



The Wireless

February 2023



Next Meeting:
 Tuesday, Feb 21, 2023, 7:00pm
 Garden City Presbyterian Church
 1841 Middlebelt Rd.
 Garden City, MI 48135

**The Garden City
 Amateur Radio Club**
 PO Box 482 • Garden City, MI 48135-9998

AMATEUR RADIO TECHNICIAN LICENSE TRAINING »

At Schoolcraft Community College

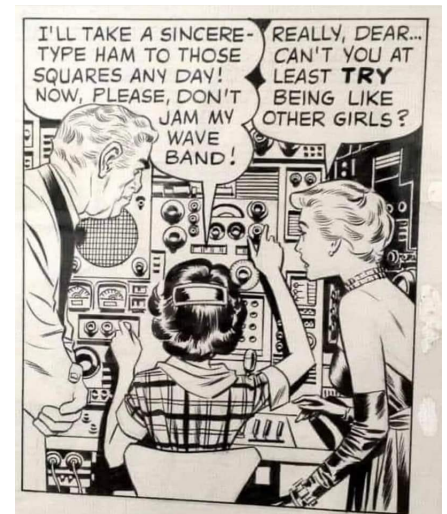
CES2-6366

Course Description

Explore all aspects of amateur radio including: FCC regulations, radio waves, basic electricity, basic math, antennas, station operations practices, and station safety. Review all 435 questions from which 35 are randomly drawn for the FCC Amateur Radio license test. Students are required to take the test in person, on campus, during the last class meeting.

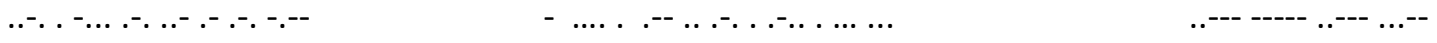
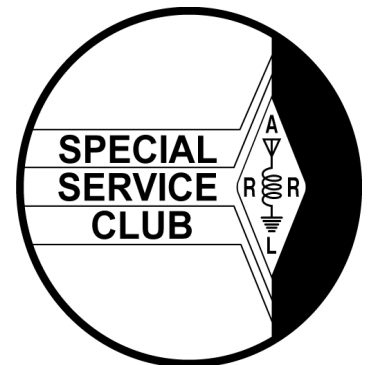
Course Schedule

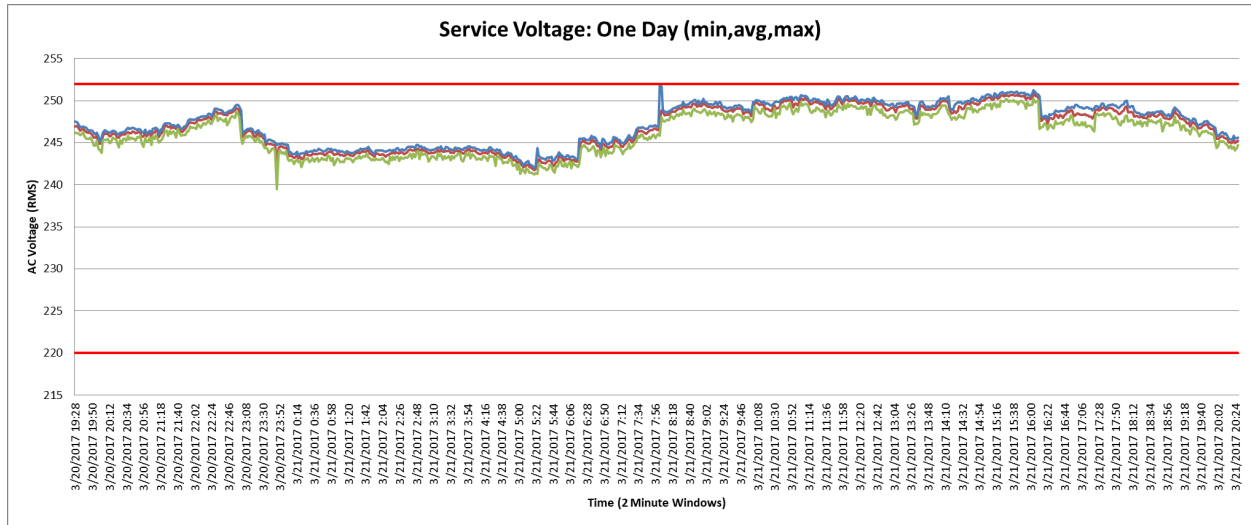
Course	Section	Course Title	Meeting Information	Meeting Dates	Instructors	Fee/Senior Cost Fee	CEUs	Status
▼ Winter, 2023								
CES2-6366	910061	Am Radio Training	02/16/2023 - 02/23/2023 LEC Thursday 07:00 PM-09:00 PM, Room LA 300. 03/09/2023 - 04/13/2023 LEC Thursday 07:00 PM-09:00 PM, Room LA 300. 8 Wks This class is live-streamed. Attend in-person or via Zoom. No class 3/2.	02/16/23 - 04/13/23	S. Deykes	\$119.00/ SA\$95.20	1.60	Open



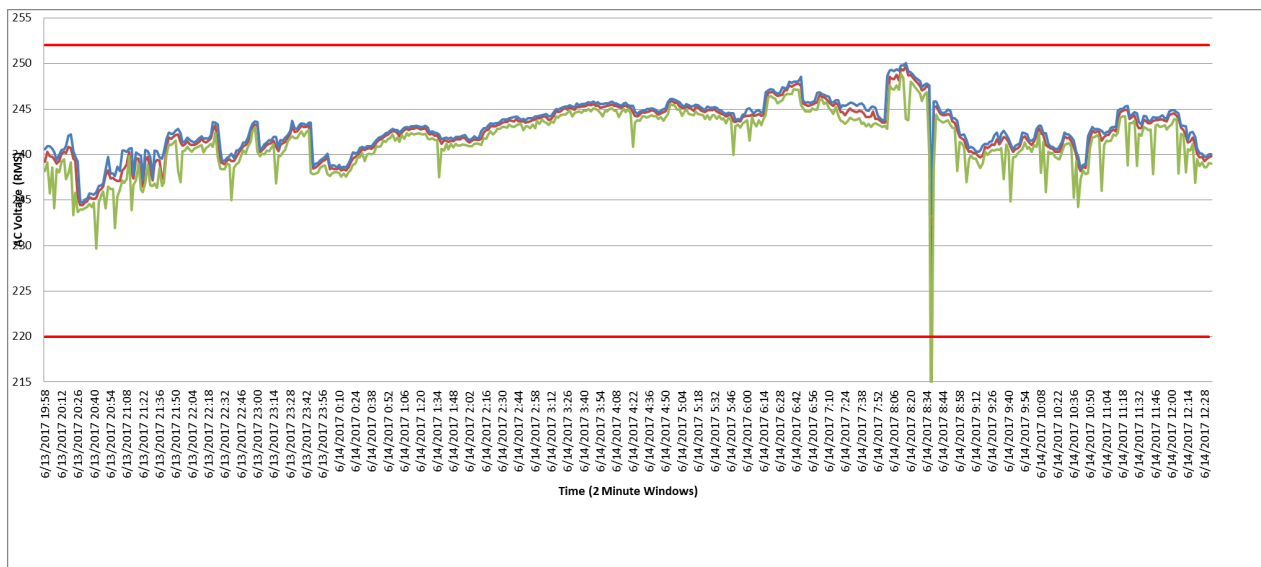
Saturday Morning Breakfast:

Be sure to join us this Saturday at 9:00 at Eddy's 31049 Ford Rd, in Garden City. If you can't be there in person, give us a call on the GCRA Repeater, 146.86 MHz, -600 with a 100Hz PL. There's always a radio or two on the table.



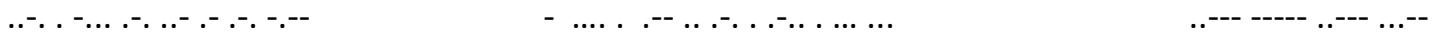


Data for One Day (Logging Interval of Two Minutes), March 2017

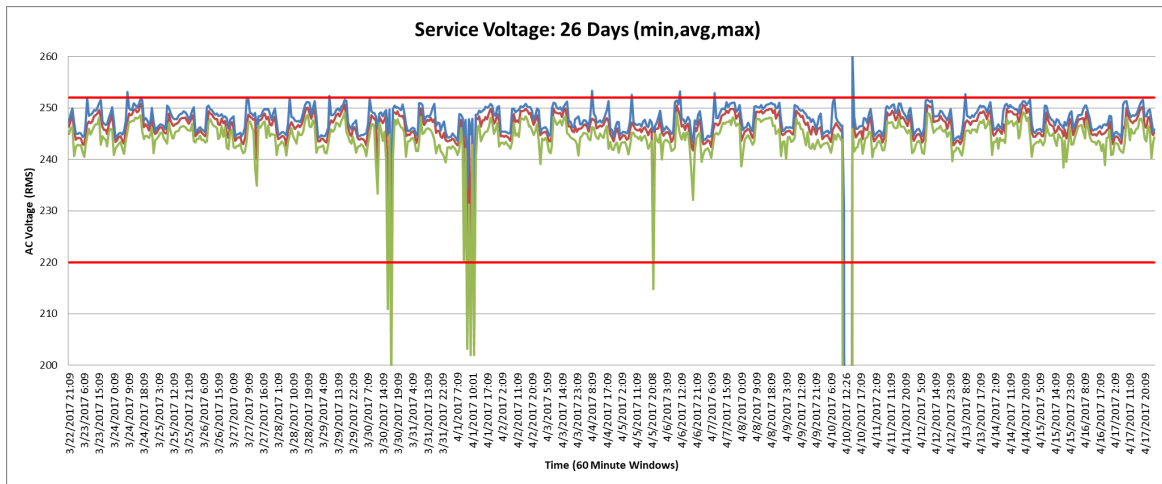


Data for One Day (Logging Interval of Two Minutes), June 2017

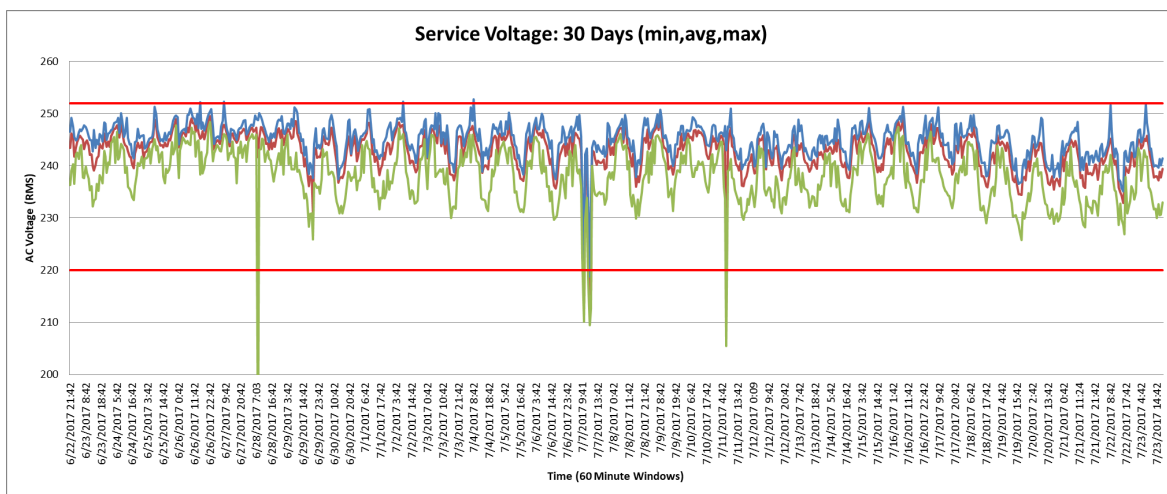
We can see that over that one single day there is variation of less than +/-5V from the average. Variation during the summer was more extreme, and the average voltage was also measurably lower (243Vrms vs. 247Vrms). Note that there are several “step” changes in the voltage, usually at the end of long trends either up or down. These are possibly the result of “Medium-Voltage Mechanical Automatic Voltage Regulators”, used by the power companies to adjust the voltage up or down in small increments to counteract trends on a sub-net.



I next measured the service voltage for about a month (as long as the batteries in my meter would last), taking the minimum, maximum, and average during 60 min windows. I did this twice: once during Mar/Apr when loading should be least (no commercial/residential A/C, etc), and once during Jun/Jul (when loading should be maximum). During these times all the major electrical loads in my house were cycled numerous times and should be accounted for in these real life recordings:



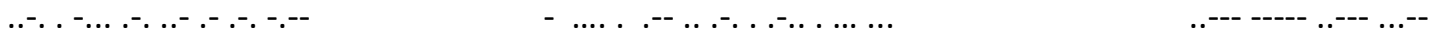
Data for 26 Days (Logging Interval of One Hour), Mar/Apr-2017



Data for 26 Days (Logging Interval of One Hour), Mar/Apr-2017

Note that there was one outage and this was immediately followed by the only significant overvoltage event (> 260Vrms). There was three short duration “brown outs” or low-voltage events, all occurring during rain/thunderstorms. Note that I won’t typically be running my linear during storm activity.

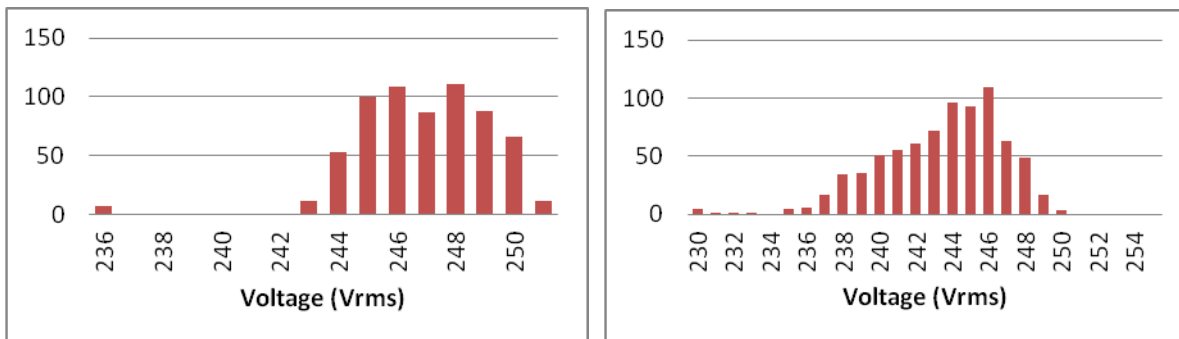
It is easy to see from the data that the service voltage at my residence on average (~245Vrms) runs higher than nominal (240Vrms), but generally within the power company’s specifications. Compared to the original 230Vrms standard the Henry 2K was designed for it is quite high. Barring any unexpected results, I can probably expect both the actual filament and plate voltages to also be higher than originally designed (we’ll measure those in the next article).



Conclusions:

For calculation of the maximum anode voltage (even spikes count for this), we find that 260Vrms is probably as high as we'll see. We want the maximum, as even a short duration above the high-voltage capacitor max could lead to a destructive short-circuit. This figure excludes the one spike that occurred when power was restored after the outage.

For the filament voltage, if we exclude the obvious bad weather events from the measurements we can see that my service voltage operated between 232Vrms to 253Vrms. This is a span of -1.4% to +1.8%, or 3.2% total span. This is well below the +/-5% on the Eimac filament voltage spec, and gives me some measure of hope that an easy solution can be achieved.



Histogram of Average Voltage: Mar/Apr-2017 (left), Jun/Jul-2017 (right)

For average voltage adjustment, I could request the utility company to adjust their service voltage. This would likely not be granted unless the service voltage was actually out of range, and would affect others around me. Some additional work that could be done is to do a seasonal series of measurements (over the course of a year), as there are possibilities for changes based on the temperature and seasonal power use. This requires some amount long-term monitoring.

Summary: While the DTE Energy supply to my house runs higher than nominal in the winter, the total variation is fortunately still less than the full +/-5% allowed (and needed for a "fixed" solution for filament voltage). The drop from service voltage to point-of-use (the outlet for the linear amp) is minimal even under load. I will run future operating calculations with a nominal variation of 242V +8V/-10V which will cover nearly all operating conditions. For a worst-case overvoltage/surge condition I will use the 260V figure.



Severe Weather Spotter Training

Saturday, April 15, 2023
10:00 am - 12:00 noon
Garden City Presbyterian Church
1841 Middlebelt
Garden City

- Bring a friend
- ◆ All are welcome
 - ◆ You do NOT need an Amateur Radio License to take this training.

The Wasaukee Amateur Radio Club Presents the 63rd

The Livonia Amateur Radio Club



53rd Annual Swap-n-Shop



SATURDAY

February 18, 2023
Sale hours: 8:30am-1:30pm

ARRL Sanctioned Hamfest

BUY | SELL | TRADE

- Amateur Radio Gear
- Computers
- Electronics
- Test Equipment
- Ham shack accessories and more

NEW LOCATION!
MONAGHAN BANQUET CENTER
19801 FARMINGTON ROAD
(north of 7 Mile)
LIVONIA, MI

- Door Prizes!
- DXCC QSL CARD CHECKING

ADMISSION: STILL ONLY \$5

(cash @ door)

Admission ticket pre-sales are available to vendors/sellers with advance table purchase, visit website for details. Same-day tables subject to availability

Talk-in: K8UNS LARC Repeater
145.350 PL100Hz

ADVANCE TABLE SALES, INFORMATION:

<https://livoniaarc.com/larc-annual-swap-and-shop/>
email: swap@livoniaarc.com
voice: (734) 648-6453



Card Checker On site

Cadillac Amateur Radio And Computer Swap



Saturday, May 6, 2023
Doors Open at 8 AM
Admission \$5.00

Mackinaw Trail Middle School
8401 S. Mackinaw Trail
Cadillac, MI 49601

Meeting for The UP Net

Talk In on
146.980
K8CAD
Cadillac
Repeater

Lots of Vendors

Door Prizes

Table, Testing, and Map Information on back

Sunday Night Net:

We still need more people to help with the net. Serving as a net control operator is a great way to get more involved in the club and to get to know more of our members. If you'd be willing to help, please contact Mat N8TW or Don KC8VCX for more details. Join us on Sundays at 9:00pm, 146.86 MHz, -600Hz offset, 100Hz PL tone. This is a purely social net, all licensed hams are welcome to join in.

Upcoming Sunday Night Net Control Operator Schedule:

- Feb. 19 N8TW
- Feb. 26 W8ROY
- Mar. 5 KC8VCX
- Mar. 12 N8TW
- Mar 19 W8ROY
- Mar. 26 KC8VCX

Can we add **your** name to the schedule?



Upcoming ARRL Sanctioned Hamfests:

- 2/18/23 - Livonia Swap, Livonia, MI
- 3/5/23 - Cave City Hamfest, Cave City, KY
- 3/11-23 - MOVARC Hamfest, Bidwell, OH
- 3/11/23 - Crossroads Hamfest, Kalamazoo, MI
- 3/19/23 - Toledo Mobile Radio Assn, Perrysburg, OH