

432 AND ABOVE EME NEWS AUGUST 2006 VOL 34 #8

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THE NL WEB VERSION IS PRODUCED BY W6/PAOZN AND AVAILABLE AT <http://www.nitehawk.com/rasmit/em70cm.html>

CONDITIONS: Conditions and activity were reasonably good considering it was July and the absence of a single outstanding moon window! The 70 cm CW Activity Time Period (ATP) was another success. We need to consider adding a period for America – Asia/Oceania activity. There was also at least one expedition on 70 cm C91JE – see HB9Q's report. 23 and 13 cm activity was present during the Activity Weekend (AW), but could have benefited from a specific time period as on 70 cm. I don't think we need to worry much about activity in Aug with *Eye Bull* QSOs being the main concern at EME2006 in Wurzburg – (I hope to see you all there!) and a *Grand 1296 EME Expedition to New England* (RI, CT, MA and VT) taking place. WA5WCP reports all systems are go! Paul will be leaving on 9 Aug. If you are interested in a sked and have not done so already email k1rqg@aol.com. The operating frequency will be 1296.050. Last minute information can be found at <http://home.comcast.net/~wa5wcp/EMEPortable.html>. The July 70 cm CW ATP is on 12 Aug at 2130 to 2330 and 13 Aug 0530 to 0730 (432.005 - 432.030). Sept will be another full month! Shortly after everyone returns from EME2006 is the 2006 Italian EME Contest on 9/10 Sept – see rules at the end this newsletter (NL), [the ARRL's Sept VHF contest is also scheduled for this weekend and could generate some EME activity from the contest stations – the exchange is a 4 charter grid locator] and then ARRL EME Microwave Contest now on 16/17 Sept. RW1AW should be providing so serious competition in ARRL EME Contest – see Alex's report.



RW1AW's Antenna Farm: 8 m dish on 70/23 cm, 6 m dish on 13/ 6 cm, a 6 m solid on 3 cm and 2.4 m offset on 1.2 cm.

4S2CCG: Bob z1rs@yahoo.com in Sri Lanka completed his second 70 cm QSO with K2UYH on JT65C on 22 July. Last month he QSO'd DL9KR on CW [see Jan's report in the July NL]. Bob was running a single 31 el yagi with about 50 W at the feedpoint and an IC-706mk2g with no preamp! He does have a preamp, but did not use it because of the ERP differential. He also notes -- Yes, I have a frequency drift... The IC-706mk2g is particularly bad on 70 cm, but much better since I fitted a Kuhne QH40A xtal heater to the reference. If I bring the room temperature down to 20 degs C with the air conditioner, the stability it is much better... but the operator starts to shake with the cold! I am used to the 28-30 degs C that we get here almost all the time (day and night).

DL9KR: Jan bruinier@t-online.de was on for 1 hour during the July CW ATP and worked 9 stations. He added K5SO for initial #840 with good signals. Also QSO'd were W8TXT, SM3BYA, K5JL, SM2CEW, F3VS - not complete as disappeared, KORZ - very strong, N9AB and K2UYH.

G3LTF: Peter g3lft@btinternet.com reports on his 2300 activity in July – 13 cm was buzzing this morning [22 July]. In 10 minutes I worked ES5PC, RW1AW and PA3CSG. All with good signals on 2320.100 +/-.

G4RGK: Dave g4rgk@btinternet.com reports -- I got on 432 for the July DUBUS ATP and worked SM2CEW, DL7APV, VE6TA and K5SO. Heard were K5JL, I1NDP, N9AB and KORZ - CWNR for ages. Unfortunately I had lots of QRM problems from Syledis coastal radar system. I always have problems when there is good tropo propagation. The following weekend I worked DL9APV and N9AB. I have made good progress on my 23 cm project. The 4 m portable dish and Septum feed are finished and I have copied G4CCH. I am working on the PA.

HB9Q: Dan (HB9CRQ) dan@hb9q.ch reports a QSO with C91JE on 432 -- I am very pleased to announce the first ever 432 EME QSO from C91. On 19 July at 0630 I worked C91JE (-26 dB on JT65B) in KH94. Hannes was speaker copy and using 2 x 12 el yagis and 100 W. Z56WB is the coordinator for this activity.

K0RZ: Bill k0rz@comcast.net writes on the 70 cm July ATP – My results for the 16 July 432 CW ATP were QSOs with SM2CEW, DL9KR, N9AB, W8TXT for initial #328, K2UYH, K5JL, VE6TA and DF3RU. Heard were K5SO (449) in his QSO with K5JL. I also had one station call me just after 0800 that I could not identify.

K5JL: Jay k5jl@hughes.net was active during the July ATP and QSO'd VE6TA, K2UYH, K5SO, SM2CEW, SM3BYA, DL9KR, N9AB, W8TXT for initial #826, KORZ, DF3RU, F3VS and others. Eur was V and NA H. Jay plans to switch back to 23 cm in Aug.

K5SO: Joe k5so@valornet.com is now QRV on 70 cm -- I picked up an 8938 amplifier in Phoenix. I expected the amp to be a "plug and play," but I discovered that most of the heavy components weren't mechanically mounted to anything at all and that the bias supplies were mounted on to an open rack with everything totally exposed. This is not the way I wanted to run it in my shack. It is now rack/cabinet mounted with everything in solidly bolted down. I managed to get the new PA on in time for the July ATP. I was active from 0600-0930 and worked every station that I could detect on the band - 9 in all. My output power was 800 W for the session. My echoes were consistently (559-569). I'm sure that I will be able to increase the power output after I do some work on the output coupling, although I suspect that I'm being heard better than I hear at the present. I'll be working on my receive performance as well. Stations worked were K5JL (569/569), K2UYH (559/559), DL9KR (599/569), DL7APV (559/549), VE6TA (559/569), N9AB (569/569), SM2CEW (569/569), G4RGK (549/559) and W8TXT (539/549). Thanks to all for making this session FB! I also worked DK3WG (439/539) on sked. NM is now on 70 cm in reasonable form and I'm happy to make skeds anytime. (I am using an 8.6 m dish with a 20" dia circular waveguide with a 0.4 x 0.25 lambda scalar ring, H-V polarity switching and 800 W in the shack from Grid DM66xw).

K9SLO: Wayne k9slq@parlorcity.com worked LA8AV on 23 cm in July for another initial. He lost his HF antenna in wind storm, but dish was not damaged and is working well.

N7AM: Jack jackriggs@comcast.net is feeling better each day while recovering from a broken Pelvis. Despite his health problems, he has upgraded his 1296 LNA and made some improvements to the motor driven waveguide feed for his dish. Jack says he should be ready soon for some serious 1296 EME work.

N9AB: Andy Andrew.Bachler@msn.com writes that he is being forced to move and must sell his 16x22 432 EME array – [see the for sale section]. Andy plans to stay on the air as long as possible and welcomes skeds with new stations.

RW1AW: Alex rw1aw@appello.de has completed a very impressive upgrade of his EME station and should be very competitive in the ARRL EME Contest – I have finished work on a new setup for 70-23-13-6 cm EME. I now have an 8 m HB dish (F/D=0.57) for 70 and 23 cm, a 6 m HB dish (F/D=0.51) for 13 and 6 cm, a 6 m solid dish for 3 cm and a 2.4 m offset dish for 1.2 cm – see picture! I QSO'd all on random on 23 cm, on 19 July LA8AV (569/579), SM3LBN (559/549) for an initial (#), SM6CKU (579/569), G4CCH (579/569) and (55/53) on SSB, on 20 July DK7LJ (58/56) – very nice QSO on SSB (#) and 22 July LA9NEA (O/529), HB9BBD (599/589) and (59/57) on SSB, DL4DTU (559/559), ZS6AXT (569/569), OZ6OL (569/559), IW2FZR (569/559), RW3BP (559/559) and HB9SV (599/579) and (58/56) on SSB, and on 13 cm, on 22 July PA3CSG (#) and G3LQR (#), PA3SCG (O/559) (#), ES5PC (559/549), G3LTF (579/559) and (56/54) on SSB, G3LQR (559/559) (#) and VE6TA (569/559). CWNRR was NA4N.

SM2CEW: Peter sm2cew@telia.com found good conditions during the second pass of DUBUS 70 cm CW EME ATP event on 16 July – I found many stations on the band with good signals. I worked K5JL, K2UYH, K0RZ, SM3BYA, DL9KR, N9AB, F3VS, VE6TA, DL7APV, K5SO, 11NDP, G4RGK and W8TXT. Signal reports ranged from (589) to (539) at my end. I also heard DL7UDA with a fine signal. Europeans were vertical here. I could not be on for the eastern window due to low declination and tree blockage. Thanks to all for the EME fun!



SM5LE's 2.5 m dish

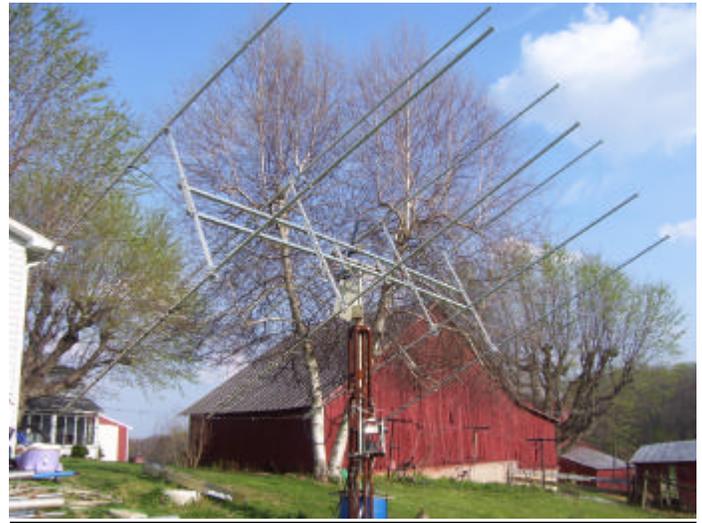
UA3MJB: Nik ua3mbj@rambler.ru is QRV with a modest single yagi on 1296 EME and experimenting with JT65. He copy on JT65C on 22 July G4CCH (-24 dB), but nil from K2UYH. He reports UA3ME will be QRT for the next 2 years as he is participating in an Arctic scientific expedition to "Land Franca Iosifa".

VE1ALQ: Darrell ve1alq@nbnet.nb.ca had a devastating lightning strike on 14 July and is slowly making progress to recovery. His TS-870 and TS-2000 are still not working and his main computer in the shack will only boot in Safe Mode. I am running on my laptop. Nothing more has been done on the new dish, but I still hope to have the dish up and running before Oct. Time is running out and I have there is much left to be done including amplifiers before the winter.

VE6TA: Grant ve6ta@telusplanet.net was QRV on 13 and 70 cm in July -- I found good activity on 22 July on 2304. I managed to work the following stations: PA3CSG on sked with good signal for initial #27, G3LQR #28 super signal on random after a sked failure, G3LTF, RW1AW, ES5PC, and WD5AG0 - twice as he was testing his feeds. Tommy sounds very good for such a small dish. I also heard NA4N when RW1AW called as well. I was also on for the 70 cm CW ATP and worked 2 new ones, K5SO and W8TXT.

W2IUUV: Larry larry@w7iuv.com is looking for 70 cm skeds -- I have a new G17B amp online with 550 W out and a single FO-33 with no elevation. So far I

have QSO'd 6 stations (HB9Q, N9AB, K2UYH, K3MF, OK1DFC and DL7APV) on JT and would like to increase my QSO count. I am interested in JT skeds, but will also take CW skeds with large stations. I still put in many hours a week on the low bands on CW. I prefer to have real time Internet coordination just prior to sked time in order to prevent last minute screw-ups.



K3MF's 8 yagis EME Array

W5LUA: Al al_ward@agilent.com ran with AD6FP on 47 GHz in July, but not complete. Oxygen adsorption is probably culprit. They will most likely try later in year. Al is ALSO working on gear for the New England 23 cm dexpedition.

W8TXT: Mike (has no e-mail but can be reached by post at 401 Bogart Road, Sandusky, OH 44870) was on moon on 15/16 July and worked 7 stations - DL9KR, K0RZ, N9AB, K5JL, SM2CEW, K5SO and VE6TA for new country. He now has initial #23, 34 QSOs, 5 Continents and 16 countries on 70 cm. Mike plans to be active again on 12/13 Aug. His system is running well.

W9IIX: Doug <iix1@comcast.net> was active on 23 cm on 23 July and worked OZ6OL, G4CCH and SM6CKU for a new one. He also copied N2UO calling HB9SV and CWNRR Marc when he called CQ.

WB2BYP: John wb2byp@ieee.org corrects info in the last NL -- I am QRV on 1296 with a 3 m dish and am presently evaluating both a septum/scalar feed and a VE4MA feed. I see about 1 dB improvement with VE4MA feed. I am looking for skeds. My initial contact was with OZ4MM on random. On 22 July I heard nil in sked with W9IIX, but did hear someone echo testing before the sked, and called CQ with no reply.



UA3ME's 2 m dish for 1296 EME

WW2R: Dave ww2r_eme@g4fre.com July 1296 activity report – I heard RW1AW calling CQ with good signals when I became QRV on 22 July, and worked SM6CKU on sked for initial #35 in 12 minutes. As there was not much moon/sun separation, I couldn't track the moon optically, but I still managed to find it/track it on the polar mount. The cables are now stowed; I will next be QRV on 1296 on the 12 Aug weekend, after which I will go to 2304 (and hopefully 3456).

ZS6AXT: Ivo zs6axt@telkomsa.net reports -- After nearly half a year I managed to overcome all the faults, damage and problems with my 23 cm gear and got on the moon. Unfortunately a cold front hit us over the weekend and gusty winds were waving my dish quite a lot. On Saturday, 22 July, my first QSO was with HB9SV, followed by SM3LBN, G4CCH, RW3BP, RW1AW and IW2FZR. CWNR was OZ6OL. On Sunday I added QSOs with DL4DTU, OH2DG, RW3BP, SM5LE on sked for initial #214, RW1AW, OZ6OL and G4DZU. At the beginning of my operation, a JA station called me a few times, but I had some local QRM and could not make out his callsign – sorry. At the end of my window, I CWNR N2UO and W9IIX. Signals were very good, my own echoes were up to (569), but activity was rather poor - especially from the east and west. I hope there will be more stations in next activity weekend in Aug. I am available for 23 cm skeds even in between and during the week.

K2UYH: I a.katz@ieec.org was pleased by the turnout and added a CW initial during the 16 July 432 CW ATP. I QSO'd at 0552 K5JL (559/559), 0559 SM3BYA (559/549), 0607 SM2CEW (569/569), 0617 11NDP (469/O), 0637 DL7UDA (559/539), 0648 K5SO (559/559) for initial #723* {#690} on CW, 0701 DL9KR (599/579), 0724 K0RZ (559/559), 0732 N9AB (559/569), 0747 K7XQ (449/-) - lost and 0758 VE6TA (559/569). On 22 July using and a rising moon widow to the east, I able to work on sked at 0925 4S7CCG (O-26dB/O) with JT65C for initial #724* and DXCC 86*. Bob and I have a very limited window. This is the first time I have worked anyone through the trees this far to the east. A little later at 1106 I was surprised to work on 1296 OH1LRY (-18dB/-17dB) on random JT65C for initial #269*. I also tested at 1115 UA3MBJ on JT65C with nil results and called CQ on CW before switching back to 70 cm where I QSO'd at 1210 K5JL (569/569). I guess I should have called longer on 23 cm as I appear to have missed considerable activity. I will plan to be QRV around the 12/13 Aug before leaving for the EME Conference on 17 Aug.

NETNEWS BY G4RGK: WA9KRT is QRV on horizon on 70 cm EME with 50 W. He expects to have more power this winter. **F2TU** has a new e-mail address f2tu.om@neuf.fr for anti spamming - HI. **HB9BBD** is up to initial #240 count on 23 cm CW-SSB. **DL1YMK** plans to hand out QSL cards at the EME conference. Michael has also located some very cheap absolute encoders (25 Euro) with 1024 bit (0.3 °) resolution that use Hall Effect encoders with SSI output. [Please send more details for the NL]. **W7MEM** hopes to get his 432 EME array back up in Aug. **WB7QBS** reports hearing on 432 K5JL (M), but Jay did not copy him. He is looking for skeds with big stations. **WD5AGO** was active on 13 cm in July, but will switch to 23 cm in Aug and will be back on 13 cm for contest in Sept. **VE4MA** been playing on 47 GHz. **PA3CSG** was active on 13 cm in July and QSO'd RW1AW, ES5PC, G3LTF and VE6TA. **VK4AFL** was QRV during NA window on 22 July, on 1296, but only heard/worked K5JL. **K0YW** had 1296 QSO with W7BBM on SSB on 23 July. **WA5WCP** getting ready to leave for the New England expedition trip. **W2UHI** is QRV on 23 cm, but had problems with thunderstorms in July. **WA9FWD** plans to get back on 23 cm and hopefully 70 cm with a loop feed on his 12' dish soon. John is actually measuring about 1 mw of (QRN/noise) power at the terminals of his antenna!

FOR SALE: HB9JAW has for sale a 2 kW 70 cm 8938 PA that gives full output with 10 W in. It is commercially made by Ascom and includes the PS and is ready to go. All is in 19" rack, weighting about 250 kg and is looking for an offer. Michel also has a a Thompson TH331 cavity with driver (300 W) capable of > 6 kW output. This PA includes all power supplies and blower - ready to go. It's been in service for over 10 years and includes spare parts and 3 more working tubes. Also available are PAs for 6 and 2 m. **N6JJI** has a YL-1056 23 cm cavity PA with a new tube available and would like to find a good home for it! He also has several 1296 N6CA 2C39 PAs that are parallel combined, a 432 1500 W 8938 cavity PA and some other HPAs for 2 m. Call Alex at +562-843-5762 or e-mail at xlea883@msn.com. **N9AB** has his 16x22 432 EME array up for sale. Contact Andy at Andrew_Bachler@msn.com

TECHNICAL: Here is some information from K5SO on observing Pulsars with 70 cm moonbounce station -- The weak-signal detection capability of EME communications stations enable them to be used to observe a variety of radio astronomical objects in addition to performing the usual receiving tasks that are associated with moonbounce. Arguably, one of the most exotic and curious classes of radio astronomical objects that exist in the sky are pulsar stars. Many of the currently operating amateur EME stations utilize receiving systems that

are sensitive enough to detect signals from pulsars, if appropriate detection techniques are utilized. K5SO was inspired by the successful results achieved by N4IP, AE4JY, and their team during a visit to the Pisgah Astronomical Research Institute (PARI) radio observatory in the summer of 2005. The team used one of the large (85') dishes at PARI in combination with an SDR-14 receiver that was modified to operate in a signal-averaging mode specifically to detect pulsars (see <http://www.moetronix.com/pulsar/index.htm> for a description of the PARI visit). Today's short note describes the initial results of K5SO in using the K5SO 28' dish EME system at 436 MHz to detect a pulsar in a manner similar to that utilized by the PARI-trip team.

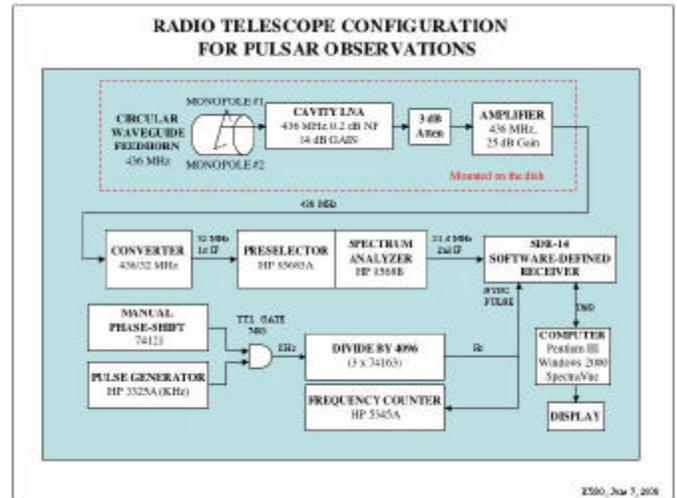


Figure 1. K5SO's Pulsar Reception System

The K5SO EME system was configured as shown in Fig. 1 to observe pulsars. The configuration permits precise timing of the collection of signals in selected intervals of time such that signals from numerous, synchronized intervals may be stored and added together in order to effectively average out randomly occurring noise and to enhance the non-random, regular-occurring pulses of the pulsar. The timing is precisely synchronized to the known pulse rate of the pulsar. Figure 2 shows the result of measurements by K5SO of pulsar B0329+54, one of the strongest pulsars visible from northern latitudes. B0329+54 has a pulse repetition rate of approximately 1.3995415387 Hz, uncorrected for Doppler shift. The timing stability used was better than 10^{-8} Hz. The profile shown in Figure 2 is the result of adding 900 intervals of roughly 0.86 seconds to form a single interval of approximately 0.86 seconds, with the start of each interval precisely synchronized to the Doppler-corrected pulse rate of the pulsar. Each 0.86-second interval contains 266,144 individual channels. Note that the peak signal levels of the pulses are only a few hundredths of a dB above the signal-averaged noise floor, illustrating that the signals received from the pulsar are exceedingly weak.

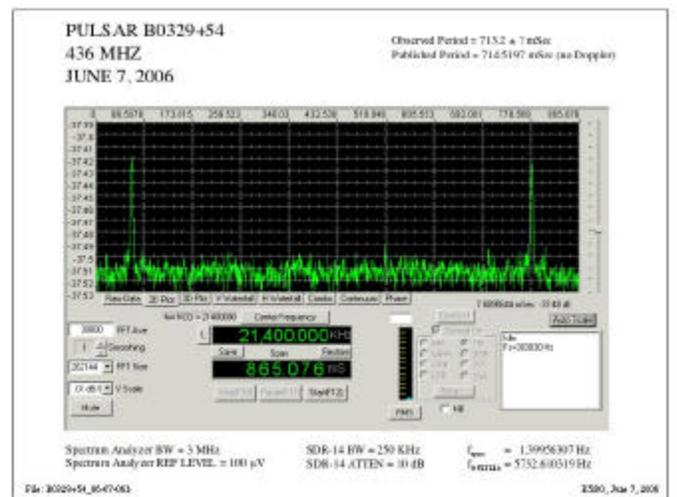


Figure 2. Pulsar B0329+54 as received by K5SO

Upcoming changes to the K5SO system that should improve the pulsar-detection performance of the station include construction and installation of a copper, circular waveguide feed horn with a circular scalar ring to achieve better

illumination of the dish and installation of relays at the dish to enable instant switching between vertical and horizontal polarization angles on the feed.

XIII Italian 2006 EME Contest CW-SSB Rules:

Period: from 0000 9 Sept to 2400 10 Sept

Bands: 50 MHz and up, via Moon reflection only

Modes: CW and SSB

Classes: 432 stations are subdivided by power and type of

Antenna (for yagis the total boom length in wl is multiplied by the number of yagis). Class A is a yagi up to 18 wl. Class B is yagis >18 wl and <36 wl or a dish <= 10' dia. Class C is yagis >36 wl and <72 wl, or a dish <=15' dia. Class D is yagis >72 wl and <= 144 wl or a dish > 15'. For 1296 and up there is only one class per band (independent of power and antenna). Note: If the top score in a class scores less than the top score of the next lower class, the whole class is moved into the lower one.

Points: For bilateral QSOs: 10 points, 31 points for contacts with Italian stations, but 10 points between Italian stations. (Stations operating in Italy will be classified separately from the rest of the world). SWLs: 10 points for each station heard, 31 points for Italian stations.

Prizes: The first in each class will receive a prize. Certificates will be sent to all participants that sent in a log. If somebody wins more than one class, they will only receive one prize and certificates for the other winning classes. The prize for these extra classes will go to the second placed winner and will be so inscribed.

Log: Please send logs to the Contest Coordinator, Mario Alberti, IIANP by e-mail to mario.alberti8@tin.it or by post to Mario Alberti, Via Privata Maralunga 12, 19126 La Spezia, Italy. Logs should be sent within 30 days of the contest and should include Call, Name, Address (including e-mail if have), QTH Locator, Band, Class, PA Power, Antenna dimensions and type and contest log. The QSO log must contain Date, Hour, Mode, Call, Points, and Total Points. Comments and other info are welcome.

FINAL: With travel to EME2006 I am not sure I will be able to get the Sept NL out before the Sept Contests begin. Please note the dates for the ARI and ARRL Microwave EME contests in Sept.

G4RGK is updating his CW initials lists asks for updates. The latest lists (70 through 3 cm) are posted at: <http://www.zen70432.zen.co.uk/Initials/70cm.htm>, ... <http://www.zen70432.zen.co.uk/Initials/3cm.htm>

Please keep the reports and technical material coming. I could use some technical material. I will be looking for you off the moon and at the conference in Germany. 73, Al - K2UYH



XYL's at EME2004 – They won't want to miss EME2006!