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New records

Sam reports on the recent moon bounce conference held in Germany as well as details of the recent UK record breaking 10GHz contact.



PHOTO 1: THE PANEL ON STAGE AT THE EME CONFERENCE (L TO R) G3LTF, VK3UM AND DL9KR. THE ORGANISER, DF6NA, STANDS BEHIND THE PANEL.

BAND ACTIVITY. 'Exceptionally hot' must be the verdict for much of July, although by contrast August was quite wet and not particularly summer-like. New temperature records were set across the UK in July as a high pressure system settled in over northern Europe, leading to a prolonged period of warm air from the south. During this period a new UK 10GHz distance record was set when Ian, G8KQW, (IO91), worked SM4DHM (JO65) over a distance of 1347km. Many more long distance contacts were made on all bands up to 24GHz by microwave operators in the UK.

Nick, GM4OGI, reports that he can now run 140W to a 67 element yagi at 40 feet on 1.3GHz and 40W to a 1m dish on 3.4GHz. On 10GHz he runs 1W to a 80cm dish at 11m AGL. On 5 July he claimed the first OZ-GM contact on 3.4GHz, working OZ1CTZ (JO45). Then, on 15 July, he heard beacon LA4SHF (JO28) on 1.3GHz. From about 16:00UTC the OZ and two SK6 beacons, all in JO57, were well established on 1.3GHz although no other signals were noted on any other bands. At 19:22 UTC he heard OZ1UHF (JO57) on 3.4GHz for the first time.

On 16 July OZ5SHF (JO45) was 549 on 1296.902 at 05:18UTC with SK7MHL (JO65), on 1296.970, at 519 and OZ7IGY (JO55) on 1296.930 at 559. Following a contact on 1.3GHz Nick then worked OZ1CTZ again on 3.4GHz SSB for their first voice contact on the band. Reports were 59 both ways. At 06:50 UTC Nick was called by SM6HYG (JO58) on 1.3GHz who noted that his signal was very strong. They moved to 3.4GHz and worked each

other straight away on CW at 519.

Ray, G4CXM/P, spent his summer holiday south of the Scotland border, allowing him to take advantage of the good southern North Sea propagation on the higher bands. Using his FT736 with 1.3GHz module at 10W output into a 34element M2 yagi at 14 foot AGL, Ray worked 12 stations with the best DX being SM4DHN (JP60) at 1106km.

Back home, using the same radio but to an array of 4 x 44 element yagis, Ray reports working 15 stations on 1.3GHz during June and July, including G3XDY (JO02) at 564km, G8KQW (IO91) at 587km, PI4GN (JO33) at 768km and SM6AFV (JO67) at 1045km. Obviously Ray's new array on 1.3GHz is working very well.

Ian, GM0UHC, (IO85), sent in a long and most interesting report. Unfortunately, I don't have room to include all of it in this month's column. Ian reports success on 2.3GHz at last. Ian worked Carl, SM6HYG, at 55 both ways. Carl was his first SM station on 1.3GHz back in 1989 and he feels it is nice that he should be his first SM on 2.3GHz. Ian runs about 40W output on 2.3GHz from a Spectrian amplifier. He feels it is time to update his elderly transverter as this occasionally causes some problems on transmit. The 2.3GHz band beacon that Ian made for Nick, GM4OGI, has finally been heard in Denmark. It runs 3W output. The frequency is 2319.987MHz.

Gordon, G0EWN, (JO93) reports working, on 15 July, OZ1CTZ on 5.7GHz and OZ5BZ (JO46) and OZ8AFC (JO45) on 10GHz. On 17 July he worked OZ1FF (JO45), DJ5BV (JO31) and OZ5BZ, all on

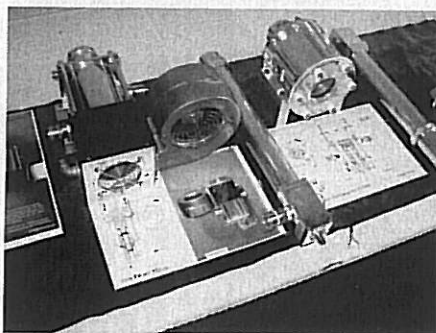


PHOTO 2: SOME OF THE BEAUTIFULLY MADE DJ3FI 1.3GHz POWER AMPLIFIERS.

10GHz. During this period Gordon reports that 10GHz beacon DB0GHZ (JO33), was audible most mornings and evenings, with DB0VC (JO54) and ON0RUG (JO11) 10GHz beacons also occasionally audible. Ian, G8KQW, (IO91) set a new UK 10GHz terrestrial distance record by working Lars-Bertil, SM4DHM, at 1347km on 16 July using his 'second' 10GHz system which consists of an IC271E with Mutek front end, a DB6NT transverter and DB6NT 2W SSPA into a 48cm dish with PROCOM feed at 14m AGL. This system is normally used portable on a small tripod for alignment of antennas before making 24GHz contacts but was installed on his home station mast whilst he was modifying his regular dual-band 5.7/10GHz transverter. Further details of the contact were reported in the News section of the September *RadCom*.

I thought it might be interesting to look at the radiosonde data for a point about midway on this record breaking path. **Figure 1** shows the data for the atmosphere above Schleswig, northern Germany, which is the closest radiosonde data point to the path Ian's signal would have traversed. This shows two distinct temperature inversions. A surface duct is visible at a height of about 200m, with an elevated duct at about 1500m. The air above the surface duct does not have particularly low relative humidity, but that above the elevated duct is extremely dry. Although not certain, it is likely that the elevated duct is responsible for the long propagation path.

John, G4BAO, (JO02) reports a brief foray on to 10GHz late in the evening of 17 July that brought him two new countries. He worked OZ1FF (JO45) at 636km and then SM6AFV (JO67) at 988km for his best DX on the band. John also runs 1W to a 45cm dish at 8m AGL.

EME CONFERENCE 2006. I had the pleasure of attending my first international moonbounce (EME) conference in August. The 12th Earth Moon Earth Conference was held in the beautiful medieval city of Würzburg in Bavaria, Germany, between the 25-27 August.

With an attendance of 140 delegates from 21 countries, this was one of the biggest EME conferences yet. The conference covered all bands from HF to 47GHz, and many of the attendees were well-known microwave operators who use moonbounce as a logical way to advance the scope of their operating to provide worldwide coverage.

The conference was organised by Rainer, DF6NA, and as you would expect in

PHOTO 3: THE SCHLOSS AND RIVER MAIN TAKEN NEAR THE EME VENUE IN WÜRZBURG



many of the photographs taken by attendees. The DVD set will be available from Rainer at the Martlesham Microwave Roundtable in November. For those who can't wait, Rainer may be able to send you a set if you contact him by e-mail. His e-mail address is available within his web page listed in

Germany the level of organisation was superb, from the lecture sessions to the meals and the tours of the city. And the beer! Speaking to Rainer on my return, he expressed his delight at the great feedback the event has received. As an active moonbouncer on both 1.3 and 2.3GHz I was pleased to meet many of the people I have worked using both CW and JT65C modes by reflecting my signals off the moon.

The technical programme was moderated by a panel consisting of Peter, G3LTF, Doug, VK3UM and Jan, DL9KR, who can be seen with Rainer, DF6NA, in photograph 1. The talks included the CT3/DL1YMK (Madeira) EME expedition, construction of portable dishes, WSJT modes and operating, a simple PANFI (SPANFI), 10GHz circular feeds, interference into the 13cm band and Chaparral feeds with Septum polarisers and many more. All of the papers have been collected into printed proceedings as well as a two-set DVD that also contains

the URL in the web search section.

Dominique, HB9BBD, provided noise figure measurements throughout the Friday. He admitted that he didn't expect quite so many preamplifiers to measure. The results of the measurements will be provided on the DVD together with frequency response plots. Results will also be published in the 432 and up EME Newsletter. The Newsletter URL is shown in the web search section below.

DJ3FI exhibited a selection of his beautifully built amplifiers for 1.3GHz and other bands. Several of these can be seen in photograph 2.

EME is a growth area in amateur radio and there can be little doubt that Joe Taylor, K1JT, has been responsible for much of the new interest because of his JT65A, B and C programmes. Using JT65C it has been frequently demonstrated that 1296MHz stations using dishes as small as 2.2m and powers as low as 30W can communicate reliably via the moon. In case you are sceptical about the use of digital modes and think that it is somehow 'cheating' I can personally assure you that skills at least as great as those of CW operating are still required to make the contacts. The skills happen to be a little different, but nonetheless necessary. There can be little doubt when a successful JT65 contact takes place as there is a solid record of the contact information on the computer screen as well as a most useful measurement of the received signal level. I have found that it is not normally necessary to use the controversial deep search algorithm with JT65C on 1.3GHz even with the weakest signals.

K1JT gave several talks on various aspects of JT65, seeking to dispel some of the scepticism and untruths about JT65 operation. I was surprised that there wasn't more discussion about CW versus JT65 operation but I understand that there was a

FORTHCOMING MICROWAVE EVENTS AND CONTESTS

Martlesham Microwave Roundtable and Beginners Microwave Workshop 3. 11 - 12 November 2006. BT Adastral Park, Martlesham, Ipswich. Details from G3XDY. See web page URL below.

UK Microwave Group All-band activity day. 19 November and December 2006 from 09:00 - 20:00.

ARRL International EME Competition, 14 - 15 October and 11 - 12 November, 50 MHz through 1296 MHz. Details of the rules are at the URL in the web search section.

gentleman's agreement that there wouldn't be any controversial discussion at this meeting.

A second area of debate among EME operators, is linear versus circular polarisation. Circular polarisation is normal on 1.3 and 2.3GHz, whilst linear polarisation still seems to dominate on the higher bands. S57UUU produced an interesting paper on a simple 10GHz circular polarisation feed using a commercial orthomode transducer. Unfortunately Marko was unable to attend the conference so the expected re-examination of the decision made at a previous conference never took place. This may be fortunate as Marko made a strong comment regarding linear polarisation in the 3/2006 issue of *Dubus* magazine and this seems to have animated some supporters of linear polarisation to question the previous decision.

It is traditional at these events to vote for the venue for the next meeting. In all, five proposals were made. Two proposals were made for venues in the USA, one for Japan, one for Italy and one for Melbourne, Australia. After a show of hands at the Gala dinner a clear decision was made to hold the 2008 conference in Florence, Italy.

I would like to thank Rainer for the excellent organisation and such a great weekend in north east Bavaria. Thanks Rainer.

INPUT TO THE RADIO COMMUNICATIONS MICROWAVE COLUMN. My thanks to all the contributors to this issue of *The GHz Bands*. Input for the January column by 1 November, please.

WEBSEARCH
John Quarmby, G3XDY <http://www.qsl.net/g3xdy/>
UK Microwave Group www.microwavers.org
DF6NA www.df6na.de
432 and Up EME Newsletter
<http://www.nitehawk.com/rasmit/em70cm.html>
ARRL EME Competition
<http://www.arrl.org/contests/rules/2006/eme.html>

FIGURE 1

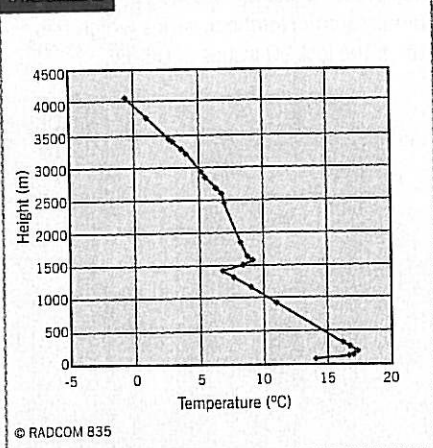


FIGURE 1: RADIOSONDE DATA FOR THE ATMOSPHERE ABOVE SCHLESWIG, NORTHERN GERMANY ON THE EVENING OF 15 JULY, A FEW HOURS BEFORE G8KQW'S RECORD BREAKING 10GHz CONTACT WITH SM4DHM