NOV 28 2018 NOISE INVESTIGATION

COMMENT (From Feb 2019) : The S meter readings documented on the ICOM radio are quite similar to those heard on Feb 22 2019 on the Yaesu 600 at the EOC. S meters from one receiver are not necessarily comparable to those of another receiver, but in these case there is fairly good agreement.

From an email documenting my findings:

4. We were unable to hit any RMS stations on 40 meters Now I think I know why. The only "RF SIGNAL STRENGHT METER" that I have is a ham radio receiver --- so I lugged my go-box station down there with Jeff's help and we carefully made measurements on several ham bands -- each time doing an AUTO TUNE with the mfj auto-intellituner for perfect match -- and then measuring the background S-meter atmospheric + man-made static. I then took the exact same receiver home to MY station and repeated the exact same measurements at the same frequencies also TUNING the system each time for optimum power transfer. The results were VERY dramatic:

BAND	NOISE AT EOC	NOISE AT MY HOME
3.8 MHz	S8	S4-5
7.250	S6-1/2 -- S9	S ZERO
10.120	S Zero	S Zero
14.300	S Zero	S Zero

The results were so stunning that I redid the measurements a couple of times at my home -- and I had been very careful to check them again at the EOC, which is why I discovered the 40 meter noise at times reached S9 there.

I can calibrate my S meter with fixed attenuators and turn these into exact dB measures, but "in general" 1 S unit is around 6 dB (I've seen it be as much as 12 db) -- So basically...

On 80 meters, the background static at the EOC is at least 4 S units louder,, which is approximately 24 dB --- or about TWO HUNDRED TIMES STRONGER. A 200 watt signal is necessary for the EOC to hear the same loudness as my home antenna can hear a ONE WATT signal. On 40 meters, the background static at the EOC is between 6 and 9 S Units louder --- or between 24 dB and an astounding 54 dB. 54 dB is TWO HUNDRED THOUSAND TIMES STRONGER. Absolutely astounding.

Thankfully, we have some decent results on higher frequencies, but the 80 and 40 meters bands are key for medium distance daytime and nighttime communications. We're going to have to try and track down where this noise is coming from -- it is definitely man-made. It could be a bad power pole insulator within a mile of the EOC....it could be a street light, it could be lighting or computers at the EOC. Remember when we had to track down the interference at Art Grant's house? Same problem here. i have a portable Bitx40 that may allow us to rig up a simple antenna and drive/walk around with it near the EOC in the coming weeks/months and start to solve this problem. They now have a workable antenna....but they have enormous man-made noise problems. If we solve those (I did, as a 8 teenager, found several power poles that Georgia Power fixed for me) things will be far far better there for federal or ham short wave communications on lower bands.

It is always possible that the source is something we can't fix --- but we won't know that until we find it.