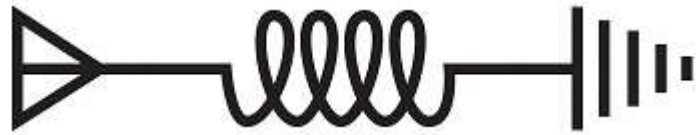


*April 2019*





**I dedicate this edition of the Hamshack to Barry Thomas, our good friend and engineer supreme who we lost last year to cancer here in Denver.**



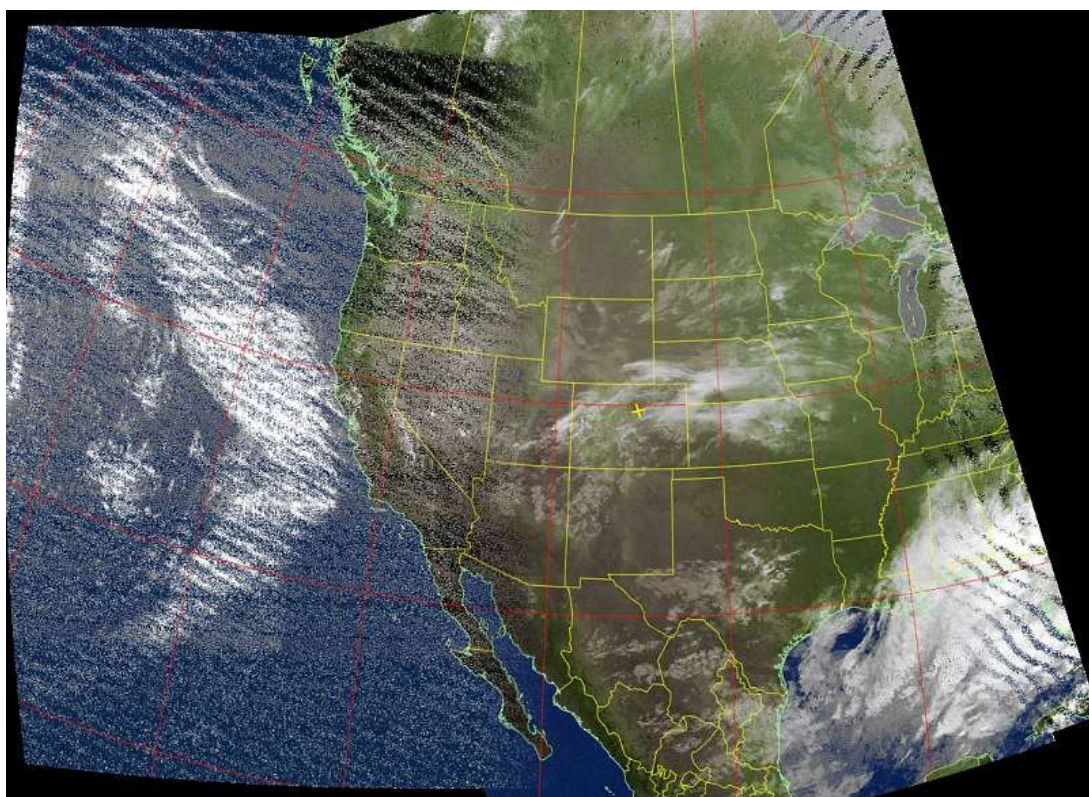
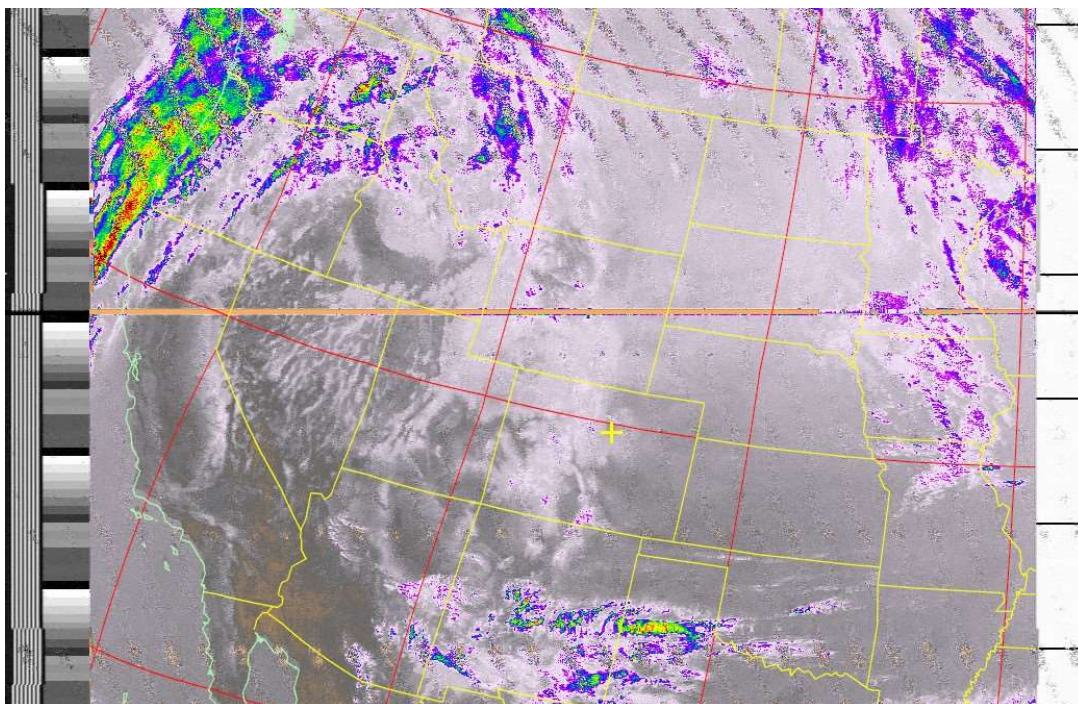
A memorial fund has been set up in Barry's memory, accessible here -  
<https://www.gofundme.com/6jman3c>

This will help his children's mother take care of the kids needs as he wasn't able to obtain life insurance because of his condition. We will miss Barry tremendously. You can see Barry's obituary here at this site:  
<https://www.legacy.com/obituaries/thestate/obituary.aspx?n=barry-thomas&pid=191007639&>

Last month I wrote also wrote about the GOES satellite going away and my buddy Lee, NØVRD in Denver conducted some experiments and says:

"Speaking of the GOES birds, I took down the 2m/440 whip in order to put up a 137 quadrafilar helix; it's basically a 2l nested loop with a 90' twist for polarization, and just recorded the attached pictures from NOAA -19". Lee did some very fine work in getting this to work and the pictures as seen below are really awesome.





From friend K-LOVE engineer Scott, NØBST:

“Saw an ingenious little device today. It’s a sniffer to find cabinet radiation in cases of suspected LTE interference. Take an empty can, about the size of a short sweet potato can and install an N connector on the end with a little 50 ohm resistor soldered across it. Hook it up to your spectrum analyzer and point it at the cracks in your transmitter and you’ll find where the radiation (if any) is leaking out. The guy who showed it to me had to put a bunch of conductive tape on his Nautel transmitter up in

Duluth MN. He got the design from a consulting firm in MI. The idea is the small can keeps the resonance well above the FM band.”

Wish we had a picture of the device. Will have to work on that for a future issue!

One of our repeaters here in Denver that I mentioned before is the Denver Water Amateur Radio Club 448.350 repeater located on the water treatment property in Lakewood CO. Mark NØXRX contacted me about the repeater after hearing that the Monday Night Net was going to try to set up a Fusion repeater and offered to allow us to be on that repeater. To that end I set up a WiresX Fusion node with my FTM-100 and WiresX box and the “SBENETCOM” Fusion room for the NET and to be able to access the WiresX digital network. I actually really like it better than DMR because it is easier to access networks from the front panel of the Fusion radios. Yaesu makes quite a lineup of radios for analog/digital operations and its repeaters are capable of automatic mode switching between analog and digital modes. The radios are capable of that as well.



This is the KDØSSP 448.350 Fusion/Analog Repeater owned by the Denver Water Amateur Radio Club (<https://sites.google.com/fotoair.com/dwarc>) in Lakewood. It operates both analog and digital modes based on Yaesu’s AMS (Automatic Mode Select) system that will repeat whatever signal it hears analog or digital. This is the repeater that my WiresX node I am operating works thru to tie into the Yaesu WiresX Network. We operate it primarily on the “SBENETCOM Fusion Room 46361. This is the first generation repeater that will be replaced soon with the latest model. I will be reporting on that soon. This repeater is located just a couple of air miles from me at one of the water treatment plants for the city of Lakewood. This is one of the nicest and well setup sites I have ever visited. They did a first class job in building this site as seen in the pictures below. I am going to be helping the folks at DWARC by looking after the repeater and WiresX operations here soon. The repeater and SBENETCOM is connected into the KGØSKY Skyhub system and thru DMR Talkgroup 310847 during most days and for the Monday night SBE Chapter 73’ of the Air Hamnet. The



fun thing about the node is that you can command it from your radio to go to other rooms in the Fusion network. *America Link*, *Colorado Link*, the *MinWis* (Minnesota/Wisconsin) and *TexasNexus* and others are very popular and feature a lot of traffic to different parts of the world too. I had a fun QSO with a ham in Japan one night with my mobile Fusion rig. My across the street neighbor Bernie N3ZF has had a great time using the Fusion node and repeater making contacts literally all over the world. And at today's time of low sunspot activity on the HF bands this mode is really gathering many new hams and old timers to keep in touch and make new friends, of course the essence of ham radio.



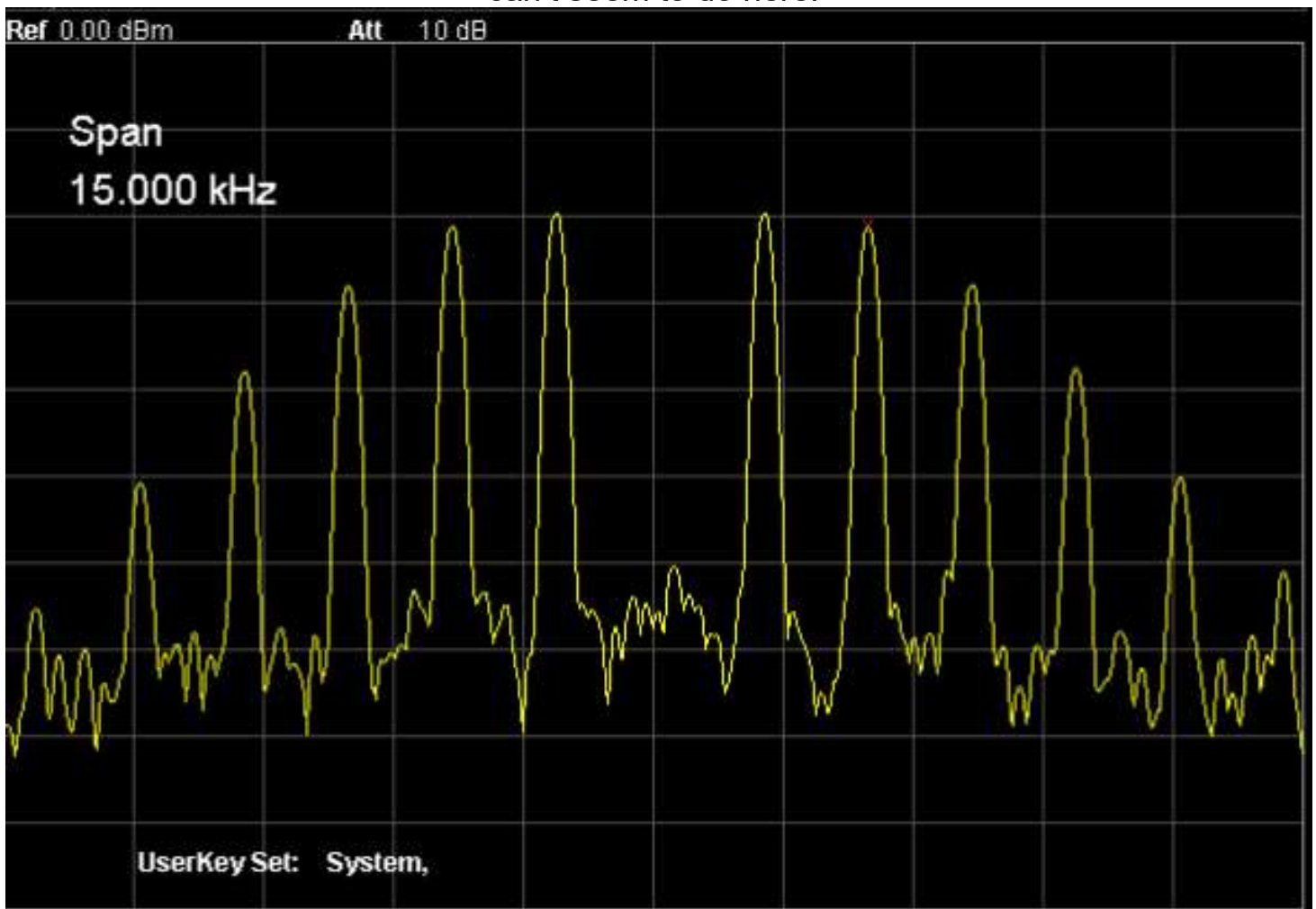
**The DWARC 448.350 Repeater site & antenna at the very top of the 150 ft tower**



**Mark NØXRX of DWARC with the 448.350 Fusion repeater**

And DWARC also operates a Fusion repeater on 2 meters here in the Lakewood CO area. Its on 147.210 and will detect analog or digital as well, analog with a 100.0 hz tone.

Another project that Skyler KGØSKY and I have been working on is the use of the Raspberry Pi3 computer and the MMDVM audio interface board to make a hotspot for DMR, Fusion, P25 and other modes with the use of a Motorola GM 300 radio as the node radio. So, far we haven't been very successful although there are many internet sources that show successful implementation of the system. So far though no go for us as we have wired and tuned the system for proper operations, and the spectrum analyzer shows proper waveforms, but we are still not getting any better than sporadic audio blips being transmitted. We had my system at one time operating at least in Fusion mode but it quit and so far we haven't been very successful at making it work again. Fusion audio comes out garbled and I haven't been able to get DMR mode to work at all. This is the waveform you are after and with the center frequency you are using in your radio and the span set to 15 khz. We are able to achieve this using the tuning pots and setup in the SSH from the software, but so far no go to passing the audio. Wonder what kind of magic that the folks on the internet are making that we can't seem to do here.



And if it stumps KGØSKY, well then..... For now will use the store boughten Zumspot

## Tuning a MMDVM board using the Pi-Star SSH capability

```
Pi-Star:3.4.17 / Dashboard:20190402

Pi-Star Digital Voice - Expert Editors

Dashboard | Admin | Update | Upgrade | Backup/Restore | Configuration

Quick Edit: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMR GW | YSF GW | P25 GW | NXDN GW
Full Edit: DMR GW | PiStar-Remote | WiFi | BM API | DAPNET API | System Cron | RSSI Dat Tools: CSS Tool | SSH Access

SSH - Pi-Star
Last login: Tue Apr 9 09:41:18 MDT 2019 from 10.101.1.65 on pts/0
Linux pi-star 4.9.35-v7+ #1014 SMP Fri Jun 30 14:47:43 BST 2017 armv7l

PI-STAR v3.4.17

From your Windows Computer:
Pi-Star Dashboard: http://pi-star/

From your Apple iPhone, iPad, Macbook, iMac etc.
Pi-Star Dashboard: http://pi-star.local/

Pi-Star's disk is read-only by default, enable read-write with "rpi-rw".
Pi-Star built by Andy Taylor (M0K0PMZ), pi-star tools all start "pistar-".

pi-star@pi-star(ro):~$
```

[Click here for fullscreen SSH client](#)

<https://www.f5uui.net/en/installation-calibration-adjustment-tuning-mmdvm-mmdvmhost-raspberry-motorola-gm360/5/>



**The MMDVM, RaspberryPi3, and the Motorola GM300 experiment**

Speaking of KGØSKY earlier, using parts he bought and put together in the proven method, he was able to make quite a nice profit selling hotspots at a local hamfest



recently. He even programmed up (on the "SPOT") ☺ the sold units with the customers callsign and WiFi connection so they would work when they got the unit home. He also had an external monitor setup to demonstrate the system, 3 different radio's to test each unit sold, and managed to sell all his units! Great job and VERY ENTREPENUER-ish Skyler! Need one or want one? Let KGØSKY know!



**The setup!**



**THE SALE!**

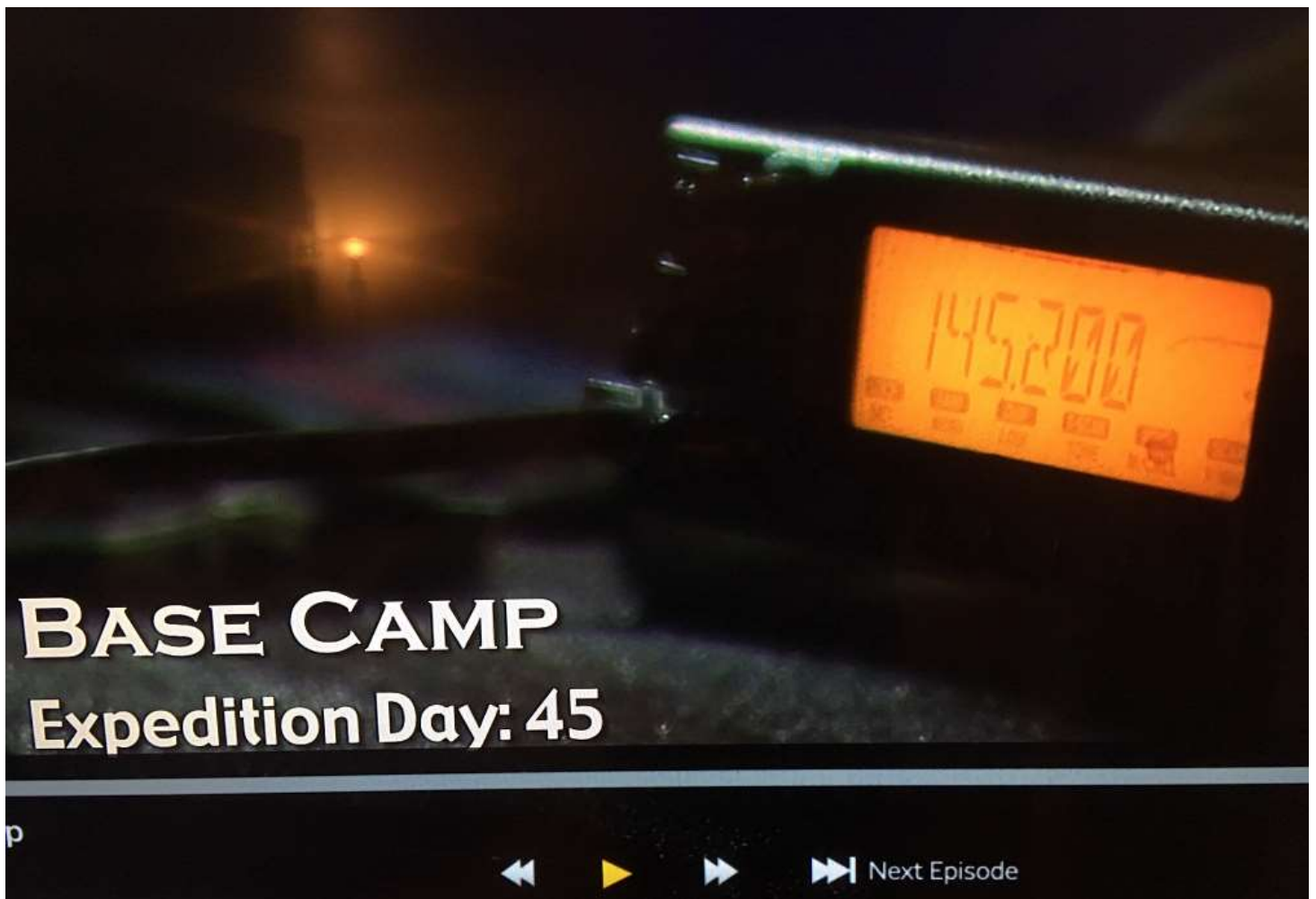


## **BY THE WAY, the TIP OF THE YEAR, SO FAR**

One of my co-workers in California in our absolutely EXPERT AMAZING second to NONE IT Department (can you tell I like these folks?) turned me on to this website for scanning files before install and webpages for nastiness!

**<https://www.virustotal.com/#/home/upload>**

Bookmark this one friends! Really does the trick for taking care of the stuff that you DON'T want to step in of the computer/internet canine (worst kind I can think of) variety. Like the way I didn't type what I really think? CHECK IT OUT!



Once again, watching a series on Netflix I saw what I think is an Alinco rig they were using for coms on Mt. Everest talking to the people on the mountain. VERY COOL!

## The Hamshack Archive Links

<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201701Jan.pdf>  
<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201702Feb.pdf>  
<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201703Mar.pdf>  
<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201704April.pdf>  
<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201705May.pdf>  
<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201706June.pdf>  
<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201707July.pdf>  
<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201708Aug.pdf>  
<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201709Sep.pdf>  
<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201710Oct.pdf>  
<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201711Nov.pdf>  
<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201712Dec.pdf>  
<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201801Jan.pdf>  
<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201802Feb.pdf>  
<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201803Mar.pdf>  
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<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201812Dec.pdf>  
<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201901Jan.pdf>  
<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201902Feb.pdf>  
<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201903Mar.pdf>

4 Years AGO: <http://www.smpte-sbe48.org/wp/2015/04/>  
5 Years AGO: <http://www.smpte-sbe48.org/wp/2014/04/>  
6 Years AGO: <http://www.smpte-sbe48.org/wp/2013/04/>



Society of Broadcast Engineers



The Association for Broadcast and  
Multimedia Technology Professionals

## **SBE VHF/UHF Chapter 73' of the Air HAMnet**

**The SBE Chapter 73 of the air UHF/VHF Hamnet is today (Monday) at 9 p.m. ET (6 p.m. PT) worldwide via Echolink KG0SKY-L, node 985839 (available via computer and radio), Allstar node 46079, DMR Talkgroup 310847, AND you can join us via Yaesu FUSION SYSTEM "YSF55411 "Skyhub SBE LINK - SBE Linkup". Try it with your hotspot. The SBE UHF/VHF Hamnet is based in Denver on 449.450, pl 103.5, and the 448.350 Fusion repeater, linked to WiresX room "SBENETCOM" node 46361**

**And NOW BACK: WØKU 449.625, pl 141.3 ALLSTAR NODE 40368**

**You can listen on the LIVE STREAM thru Broadcastify at:**

**<https://www.broadcastify.com/listen/feed/25448/web>**

**or <https://hose.brandmeister.network/group/310847/>**

**We hope you'll join us.**

**See the latest edition of "The KE0VH Hamshack" for more information  
at [www.ke0vh.com](http://www.ke0vh.com).**

The Society of Broadcast Engineers

9102 North Meridian St, Suite 150  
Indianapolis, IN 46260

317-846-9000 ■ Fax 317-846-9120



**73' from the "Shack"**