

MICROWAVES IN EUROPE

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THIS SUMMER

- Helen and I went to the EME conference in Cambridge, England in August
- After the conference, we continued on to Paris, Barcelona and Madrid
- In Barcelona we were hosted by Benjamin EA3XU
- This talk will be a review of some of the talks at the conference and
- What Ben is up to in Microwaves.

EME CONFERENCE

- About 177 attendees from all over the world.
- Great to get together with other EME'ers and get acquainted
- One major talk took up most of the attention on noise figure

NOISE FIGURE TALK BY DAVID GM4ZNX AND IAN GM3SEK

- The authors were the designers and engineers of the HP 8974 noise figure meter and sensor.
- They are probably more familiar with noise figure calibration and sources of error than anyone else. Here are some of their conclusions
- The modern NF meters have slightly better accuracy, but do not cure any of the measurement problems. That translates into Whether a \$40,000 instrument is better than the \$1,000 surplus 8970 meters.
- The best accuracy one can hope for with careful calibration is .2db of uncertainty. One key contribution is the calibration of the noise head. An older high Q tuned input preamp has twice the error of modern preamps because gain and NF interact.
- Errors in setting the Tcold of the noise head drastically effect the accuracy of the Y factor measurement. The newer head has a temperature sensor in the head that is read by the instrument.

MORE!

- The presentation and article in the proceedings just touched on the problems of NF measurement, while the DVD has the complete document.
- So what is the upshot?
 - There are some avoidable errors and some that are not in NF measurement
 - The inaccuracies in noise head calibration is a big source of error.
 - We are at the limit of making equipment that can calibrate a preamp accurately with a noise figure of .16db, for example.
 - In some cases we can compare noise figure readings between preamps on the same meter, but in some cases the readings are meaningless. Yes, meaningless.
 - It becomes clear that the only way to really adjust a preamp is when it is attached to the antenna system, by using sun noise and cold sky.

OTHER TALKS

- There were many other talks, including mine, which was well received. Joe's talk on MAP 65B was very revealing.
- However, for me the real draw of the conference was getting together with other EME'ers. I can't explain how great an experience it was to get together with people from all over the world to share ideas and become friends. The resources in other individuals are not captured in the talks. I sat with one German EME'er and we redesigned his new 432 array over a beer. I helped the Japanese hams to get motivated about having the 2016 conference in Japan. There were a dozen other conversations that were interesting with a dozen interesting people. Very exciting.

ON TO BARCELONA

- We visited Barcelona and got taken around for sightseeing by Ben Pinol EA3XU. Besides the great food and wine, sights and great conversations, we saw a few things that I think impact us directly.
- First, is some encouragement. Ben is the only EME'er and microwaver in Barcelona and for a good distance beyond that. Yet he has decided to get on the bands, operate and move the art up a few notches whether or not anyone else was going to go with him or not. He has beacons on 10 and 24Ghz, and a 50w station at home on 10GHz. He has invested a considerable amount of money and effort and is an inspiration to many. He also networks with like minded hams all over Europe. The main channel is DUBUS magazine. If you don't have a subscription, you are missing out.



My daughter Barb is also visiting Barcelona and describes it this way:

“Charming balcony-adorned facades, wild public art, attractive well-dressed people, inviting benches for admiring fountains and other tourists, liberal social-activist banners, romantic cafes, big boulevards with high-fashion stores... Barcelona. It's like New York and Paris had a baby that spends a lot of time with its aunt Berkeley. And talks with an adorable lisp.”



OPERATING TECHNIQUE

- While we were in Ben's shack he asked if we wanted to talk to his friend in Italy 700 miles away. Sure. He went to the microwave logger site to see if Luigi was available. He was and we quickly went to 10.368.1 and gave him a call. No problem. We had a 10 minute QSO that was very strong. What impressed me was –
 - Home stations are quite common.
 - They also use the logger to see who is on and to set up contacts. That way they aren't sitting in front of a radio listening aimlessly to noise hoping for a QSO.
 - Ben and other have been using WSPR, JT mode, and reverse beaconing for quite some time.
 - I felt like we in California are really swimming in the backwater of microwaves.

Ben's rooftop
Antenna setup.
Terrestrial and
EME . The 10GHz
Dish rotates.



Olympics tower
Decoration. Had all the
Microwave antennas in it.

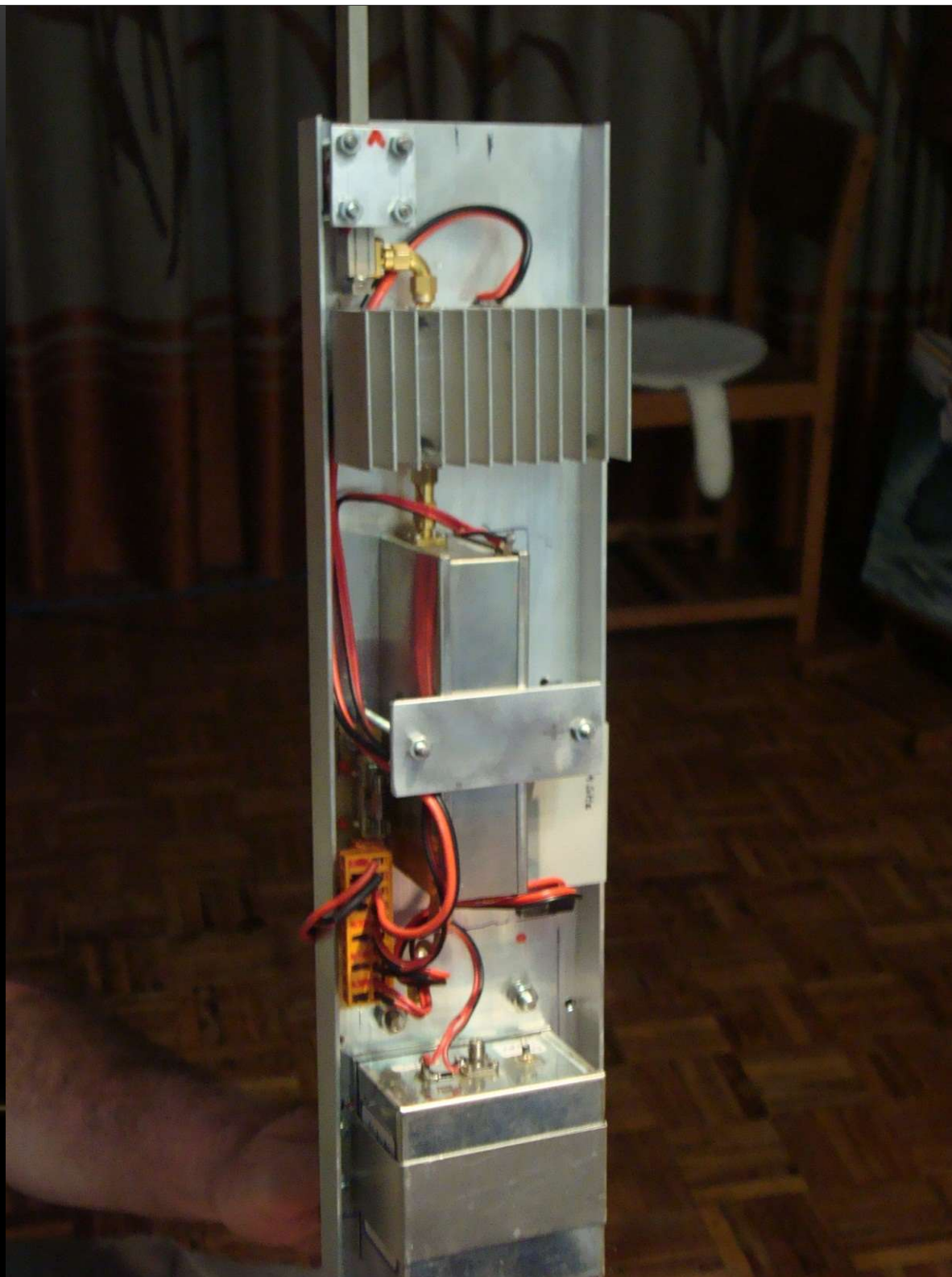




Ben's 10GHz
Beacon.



Ben's 24GHz
Beacon.



His 10ghz
Omni antenna



Catalan dinner
Starts with Spanish
Bruschetta.



And plates of jamon



ON4KST microwave chat .

Go to: <http://www.on4kst.org/chat/index.php>

Select "microwave" from menu.

The MICROWAVE chat (by ON4KST) Web 2.0 version - Mozilla Firefox

www.on4kst.org/chat/index.php

MENU

Send K6JEY

19:15:21 HA2ML István2,70,23 (HA8MV) ma megy a HG5BUB

19:07:08 HA8MV Gabi Not QRV. (HA2ML) Pista, HA5SHF Hi...

19:02:11 HA2ML István2,70,23 (SP4MPB) tks for test qrx in IARU with HG5SHF 73!

19:01:23 SP4MPB Marek 23_13 cm (SM3BEI-1) Hi Lennart, You will be qrv in IARU contest ?

19:00:53 HA2ML István2,70,23 (SP4MPB) maybe

19:00:11 SP4MPB Marek 23_13 cm (HA2ML) maybe mountains are a problem

18:59:27 HA2ML István2,70,23 (SP4MPB) my qth is 156mAsl +10m tower on 1,2m grid dish

18:57:30 HA2ML István2,70,23 (SP4MPB) my best direction to North

18:56:48 SP4MPB Marek 23_13 cm (HA2ML) still nothing

18:56:34 SP4MPB Marek 23_13 cm (HA2ML) have You god takeoff to nord ?

18:56:20 HA2ML István2,70,23 (SP4MPB) Marek rcv any?

18:52:26 HA2ML István2,70,23 (SP4MPB) ok cq go

18:51:44 SP4MPB Marek 23_13 cm (HA2ML) now 3 min for You Istvan

18:48:30 HA8MV Gabi Not QRV. sri qrl... hi

18:48:29 SP4MPB Marek 23_13 cm (HA2ML) ok 200 cw

18:48:20 SP4MPB Marek 23_13 cm (OZ2M) do You qrv 13cm ?

18:47:58 HA2ML István2,70,23 (SP4MPB) ok pse cq on ,200

18:47:55 HA8MV Gabi Not QRV. I now QRV..

18:47:19 HA8MV Gabi Not QRV. (HA2ML) Talán ma sikerül a QSO Marekkel!

1415 dc8ec 10368860.0 DB0RDH/B Beacon off

1415 dc8ec 10368861.0 DB0RDH/B Beacon off

1413 dc8ec 10368870.0 OE5XBM/B Beacon off

1413 dc8ec 10368873.8 OE5XBM/B Beacon off

1249 dm2afn 47088050.0 DJ1LP dj1lp -dm2afn jo61 wb-jo60us

0949 sp2wpy 1296907.0 LY3IWB JO94FL<TR>KO15FM 559

0838 f4wag 10368150.0 F5BUU test

LESSONS OBSERVED

- We need to develop home stations.
- We need to use a logger program to set up QSO's
- We need to expand our knowledge of propagation paths by using WSPR and other digital modes, especially on 24GHz.
- We need to start getting in contact with our counterparts in Europe and sharing knowledge.