



CHEESE BITS

W3CCX
CLUB MEMORIAL CALL

ARRL
Affiliated
Club



Volume LVI

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Number 5

PREZ
SEZ:

Wow, what an April! I can't believe it's over, but that means it was busy and things are moving along at a wonderfully fast pace.

The Sprints were a blast, even with mediocre conditions. How many contacts did you make? I had to miss the microwave Sprint, but did manage the other three; that's right, four sprints in one month, and the last Sprint is this coming week on Saturday. **Don't forget to turn on your six meter station starting at 7 PM May 9.**

April also brought us a fantastic ARRL Night at the club meeting, with two League officials in attendance. **Thanks to Matt Wilhelm, W1MSW and Joe Ames, W3JY** for making our ARRL night meeting a reality.

We spent plenty of time talking about changes in the rules for all VHF contests going forward. Assistance is now permitted for all categories. There is no new category for assisted contacts, but it is now available to all participants in any contest above 50MHz. Here's how the rule reads: **“spotting assistance or nets including but not limited to DX-alerting nets, internet chat rooms, APRS and other packet, reverse beacon networks and repeaters to identify stations available for contacts and to announce (self-spot) their availability for contacts.”**

I know that this is a contentious issue for some long time testers, but the league felt that they had to do something to bring back activity which has been

waning for some time.

We have been seeking ways to make the goal of more activity a reality. To that end there was a workshop dedicated to the topic of ways to encourage and create more activity at the recent NEWS conference. **Several initiatives** have been created out of that gathering; not the least of which is a group to research and promote the use of APRS for tracking rovers. Turns out that some have been using it for a while, but now it is permitted for the rest of the contesting community to use the information.

Another major factor in creating increased activity is the use of existing DX clusters to spot stations during a contest and during normal operating times. Many of you use either **ON4KST or DXMAPS** during normal activity times, but now we can use these kinds of information pages during a contest. For some of us however, having another page or two or three to check during a contest is just not going to happen when things are busy. Consequently **loggers have been built with spotting availability windows already within the logger.** This way you can see a spot and a simple click takes you to the band and frequency where the station has been spotted. We have a little work to make this a reality, but the core functionality is in place and we need just a few tweaks to fashion it for efficient VHF use.

Here's another interesting change: **“Only one transmitted signal per band is permitted at any given time.”**

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PACKRAT BEACONS - W3CCX/B

FM29jw Philadelphia, PA
50.080 144.284 222.064 432.286 903.072 1296.245 MHz
2304.043 3456.207 5763.196 10,368.062 MHz (as of 1/08)

MONDAY / TUESDAY NIGHT NETS

VHF/UHF Monday:

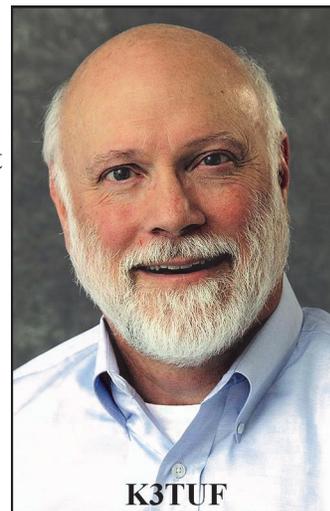
| <u>TIME</u> | <u>FREQUENCY</u> | <u>NET CONTROL</u> |
|-------------|------------------|----------------------------|
| 7:30 PM | 50.145 MHz | N3RG FM29ki, WA3QPX FM29di |
| 8:00 PM | 144.150 MHz | N3ITT FN20ki |
| 8:30 PM | 222.125 MHz | KB1JEY FN20je |
| 8:30 PM | 224.58R MHz | W3GXB FN20jm |
| 9:00 PM | 432.110 MHz | WB2RVX FM29mt |

Microwave Tuesday:

7:30—8:30PM Coordinate QSO's on 144.260 with net controllers, for all Microwave bands you'd like to work. Also setup Q's at w4dex.com/uhfqso

Visit the Mt Airy VHF Radio Club at: www.packratvhf.com or www.w3ccx.com

So now it is possible to be **calling CQ on 5 bands (or more) at once.** W3SZ has this capability built into his station as we saw during his presentation at NEWS. There is a valuable exception to this rule, in that it does not apply to bands used for assistance. So APRS can be running on 144MHz and it does not count as a band for the purpose of this rule.



K3TUF

I had the kind **assistance of 14 Packrats** at our trailer party last month. We are getting the trailer ready for it's maiden voyage on Camelback. This is proving to be an exciting year. We want to thank Doc for all of his faithful service as our "Galley Master". Attempting to fill his shoes this year will be Len, N3NGE. Serving as 6 and 2 meter band captains will be K2WB, KC2TN, W2SJ. Moving to assist KA3WXV on 432 is N3YMS. The rest of the bands stay the same. Put the fun weekend on your calendar and come enjoy the propagation. **June 12-15, be there!**

This is Dayton month, and it happens before our meeting this month, so the meeting is a Hamvention wrap up.

One very important thing on your to do list has to be registering for the **Mid Atlantic VHF Conference.** The web page will be up before the arrival of your Cheese Bits, please go and sign up at Packratvhf.com.

I'll be looking for your registration to come in.
Let work on lots of bands,

Phil, K3TUF

Trailer Party At K3TUF

By Phil, K3TUF

April 11th was a pleasant 60 degree spring day with just enough sun to make being outside very comfortable. More than a dozen packrats descended on the QTH of K3TUF to eat a reasonable lunch and get to work emptying the new packrat trailer.



It didn't take long to get the contents of the trailer spread out around the wooded area where we are currently storing the trailer so that real work could begin.



Once emptied several volunteers took on the task of replacing the vents on the top of the trailer so we don't have to keep plastic over them to keep the water out.



We spent a decent amount of time planning on how we would like to use the space inside as operating positions. With a large side door and the ability to close the rear ramp it's going to be a valuable enclosure for operating duty during the contest as well as for transportation of equipment to the contest location.

Another group started sorting through the many and various tower sections that we have; all the while the club quartermaster was diligently marking up his clipboard to establish an inventory.



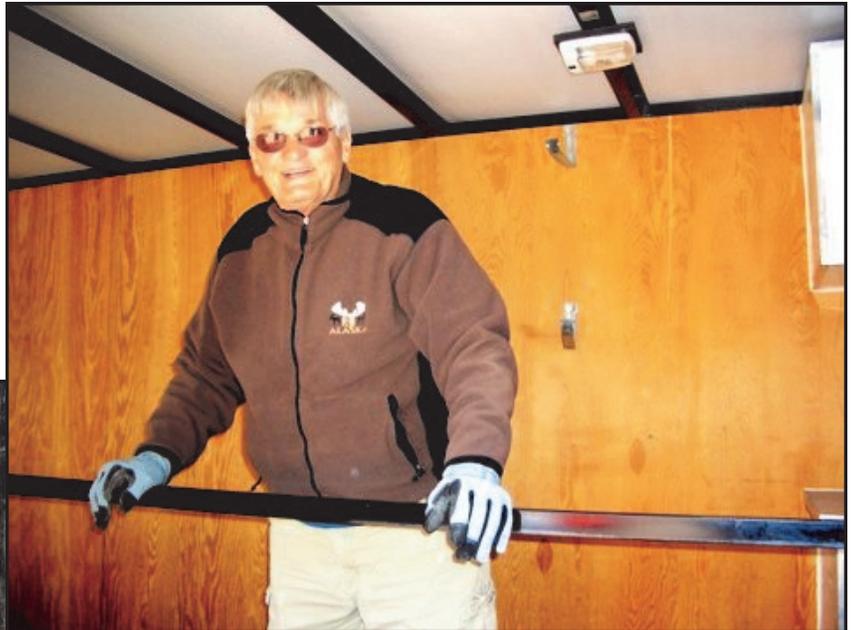
We needed to determine what would be needed this year, so the band captains collaborated on their needs and once decided, that gear started being loaded back into the trailer.

The remaining towers were transported and are now stored in what Bert affectionately calls the 'bone yard' .

We certainly will be making some of this inventory available to club members once the board decides how much we should keep.

While the band captains were continuing their conversations the rest of the group was shuttling material back through the woods using the tractor with fork and pallet.

Thanks to all the volunteers: **WA3GFZ, W3SZ, K3JJZ, K3IUUV, N3YMS, KB1JEY, KC2TN, N3RG, K3TUF, K0BAK, KA3WXV, KA3FQS, K2WB**



TNX K3JJZ & K2WB for the PIX!

Packrat Spring Sprint Reports

2 Meter Sprint

K0BAK/R : 4 grids activated, 45 QSOs, 11 grids, 27 multipliers Total Score = 1,080

Rover in FN20, FN10, FM19, FM29. This was my first rove in a sprint. 11 grids contacted. First contest use of transverter and Flex radio instead of "all mode" radio IC-7100. Quite happy with better reception and having a panadapter. Increasingly frustrated not knowing code, probably missed several QSOs. Had a lot of fun, thanks for all who participated, especially those hanging in till 11pm. Special shout out to the stations contacted from all 4 grids: N3NGE, KB3OZC, K3TUF. Longest contact I think was KD4AA in FM17ur from FM29ax, about 157 miles.

W2BVH: 38 Q's, 12 Grids, 7550 KM

W2SJ: 15 Q's, 6 grids High SWR, low power (25W)

K2LNS: What a special day. I had a young gentleman from our local club stop up to operate. I was doing my best to get him familiar with the operating system. When the contest started the rig was running as usual. Slowly hunting and pecking. He had worked about 30 stations when I noticed the receiver gain was very low. I checked the SWR and immediately shut down. We had **500 watts of reflected power**. This system has ran flawlessly for the better of 10 years. Has to be a build up of condensation from the bad winter months; hopefully it's just in the jumper cable. Meanwhile I was running my computerized engraving machine in the other room. When I went to check it's progress, it had shut down. To make a long story short, the power supply in the computer burnt up. A small transformer got so hot, it burnt the circuit board. I've been making trophies for over 40 years for young kids. There is nothing like seeing a seven year old light up when he has his prize in hand. Yesterday I had to drive 300 miles to buy a used engraving machine similar to the one I have. It turns out this unit was not working either, but by 1 am this morning we pieced both units together, and were able to get one unit working. Monday was not a good day, but when the thought of living in the Pocono's vs. perhaps being in Iraq or Iran, things are good. 73's Herb K2LNS

K3EGE: 106 contacts in 31 grids Score = 3,286 points

Operated the 2 Meter Sprint from N3NGE. Both conditions and activity seemed to be good for a change. Best DX was K9MRI in EN70 to the west. Best to the south was FM06, FM16 FM26, FM07 and FM17. Other distance grids included EM89, EN90, EN91, EN92, FN04, and to the northeast got up to FN43. Best Sprint ever from Len's

KA3FQS: 46 Q's, 15 Grids, 7849 km. Tom

222 MHz Sprint

W2BVH19 Q's, 6 Grids, 2324 KM

About half the Q's were CW. Well worth doing! Powered up around 7:00, on the air starting around 7:40. (There's always something, this time it was a loose connector on the sequencer and a loose connector for power to the antenna relay).

222 MHz Sprint (cont'd)

W2SJ: 19 Q's, 4 grids

Had fun on the 222 Sprint. It was quite active but conditions seemed down. Worked many with CW which saved the day. I decided to try ON4SKT chat to set up a contact with Tim, KD2AVU in FN30 thinking it would not be a problem. We exchanged partials, but could not complete. I sent him a note blaming my compromise halo antenna. He wrote back, "don't worry, my antenna is in the attic!"

K1DY/R (non results)

Well I had the best intentions, even a few skeds, but with the frost starting to come out of the ground here in central Maine, my rover vehicle fell in a sinkhole right in my dooryard and I couldn't get it out, even with 4 wheel drive!! I'll try to be on for 432 next week from FN55 and FN54..

KA3FQS: 18Q's, 8 Grids

I thought that the band was quiet but managed to work FN43 and FM25 then I noticed that the attenuator was turned on, on the IF rig. I heard the VE3 and was about to try to work him when my rotator developed a mind of it's own and rotated my antennas to the south and left them there. I took that as a sign to knock off for the night.

K0BAK/R: 14 Q's 10 Grids Total Score 140

4 grids activated, only 1 QSO with the same 4 grids. Not much phone activity, all contacts were in local grids. Wasn't worth roving. Much different from 144 sprint last week. Or maybe I have a problem on 222.

K1DS: 42 QSOs, 18 Grids, Total Score 756

I was able to get the rover van out of storage about 2PM and drove it to my home, only to find that I had inadvertently kept the LO for the 24GHz transverter powered all winter. Luckily it has a low draw, and I have a pair of 100A marine cells in parallel for that circuit. The batteries still measured 12V. The 10A charger was applied to the pair of batteries and they sucked in new juice for a few hours before the sprint. During my operating time, I was charging through the van's alternator and I watched the pair draw about 30 amps to refill! My usual approach to the sprints is operation in the heart of Packrat territory from FN20ie and FM29hx, and again, this turned out to be a fruitful plan.

I found Dan, WA3NFV on 223.5FM right before the event, and we chatted until the starting bell, then exchanged grids and put him in the log as QSO #1. Worked through the crowd of local Packrats and friends and then turned the beam south to work N4EME in FM25. Signals reports exchanged were 5x2 and 5x1, but that's an exciting haul for my rover station with its 120 watts and 10 element Yagi. Turning the beam to the north, I worked FN22, FN12, FN42, FN04, FN43, and FN30. VE2DFO responded to my CW CQ! By 8:20PM things had slowed a bit, so I made the 30 minute drive to the Community Center on Rte 3 in FM29.

As soon as I arrived and was set up, I worked K1TEO in FN31. Too bad that I couldn't catch that grid when I was back in FN20! Worked through many of the locals and those in the northeast again, including 2 more QSOs with Pete, K0BAK/R as he moved between FN20 and FM29 also. I was about to pull the plug, as I approached the 20 minute mark with no QSOs, when all of a sudden I got a string of contacts from the northeast. By 10:20PM, I lowered the mast and was pulling out from the parking lot, when WA3DRC showed up on FM, so I was able to put him and Dan again into the log from FM29. I rushed homeward and just 5 minutes before the contest ended, back in FN20, I sent a few CQ's on CW out to FN31, but no takers. Lots of QSB for this event, and if you were patient, callers popped out of the noise, only to fade again for their exchange, but within a few minutes, they came up again just enough to get the grid report. TNX for all the activity

432 MHz Sprint

W2SJ: 12 Q's, 5 Grids

N3RG: 28 Q's, 13 Grids, 7296 KM

Got home from shopping spree with xyl (you all know the kind) and on the air for a late start. First qso with KA2LIM 8:13! Worked several new grids including two VE stations. Had fun!

K1DY: Not sure of the score, does that matter?

I got to my normal FN55 site just after the start of the contest. Ran a sked with K3TUF in FN11 (FN10? - ed.) and heard nothing. Conditions seemed pretty flat. By 9PM I worked 9 stations in 4 grids (FN30, FN31, FN42, FN43), then at 9 had a sked with WB2RVX in FM29. I actually heard (both) calls from Mike, but it was pretty clear he didn't hear me. This was around 9:08 local. I quickly shut down and rushed down to FN54 and got reset just before 10. There really was NO ONE left on the band, that I could hear anyway. I knew K1TEO would eventually get on some time after 10 because he told me that before the contest. So I hung out and then worked Jeff in FN31 for my only QSO from my second grid and that was it. I shut down around 10:30 with nothing more heard and lots of CQ's. So here's a problem for me as a rover: In order to be classified as a rover I have to activate 2 grids minimum. I assume that means I need to make at least one QSO from each of 2 or more grids. Assuming SOME travel time between grids (in my case about 40 minutes) and if everyone shuts down before 10 because of lack of activity, it really makes operating as a rover difficult. It kind of makes a 4 hour contest 2 hours long even though I was willing to operate the whole 4. I know it's a work night. Anyway I had fun and thanks to those who pointed this way and those who told others to point this way. Best DX NY2NY in FN30.

WB2RVX: 42 Q's 23 Grids, Total Score = 966

This was my first use of clusters which added a new dimension resulting in Q's that I would have otherwise missed. It will be interesting to see how this plays out in one of the major VHF tests as more people participate in spotting. Condx were fair with the typical slow rolling QSB for this band. Some contacts took several minutes to complete waiting for the peaks but that's half the fun!(Isn't it?) CU in the next test.

W2BVH: 25 Q's, 8 Grids, 3653 KM

Worked lots of weak signals, all in familiar grids. Couldn't finish Q's with AF1T or KC2TN, otherwise I worked everyone I heard with my astounding 12 watts. BTW, 4-500 Watts to follow some time later this year (I hope).

K0BAK/R: 11 Q's, 5 grids, Total Score = 55

Didn't get to grid intersection due to radio problems, barely got the rover set up and parked at a local spot at 7pm. Made 11 QSOs in the first half hour, then traveled to FM29. I just started calling CQ in FM29 when I was shooed away by a VA hospital cop. Aborted rove; activated just one grid. However, I was pleased the problem I had on the Monday night net was not due to my new transverter or new amplifier, and getting 5 grids in about a half-hour is pretty good for me. Also, note my first rove was written up in a sidebar in the Jan-Feb CQ magazine in the CQ WW VHF Contest article, on page 24.

WA3QVU: From my minimal setup (Cx-333 vert) in Willow Grove, I only worked 2 stations. Rick (K1DS) and Mike (WB2RVX).

KA3FQS: 18 Q's, 5 Grids

I was a bit handicapped with a rotator that would not work.

432 MHz Sprint cont'd

K1DS: 30 Q's, 11 grids

I considered using one of my 9wl yagis, my TS2000 and my 180W amp with preamp in the rover, but plans changed. I was scheduled to pick up the XYL at the train station at 9:48PM from her day in NY, so my operating time would be cut to only 2 hours. With that in mind, I put the 10 el rover beam in place and used my usual FT736R with the 100W amp. Drove up to the old Nike site, aligned the beam with the sun at 279 degrees and turned on the rigs. Forgot to raise the antenna an extra 3' over the roof, but no great difference. I only realized that when I went to drive home! With my iPhone, I connected to the ON4KST 144-432 IARU Region 2 chatpage and noted it was working and there were already notes from WZ1V and VE-land. Connected with K3TUF, W3SZ and K0BAK/R in the opening minute. Worked several of the locals and club members, and then tried several times to connect with WA1RKS in FN32 but no go. Managed to find W9KXI in FN12 and we worked easily after some prompts from the chat page. I noted K3TUF and WB2RVX working the long hauls, and tried to hear some of the stations they were working, but no luck. Continued calling on SSB and CW and turning the antenna. Lots of noise from 210-180 degrees that prevented me hearing anything from that direction. Found K8ZES in FN02 and VE3DS in FN03 for my long hauls. Worked K1WHS in FN43 at 00:49 for my last QSO and then headed home to switch vehicles and pick up the XYL. Finished with 30 QSOs and 11 grids, a fun evening and proof of the usefulness of ON4KST chat page in my rover with use of a smartphone. Got to remember to bring a charger cord for it in the future for extended use.

News from Nepal Earthquake

This is the reply from Mark Zimmerman, who was at the heart of the devastating earthquake in Nepal. Mark Zimmerman is the son of Packrat W3ZD (SK, formerly W3LHF), Dave. Dave was a very active member of the club for many years, serving as net control, June contest chairman, my VP, and the liaison station operator for the club Rodanthe expedition. Mark was one of the "youngsters" that went along for the adventure. Mark has been a Missionary Dr. in Nepal for many years, and a few of us keep in contact with him through email. It's the sort of news items that Helen would always include.

Bert, K3IUV

Thank you for your e-mail which we just received today. Please be assured that our family is well and our apartment, like many modern buildings in Kathmandu, withstood the earthquake. We are waiting for electricity and, related to that, water supply and internet services, to be restored in our area. We are deeply grateful for how little we have been affected, while being acutely aware of how many have lost family, homes and livelihoods, especially in the rural districts surrounding Kathmandu. Please do pray for the hundreds of thousands in these areas who are waiting outdoors for aid to arrive.

Sincerely,
Mark, Deirdre, Zachary & Benjamin.

A HOMEBREW REFLOW OVEN — PART 1

By Roger W3SZ

Note: Look for footnotes at the end of part 3 in July

I. Introduction.

Hand soldering of smaller multi-leaded SMA components can be extremely challenging. Hand soldering of ball grid array (BGA) devices is even more problematic. And complex projects involving dozens of SMA components, even though they can be done by hand soldering, can be extremely tedious.

For these reasons, as my projects have become more complex and have involved ever smaller components, with more and more leads per component, I have wanted a better solution than hand soldering. After looking at possible alternatives to hand soldering such as hot air guns¹ and hot plates², I decided that a reflow oven³ would be the best choice for projects with one or more of the following characteristics: very small SMA components, BGA devices, a high device count.

I looked at commercially available reflow ovens, and found that they were priced starting at \$300⁴, with most of the units that looked reasonable in terms of quality, reliability, and features being priced at \$600⁵ and up. I completed this project in 2013. At that time there had been one KickStarter reflow oven project, called RefloLeo⁶. Since then there have been several more, including Zallus⁷, Reflowster⁸, ControLeo2⁹, and several others¹⁰, some of which were canceled¹¹.

In addition, there were then and now are an even greater number of web pages describing homebrew reflow ovens, all based on simple toaster ovens^{12 13 14 15}. I have given references for four such Web pages, but there were dozens available. Most of these projects had in common three key features:

1. They looked very easy to construct
2. They looked like they would be much cheaper than the commercial alternatives
3. The builders were uniformly happy with the performance of their creations

In addition, I noted that there were a number of discouraging reports on the less expensive commercial ovens (e.g. the T962A), with reported problems including uneven heat distribution, burning of PCBs, etc^{16 17}. Although some solutions to these problems were offered, it seemed to me to make more sense to look for a system that did not have sub-optimal results and required correction in the first place.

I was not enthusiastic about the KickStarter projects because each of them was in some way limited, and I felt that I could, myself, assemble a more versatile, more extendable controller / reflow oven. So I decided to make my own reflow oven, using a PID¹⁸ (Proportional-Integral-Derivative) controller to control the temperature.

After reviewing the various projects found on the web I decided to use the osPID¹⁹ as my PID controller because it was very flexible, easy to use, and had a nice software package backing it up²⁰, and because a user reported good results using it for a reflow oven controller²¹.

Furthermore, because the osPID is open source, I had confidence that I could write new software for it if necessary (it turned out that was not necessary).

The name of the osPID is derived from “os” for open source and PID for Proportional-Integral-Derivative. The osPID is a collaboration between “Rocket Scream Electronics”, creators of the Arduino Reflow Controller Shield²², and Brett Beauregard, creator of the Arduino PID Library²³. It consists of an Arduino compatible board, an 8 x 2 alphanumeric character LCD display, a 4 push button navigation interface, a USB converter chip for communication with a PC, and input and output cards including a type “K” thermocouple input port. All of this is enclosed in a PID form factor case²⁴.

Other than odds and ends, the components for this project consist of:

1. Toaster Oven
2. osPID controller
3. Solid State Relay
4. Type “K” thermocouple

I decided to use a Panasonic NB-G110P Flash Xpress Toaster Oven, which I obtained from Amazon for \$101.99. Many of you will have an old toaster oven. If you use that, you will reduce the cost of this project by 50%. I chose this oven because it was used with good results by someone who had built a reflow oven using the osPID as a controller, so I knew that it would do the job.

I obtained the osPID from RocketScream for \$85.00²⁵. I got my Solid State Relay (SSR) from Amazon. It was an Amico SSR-40 DA Single Phase Solid State Relay SSR 40A 3-32V DC 24-380V AC with Heat Sink and it cost \$11.45. I could have gotten one from eBay for less than \$5 without a heatsink²⁶. The Type ‘K’ thermocouple was a model SEN-00251 Thermocouple Type-K Glass Braid Insulated from SparkFun, which cost \$13.95²⁷.

So my cost of major components, including toaster oven, was \$212.39. For this price I got a unit that I believe is better than commercial units costing several times my expenditure, and I have the pride of using a homebrew creation rather than a commercially produced appliance when I reflow solder my homebrew PCB projects.

If you have your own toaster oven, then your costs would be limited to the OSPID, the SSR, and the thermocouple, the cost of which totals \$110.40.

From my junkbox I got the cabinet into which I installed the SSR and the connectors I used to connect the OSPID and the toaster oven to the SSR.

II. Theory. Reflow Soldering.

Reflow soldering is the process in which solder paste is used to temporarily attach electrical components to contact pads on a circuit board, after which the entire assembly is subjected to controlled heat which melts the solder and permanently connects the component to the board physically, and with an excellent low-resistance electrical connection as well.

There are four consecutive stages to reflow soldering. These phases are generally called preheating (or ramp-to-soak), soak, reflow, and cooling. Illustration 1, on pg. 12, shows a reflow profile for Kester Easy Profile 256 No-Clean Solder Paste (EP256), which is what I use.

As you can see in this image, for Kester EP 256, the preheat stage lasts 90 seconds, and takes the temperature from 20 C up to 150 C. During this stage the solvent in the solder paste begins to evaporate. If the rate of temperature rise is too low, evaporation of the volatile components of the flux is incomplete. If the rate of rise is too fast, it can lead to component damage, cracking, and spattering of solder paste.

Kester Reflow Profile Alloy: Sn63Pb37 or Sn62Pb36Ag02

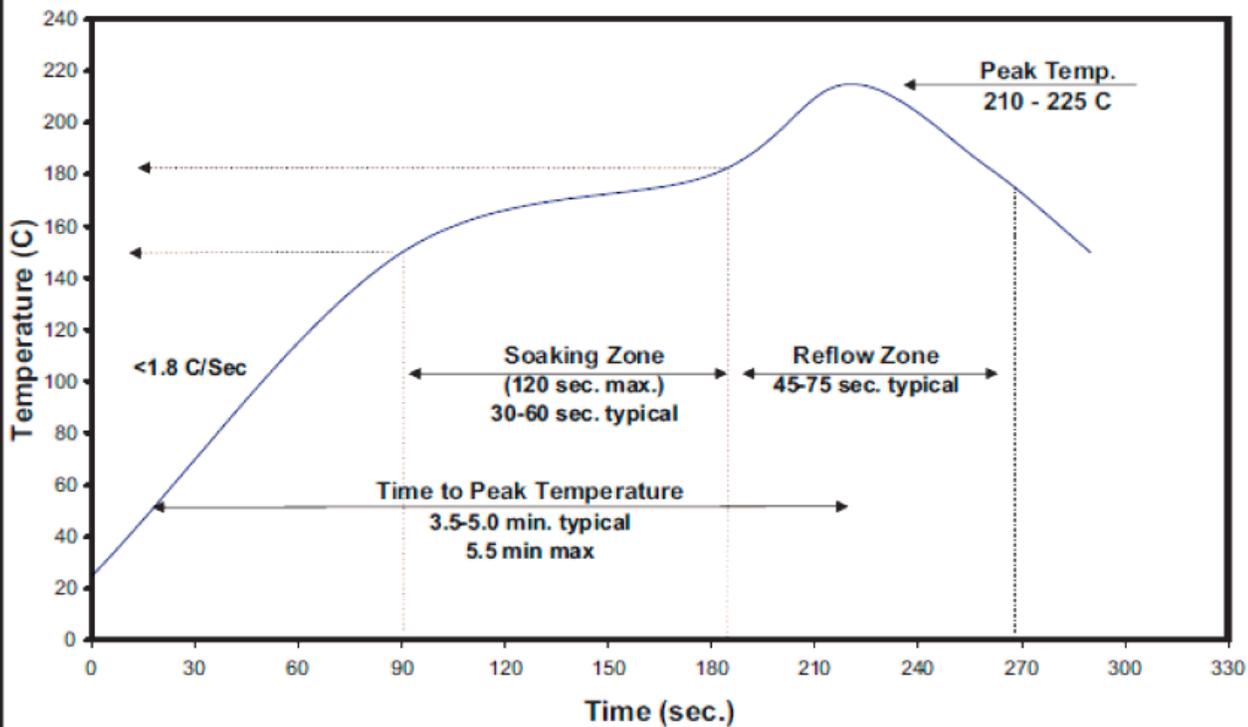


Illustration 1: Reflow Profile for Kester EP256

For EP256, the soak stage runs from 90 seconds through ~190 seconds. During this stage evaporation of the volatile components of the flux is completed and the flux is activated, initiating oxide reduction on component leads and PCB pads. If the temperature during this phase is too high oxidation of the paste, pads and component leads can occur, as well as solder spattering and balling. If the temperature is too low, then the flux may not activate fully.

For this solder the reflow stage extends from ~190 through ~265 seconds. During this stage the solder becomes liquid (melts) and surface tension is reduced, allowing metallurgical bonding and giving a good solder joint. Maximal acceptable peak temperature is determined by the component, with the lowest tolerance for high temperatures. Excessive peak temperature, in addition to damaging components, may foster intermetallic growth and brittle solder joints, and cause PC board damage. Insufficient peak temperature may prevent adequate reflow. If the time of this stage is too long, then flux may be prematurely activated or consumed, leading to a dry solder joint. Excessive length of this stage may also cause intermetallic growth and brittle solder joints, just as does excessive peak temperature. If the duration/temperature for this stage are insufficient, then inadequate removal of solvent and flux, as well as inadequate reflow may result, leading to cold, dull, defective solder joints as well as solder voids.

The cooling stage for EP256 begins at ~265 seconds. During this stage the board and components are gradually cooled to ambient temperature. A cooling rate of 4C/sec is often suggested. Proper cooling rates minimize the chances of thermal shock and intermetallic formation.

Next month, in Part 2, we'll discuss the specific requirements for the major components (oven, heating elements, controller and thermocouple). In July we'll describe the construction of the oven, the software used to drive it and the solder quality resulting from using the oven.

KP2 EME

I am just back (4/21/15) from the KP2/W3XS dxpedition. I had a very exciting and successful trip although the time was limited. This opportunity to put KP2 on 1296 EME was tied to a business trip to Puerto Rico. We left San Juan on Wednesday afternoon, but did not arrive until it was too dark to start setting up - the sun sets very fast in the tropics. KP2/W3XS had arranged for an operating location at an astronomy observatory on top of a mountain. It was a great location with a near horizon to horizon moon window. But the road to get there was a bit of a challenge and not something you wanted to do in the dark.

We started early the next morning. Bill had already assembled the dish. All we had to do was to add the feed (TNX to OK1DFC) and setup the equipment. We had this all done by late morning and the system seemed to be working OK. We decided to try for a little more sun noise by optimizing the feed position. **This was a BIG mistake!** While trying to move the feed, the pole that held it in place **snapped**. The **dish folded** up into 2 halves. I thought we were done for sure. Miraculously, we were able to rebuild the dish and get everything back in place before sunset. This was very important as I discovered that operation on Saturday was not possible because the sun and moon were then synced. (This was not obvious when I checked moon position from my home QTH). Next time I will be smarter, but it would not have helped because the dates were set by my QRL assignment.

Bill and I were on the moon early on Friday morning and were pleased to almost immediately see signals. TNX to HB9Q and OK1DFC who acted as beacons for us. Our AZ readout arrangements were inadequate. I am sure we would have worked a few more stations, if we had a better system. I need to work on this for the future. We ended up working 24 stations including **3 CW** stations. I am sure we could have worked more. No operation on Sunday, but we were on for a few hours on Sunday and added 5 more but operation had to stop because of my return flight. TNX to WA2LTM



for help with the station and of course W3XS for all the arrangements and the dish - when the dish crumpled I was almost ready to give up if not for Bill. I also need to very much thank NE2U. George really came through and worked us Friday for 1296 DXCC 99 at K2UYH!

I also want to thank Joe, K1JT for helping arrange a special visit for an associate on the accreditation visit. It worked out well.

73, AI - K2UYH

APRIL ARRL NIGHT & AWARDS PRESENTATION



ARRL Guests, Joe W3JY & Matt W1MSW




ARRL The national association for
AMATEUR RADIO

DISTRICT EMERGENCY COORDINATOR

This certifies that

Philip Theis, K3TUF

has been appointed a leadership official in the ARRL Amateur Radio Emergency Service for EPA District 5 in the Eastern Pennsylvania Section and agrees to abide by the rules of the ARRL Field Organization. This appointment shall remain in effect for a term of two years from the last date indicated hereon unless sooner terminated by the authorized ARRL official.

April 1, 2015
Date of Appointment

Dave Latta W1US
Membership and Volunteer Services Manager

Joe W3JY
District 5 Coordinator







Matt's very entertaining and informative Contest Branch Presentation. NOT shown: a mild grilling afterwards by the audience.

TNX to K3JJZ, K1DS for PIX

PACK-RATS EVERYWHERE



Here's what greeted the attendees of the N.E.W.S. Conference when they pulled in to the hotel parking lot.

Forwarded to Cheese Bits by multiple 'Rats

SJRA AT 100

Where were you 100 years ago?

Almost all of us were not even born yet. Four years before the first commercial radio broadcast the South Jersey Radio Association (aka SJRA) was formed in June 1916. There are a couple of radio clubs that are older but none have the distinction of being continuously active during the entire period. During the "War years" things slowed down but the club was still active assisting with training of wireless operators for the military.

The SJRA has a number of plans for the celebration of 100 years of Amateur Radio, including an SJRA Round-up where stations are encouraged to contact SJRA members. Sort of like the ARRL DX where the SJRA would be North America. This is only one example of one of the planned operating activities. In the end there will be a banquet for all to celebrate in 2016.

To allow others to share in the celebration the Board of Directors of the SJRA has created a **special membership** that has two purposes; (1) allow others to share by being an SJRA member during our anniversary and (2) act as a fundraiser. It is the goal of the club to have a least one SJRA member in each of the 50 states and at least 100 countries. So far we are represented in 3 countries, 3 continents and 6 states. This membership includes a coffee cup and a numbered certificate of membership. The Centennial membership will last to the end of December 2016.

Several members of the Packrats have purchased coffee cups at the meetings and Michael KB1JEY has become the first Packrat to become a Centennial member to support the activities.

Centennial membership and coffee cups are available for a \$20 donation. If you are interested contact me at ken@k2wb.com.

The SJRA welcomes as many hams as possible to help us write the next chapter in the club's long history. Did I mention that the membership also comes with bragging rights, by belonging to the "OLDEST CONTINUOUSLY MEETING AMATEUR CLUB IN NORTH AMERICA"!

Please feel free to contact me if you should have any questions.

73's, Ken K2WB



Technical Correction to the "Mighty Manly Mini-Van" Mobile Installation

After I gave my presentation at the Phil-Mont Mobile Radio Club about making the MMM "Radio-Active", my buddy Jack Coupe took me aside and told me that wiring mobile rigs directly to the battery, fusing both leads, as I had been previously advised and had seen in manuals was a recipe for letting the "magic smoke" out of my second FT-857D.

The problem in a nutshell is that if you lose the battery negative to chassis ground, your precious radio gear becomes the chassis ground. Fuse or no fuse [Gary, haven't we seen this already?]. Not a particularly desirable situation. The following link explains it pretty well with diagrams.

http://www.w8ji.com/mobile_ground.htm

In my case, the connections are new and pretty solid so I don't have to rush out and fix this today. But if I keep the MMM for a while, I will correct this situation. Also, as I told George and "Sir Guy", the MMM might be practice for installing the FT-857D in **MMM II**. When that happens, we'll do it right.
73, Michael KB1JEY

DOOR PRiZE SOLiCiTATiON

It's never too early to ask your boss and suppliers for contributions for the raffles and door prizes at our VHF Conference. I have started the collection here. We have some donations of manuals from ARRL, a few items left over from last year, and some items from the W3VIR estate. We also have a few items from NR6CA that can be used for door prizes. Whatever you can provide will be useful. If you don't ask, we don't receive. Old test equipment, logowear, coffee cups, travel mugs, cables, connectors, parts over-runs, obsolete stock, tools, radios, antennas, electronic parts, etc. Let me know what you can get your hands on. **This is one of the highlights of the conference.**

TNX, Rick, K1DS

CENTRAL STATES VHF CONFERENCE

Central States VHF Society is pleased to announce that our Annual Conference for 2015 will be held in the Denver Colorado Metro area between Thursday July 23rd and Sunday July 26th. Our convention site is the Denver Marriott Westminster; the venue is now available for booking. Please plan on booking your vacation around the conference .

The conference will feature the traditional activities, Banquet, Luncheons and hospitality suites, technical programs, noise figure measurement, antenna range, Rover vehicle show and tell. Our Saturday evening banquet speaker is Rick Roderick K5UR First Vice President of ARRL and an avid VHFer. We have a wide variety of activities available along the Front Range of Colorado and will be offering a choice of side trips designed to entertain the entire family. Operating opportunities under consideration include operating from the Rocky Mountain Ham Radio HF remote base station in Pueblo, microwave operating from local mountain tops and the chance to score a microwave VUCC in a weekend! WE will have introductory programs geared to newcomers to weak signal operation on the VHF+ bands that will be promoted locally and designed to encourage younger hams to get involved in DX'ing and contesting.

We are currently soliciting papers, presentations, and Poster displays for the 49th Annual CSVHFS Conference. Our deadline for receiving papers prior to getting them to ARRL for publishing is April 22, Contact program chairman John Maxwell W0VG (w0vg@arrl.net) for info.

Conference registration, as well as a link to the conference venue for bookings, is now available now at <http://2015.csvhfs.org/> Please visit the site if you need any other additional information

73 Doug K2AD Chairman,

The Wayback Machine **In CHEESE BITS, 50** **Years Ago**

(Nibbles from May 1965. Vol. VIII # 2)
de Bert, K3IUUV (*author's comments in italics*)

- **“Our Prez Sez”**. Prez K3GAS, Doc, said “Those that missed Ladies night have something to be sorry for. 144 people attended, the food was great, and the Magician was very entertaining”. (*Why can't we get it going again today?*). “Get ready for the June contest, with W2EIF as the chairman. Don't forget our Technical Committee is available for help. Contact K3IUUV (*still here*).”
- **ARRL Bulletin Nr. 998**. 3/25/65. Bolivia and the US agreed to permit reciprocal licensing.
- **ARRL Bulletin Nr. 1000**, 4/8/65. The FCC released their notice of proposed Rule Making, dealing with the intended incentive license structure. (*Too lengthy to quote here, but full details were published in the QST May 65 issue. Read online if you don't have a copy in your basement*). Comments and suggestions were solicited from the Ham fraternity.
- **Happy Birthday Packrats, May 15, 1956 – May 15, 1965**. A full-page article with this title was contributed by Helen, “Mother Rat”. She noted that the club has grown from the original 11 members, to 90 regular members, 20 retired members and 2 student members (*Walt, weren't you one?*). She summarized a number of highlights from the club's 1st 10 years, and

included the following observation. “The club in years is only a baby, but in spirit it is a giant. Why? Because the members are not looking for individual honors, but are banded together in one interest; helping each other and the public in times of emergency”. (*Read the full article at W3CCX.com. Heed these words, in your activities*).

- **Tek-Nic-Cal**. An article contributed by W3MFY, titled Wind Load. It included details on calculation of wind load presented by a number of representative various Ham antennas. These details were accompanied by rotator and tower suggestions for a reliable installation.
- **K.U.I.** by W3HKZ, Ed (SK). Ed reported that Early Bird, the first commercial satellite capable of handling TV was launched on April 5th, 1965. 85-lbs, synchronous altitude orbit, and capable of handling 2 two-way TV signals. Cross band operation, 6-GHz up, 4-GHz down. (*Look what this has spawned. Hundreds of channels, most of which you do not want to watch!*).
- **Did You Know** (tidbits picked up by Helen). W3GXB, Bob (our current 220-fm net control) supplied the 2-meter Gonset and Halo that Charlie (W3IBH, SK) is using in the hospital. (*We used to call that “Bed-pan” mobile*). SIRAN (South India Amateur Radio Newsreel) carried the following squib in their latest issue; “Mt. Airy VHF Club, Inc (W3CCX) of Philadelphia is one of the most active groups of VHF enthusiasts, who are very popular on the VHF bands. This group is known as “The Packrats” and their monthly magazine is called “Cheese Bits”. Helen Brick,

XYL of W3SAO, Frankie edits the newsletter, and so is known as “Mother Rat” (*in case you didn’t know.*). (*SIRAN was one of our Exchange Paper friends.*)

- **2-meter report** by W3LHF, Dave. He apologized for his short report, due to the “opening of Trout Season”. (*Dave was an avid fisherman, and even coaxed me into joining him one time. Wearing “Waders” and stepping on slippery rocks cured me of that interest!*). He reported many signals heard this month from the OSCAR III transponder. He noted several new “rock-crusher” stations showing up locally on 2-meters, and reminded the Rats that warm weather is the time to take care of needed antenna repairs (*Still true - a word to the wise*).
- A recent report from the FCC stated that Hams are seldom to blame for TVI. They noted that of 15,134 recent cases reported; only 54 were caused by Amateurs. Other sources cited included 1,585 contact devices (thermostats, switches, etc), 824 Sewing machines (*their brush type motors of the time were notorious*), 322 portable electric tools (*again brush motors*), 210 hair dryers (*same culprit*), 149 filament type lamps (*puzzling*), and 366 neon lamps. Overhead power lines accounted for 1,237 complaints (*still the worst offender at my QTH*). The majority of the remainder were based on poor receiving location. (*And today, we would have to add CFLs and their recent LED replacements.*)
- **Soldering Aluminum.** An article cribbed from the RSGB (Radio Society of Great Britain) described how to easily solder to Aluminum by using a thin film of oil to

prevent the surface from oxidizing after cleaning. Helen noted that she was soldering to Aluminum 30 years before (1935), as a production worker at Philco. She used a 3-lb soldering iron to abrade the surface and apply a solder splash which was later used to attach a copper grounding braid,

- **New Products of Interest**, by W3NSI, Lynn. Heathkit announced their SB-110 transceiver for 6-meters, available July, 1965. CW, USB, LSB, but no AM! 150-watts peak from a pair of 6146’s, it will cost \$325. (*Gary or Paul, do you have one in your collection?*)
- **Swap & Shoppe.** This monthly column by W3ZRR, Ray (SK) listed For Sale and Wanted items for members (*now superseded by our reflector listings*). This issue included: Wanted: 1 clean Hallicrafters SX-42 receiver. Will pay cash or trade, from Bud, K3AIQ. (*If he were still around, I would offer him the one now down in my basement!*).
- New members; WA3BRV, WA3CAG, WB2OAD and K3LWY (student member). (*For anyone interested, I am assembling a sequential list of all members, in order of membership date. A work in progress, an XL copy is available on request.*)
- Six sheets, double-sided, heavy stock, legal size. Postage still 4-cents.

As in previous editions, many “folksy” comments about members, their families, and activities were included

Credit Where It's Due

Thanks to Dan Romanchik KB6NU for the April Fools article **FCC to Reinstate Morse Code Test**. Credit was not given in the April.

Six lashes with a wet noodle were delivered to the Editor by Ted, W2TAG for this oversight. Luckily Ted did not have access to the Wouff Hong or I'd be unable to edit the May Cheese Bits

—W2BVH

... Wayback cont'd

in this edition of Cheese Bits. If interested, or for more detail on the above items, visit www.W3CCX.COM and read the full issue posted there by our Webmaster, Ron, W3RJW).



thirty, de K3IUU

Dave K8WW, SK

Just received this, 4.27.15. I am sure many of the Pack Rats also remember K8WW. I worked Dave nightly on tropo. He was also on 432 EME.. Sorry to send sad news,
AI - K2UYH

Events

For inclusion, please direct event notices to the editor.

Spring Sprints 6M—Contest Saturday, May 9 2015 from 2300Z until 0300Z Sunday

ARRL VHF+ Contest - June 13—15, 2015. "The Big One at Camelback, PA". Info at the next meetings and at <http://www.arrl.org/june-vhf> Plan on participating from Big Pocono Park, Camelback PA or your home QTH.

EPA Section Convention and Firecracker Hamfest - July 4, 2015. Harrisburg, PA. Details at <http://www.arrl.org/hamfests/eastern-pennsylvania-section-convention-firecracker-hamfest-2>

Murgas Hamfest and Computerfest - July 5, 2015. Plains, PA. Details at <http://www.arrl.org/hamfests/murgas-hamfest-and-computerfest-2>

Valley Forge Hamfest - July 11, 2015. Kimberton, PA. Details at <http://www.arrl.org/hamfests/valley-forge-hamfest-3>

CQ Worldwide VHF Contest - Planned July 18 -19, 2015. Details to follow.

Central States VHF Conference — July 23 - 26, 2015. See description in this issue of Cheese Bits and <http://2015.csvhfs.org/>

ARRL August UHF Contest - August 1-2, 2015. Details at <http://www.arrl.org/august-uhf>

ARRL August UHF Contest Round 1 - August 15-16, 2015. Details at <http://www.arrl.org/10-ghz-up>

Strays



QST Congratulates...

Bill Murphy, W0RSJ, on his induction into the New Jersey Inventors Hall of Fame for his "... patented work related to performance monitoring for leased transmission facilities and disaster recovery."



Congratulations to Bill Murphy W0RSJ. May 2015 QST p93.
—Dave W3KM

Ditto! Congratulations Bill! 73. Griff ne3i

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...Events cont'd

VHF Fall Sprints - TBA

EME 2.3 GHz and Up Contest - September 5-6,
2015. Details at <http://www.arrl.org/eme-contest>

ARRL September VHF Contest - September
12-14, 2015. Details at <http://www.arrl.org/september-vhf>

ARRL August UHF Contest Round 2 -
September 19-20, 2015. Details at <http://www.arrl.org/10-ghz-up>

RF Hill ARC Hamfest - October 18, 2015.
Sellersville PA. Details at <http://www.arrl.org/hamfests/39th-annual-rf-hill-arc-hamfest>

Mid-Atlantic States VHF Conference - October
2 -4, 2015. Currently soliciting papers. Details to
follow.

ARRL EME 50MHz - 1296 MHz Contest -
Round 1 October 31 - November 1, 2015.
Round 2 November 28 - 29, 2015. Details at
<http://www.arrl.org/eme-contest>

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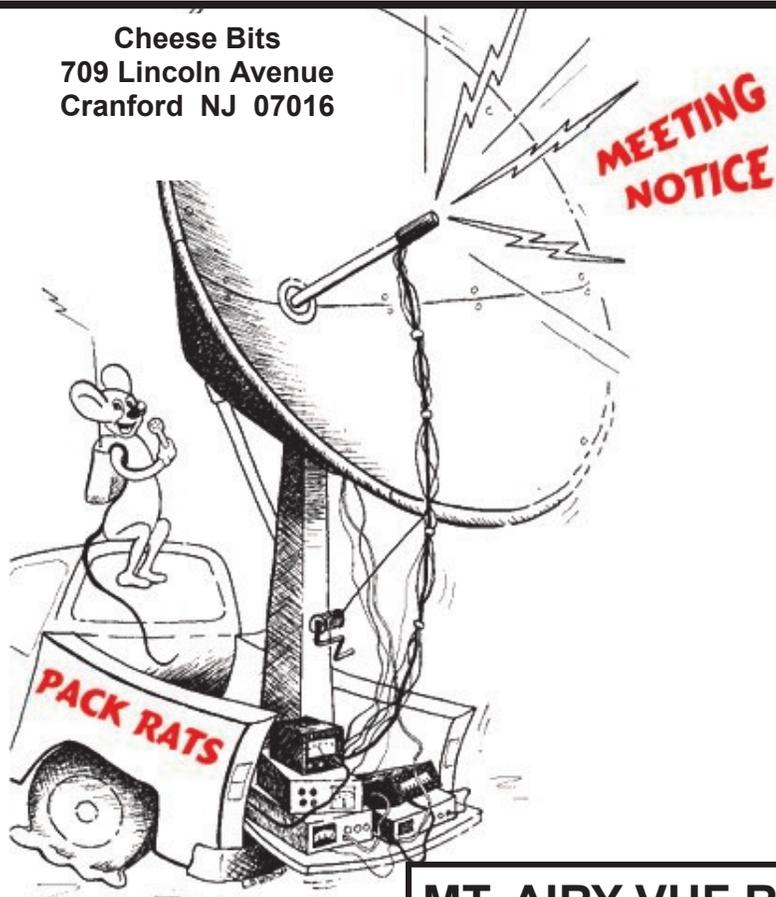
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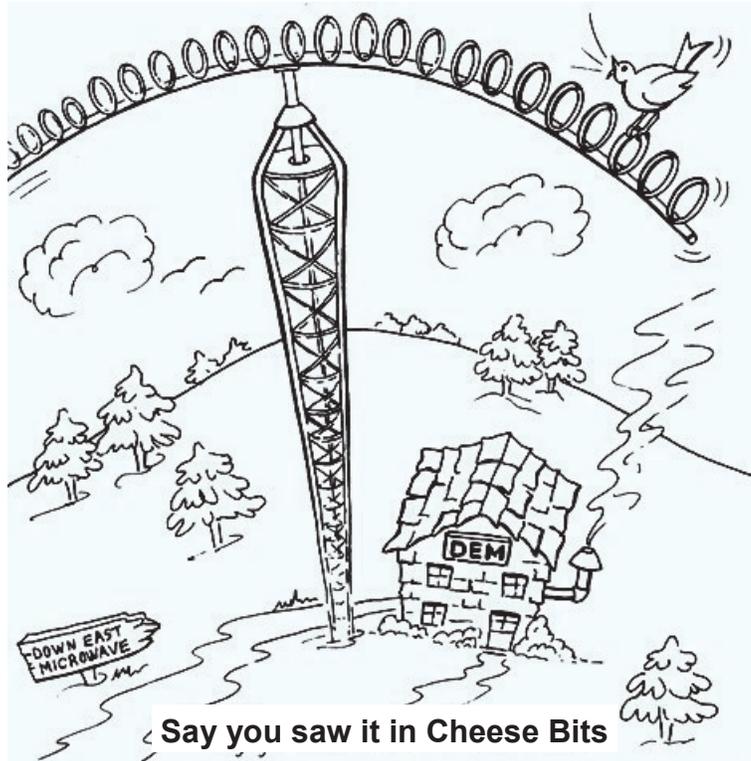
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