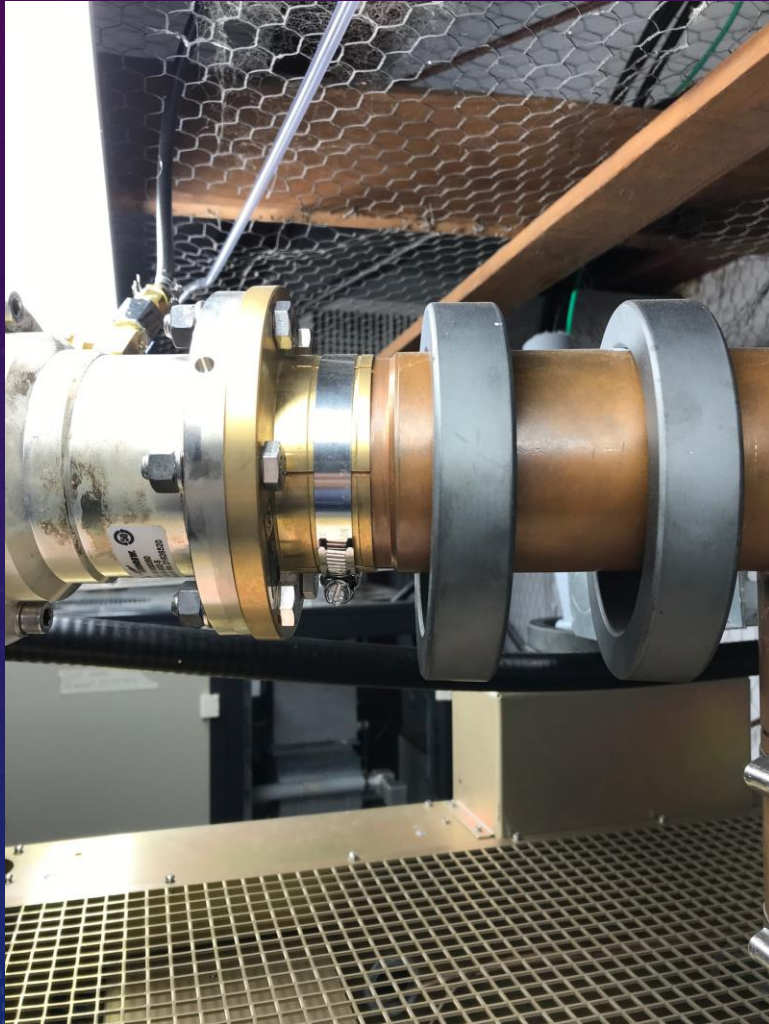
WHAT DOES "THE SHACK" LOOK LIKE NOW?



NOTE: MARK'S FLEX 6400
IN THE EQUIPMENT RACK



WHAT DO THE “COMMERCIAL FELLOWS” DO?



Q & A + DISCUSSION