News Letter
G3ZME G6ZME
TDARS
TELFORD AND DISTRICT AMATEUR RADIO SOCIETY
www.TDARS.org.uk FOUNDED 1969 www.TelfordHamfest.co.uk

Issue 316 Feb—April. 2024

www.TDARS.org.ukorg.uk

Programme

www.telfordhamfest.co.uk

February 7	Committee meeting 8pm (Webex). 2m chat 144.600 MHz FM 8pm
February 14	Under a fiver competition
February 21	Surplus Sale - please fill in sellers information early
February 28	G0DMU Prof. Ian Morrison 'The story of Joderell Bank via Webex
March 6	Committee Meeting (Webex) + 2 metre ragchew (8pm, 144.6MHz-FM)
March 13	Main Construction Competition. LWVH.
March 20	Contest/portable planning also FT8 demo & Talk by M0XJA & G0CER
March 23-24	Cosford Museum STEM event - see last page of newsletter
March 27	TDARS AGM
April 3	Committee meeting 8pm (Webex). 2m chat 144.600 MHz FM 8pm
April 10	Raynet - A talk by Mark Jones M1DQI, Shropshire County Controller
April 17	English Castles Awarda & Bunkers on the air - by Mark M0XIC
April 24	Preparation for International Marconi weekend
April 26-28	International Marconi weekend

If no mention of WEBEX please ask if it will be available

For Equipment Loans & Returns contact John M0XJA
For "RSGB Brickworks" scheme (Club or Individual) —enquiries to Graham G7LMF
For Morse Training and Morse Proficiency Tests Eric M0KZB.
Radio Amateur Exams- Latest: Contact Graham G7LMF training@tdars.org.uk

Editorial

A tribute to Martyn Vincent G3UKV SK by members, friends and other groups inc. UKuG

Since the rather hazy days of the change from Wrekin ARS to the Telford and District Amateur Radio society Martyn G3UKV has been a solid fixture of the radio club, holding so many positions and responsibilities that the whole scope is only now becoming clear.

Martyn and Maz moved to the new town of Telford for his teaching career and eventually settled north of Wellington in the more rural section of north Telford. They brought up a family and on retirement Martyn became active with U3A and also the restoration of the canal basin at Wappenshall.

The main problem is everyone individually thinks they knew all of what Martyn did, but we are finding out it was always more than everyone thinks. Many members were welcomed and guided by Martyn when they joined either as young or older ops.

Early starter on 6m first on working Guam on 6m in 1989 and , a regular builder, operator and well known station on 4m, also going on DXpeditions, Martyn also edited the club newsletter since number one in the 1970s and recently has completed the 315th. Martyn was also a regional RSGB rep. for Region 53, long term RAYNET member and keeper of club calls (inc. beacons and repeater—latterly M0JZH took on the repeater).

As a long term committee member he helped guide the club through the ups and downs over the years – including pushing continuation of the Telford radio rally into the successful Telford Hamfest and his contacts are legendary. Also arm-twisting skills many a trader will attest to.

Contesting was another interest and especially microwaves – being one of the core regulars and carrying dishes, batteries, transmitters up Shropshire hills to take part, win and help TDARS in UKAC contests up to December 2023. The VHF NFD is one of TDARS main annual contests, of course Martyn was 'whipper in' for operators, manager of various band tents and operator on 6m CW more often. Paul G8AQA Chair UKuG passed many messages about Martyn incl this from Peter G3PHO "*He has been good friend of mine for several decades… we both go back to the gunn diode and klystron days of microwaves and I regularly met up with him when out portable years ago*" and from Neil G4LDR "*… always be relied on for a contact on any of the microwave bands and has always been there since I started many years ago*".

Speaking of CW, Martyn is well known for the GB2CW for 850 transmissions he made on a Thursday morning. Many a CW-op is thankful to his dedication and patience to help gain their licence.

Martyn was also an RSGB regional representative for the RSGB travelling around the substantial and muchly rural region 5 visiting many clubs, doing talks and advising and helping them.

TDARS had a tribute evening where 27 members and old mates from Shrewsbury ARS came along to reminisce and tell their experiences and stories of how they had known Martyn G3UKV.

We of course send our condolences to Maz, Ceri and Tim and family, all who became licenced. Members attended as a mark of respect at Martyn's funeral. **73 OM TKS VY MNY QSOS**

Dave G0CER for TDARS

Qtc: News & Information

TDARS MEETINGS WEDNESDAY EVENING (except 1st)
AT LITTLE WENLOCK VILLAGE HALL,
MEETINGS STREAMED (via Webex) WHERE POSSIBLE.
PLEASE CHECK FRONT PAGE LISTING

NOTE: A current membership is required to borrow TDARS equipment. Please return borrowed it promptly

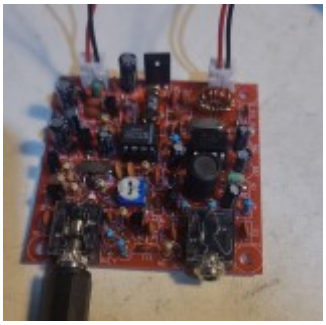
Congratulations to Mark M0XIC Mark gave us this message "Hi, I'm pleased to say that I have been elected to the role of RSGB Regional Rep for Region 5.
I actually take up the role after the RSGB AGM on the 13th April 2024. First of all let me say a big thank to all of you that took the trouble to nominate me and secondly, I look forward to representing the region and all individual members and Clubs in the region"

Photo of Mark in natural environment ***/p***

TDARS Members success in CQWW SSB contest **Paul M0PLA** and **Dave G0CER** took part in different sections with Paul 20m QRP and Dave 10m the last weekend in October 2023. This is one of the biggest SSB contest over the year— thousands all over the globe take part and it can be daunting to jump in and start making contacts especially in a world where QRP or even 100w in is small fry..
Paul came 3rd in England, 28 in Europe and 36 in the world Dave as G0C was 2nd in England, 11 in Europe and 37 in world. CQWW issues online Certificates and these results gave Paul and Dave points towards their short contest calls from the RSGB/OFCOM

.

Members activities **John M0XJA** has been out on the hills as one of the net controllers part of the **145 Alive** event. This is intended to create activity with controllors all over the country on hill locations to give even those with a poor VHF location a chance - John has written a short report from his station as is further in the newsletter. Johns 2m contacts shown in a graphic on the right.



Home build kits 49er by Paul M0PNN.

Paul has completed his home build of the QRP 49'er 3 watt 40m CW transceiver running on 7.023MHz nominally which can be pulled up to 7.026—Paul said "I am building the other bits on some Vero board, 2 line lcd, AD9850 DDS module, Arduino, a buffer amp. To be honest I am looking forward to it and it won`t cost me a fortune when it lets the magic smoke out."
Its quite a satisfying albeit crowded standard size components board—Ebay and other places supply this on a reasonably quick journey from China. Prices vary—Paul got his from aliexpress.com, there are other suppliers.

Bunkers on the Air (UKBOTA) By Mark Savage M0XIC

United Kingdom Bunkers on the Air is an awards scheme for radio amateurs and short-wave listeners. The scheme only started in October 2023 but has roots in Castle and Stately Homes On The Air (fFirst

The purpose of the scheme is to promote:	Portable operations	Collecting bunker references	Interest in our history

First there was CASHOTA

UKBOTA began due to a 'gap in the market', surviving members CASHOTA were keen to restart. M0DXT Bill was inspiration and enthusiasm for restarting it, assisted by M0ICR Carl who created new rules, awards and list of valid bunkers, M0XIC Mark, Awards Manager and G7TVB Phil, Web Manager.

Royal Observer Corps

ROC posts formed key part of UK defences during World War Two, later, observation and recording in the event of a nuclear attack throughout the Cold War. The UKBOTA team stated that the program must cover whole of the UK, not just England. The spread of ROC bunkers was across the whole of the country with a list of almost 1600 ROC bunkers was created.

Global QSOs

Whilst UKBOTA was established as a UK scheme it was hoped, and it transpired, that overseas radio amateurs and SWLs enjoyed chasing (or hunting) bunkers. A scan through activator's logs shows many working USA, Canada, Senegal, South Africa, Japan and Australia to illustrate some exotic places worked!

Bunker Codes

Each has a unique 'code', first letter of every UKBOTA begins with B (for bunker) followed by regional identifier and four numbers unique to each.

The organizers have been keen to ensure is that the scheme is accessible to as many radio amateurs and SWLs as possible. So a 1000m activation zone is permitted around each bunker, helping access, when not safe to visit or possible.

The October ROC Activity Period in summary—an incredible success.

It exceeded expectations, boding well for the future. October '23 stats: Over 10,000 bunkers QSOs, 300 Awards and Over 280 bunkers activated (some hunters working over 250) by no fewer than 60 different radio amateurs.

www.bunkersontheair.org **Facebook Group: bunkers on the air**

Encouraged by the fantastic level of support, the UKBOTA awards scheme continued as a perpetual awards scheme from 1st November 2023. Many more bunkers have been added to the list ready to activate.

Where to find out more.

Is there a bunker near you waiting to be activated? Why not have a look the interactive map on our website and find out? If you activate (either individually or as a club activity) it, I am sure you will be surprised how much interest there is.

Thanks for Newsletter input this time:
Mark M0XIC, John M0XJA, Paul M0PNN
Dave G0CER, Shabaz M7YSZ

Next edition May to July 2024
Please contribute something?— It Results in a better Newsletter !

145–Alive activity event A report by John M0XJA who ran a station

John M0XJA reports on the regular 145 Alive FM activity event on 2meters

145 Alive is an unaffiliated group with the aim of promoting activity on the 2M band specifically FM (thus the name). The 145 Alive activities are organised through a Facebook Group of the same name

The idea of 145-Alive is to get activity by volunteer stations going up on top of hills and on a coordinated afternoon all start nets off under the banner of 145-Alive.

This creates camaraderie and a chance for operators with all types of rigs and capabilities to work stations with perhaps more distance and take part in something and make it happen.

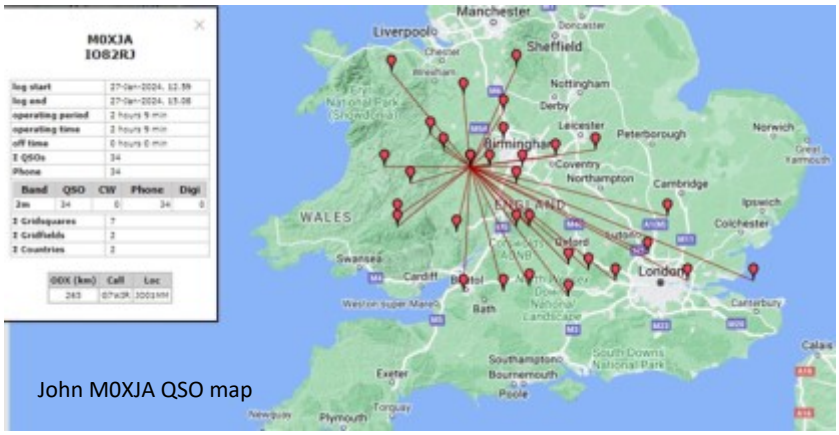
There are individuals arranging impromptu 2M activity in their area and 3 or 4 larger national events organised by Tim G5TM of YouTube fame and originator of the 145Alive group.

Recent 145-Alive

One such event was due around the end of this January but unfortunately Tim wasn't able to organise it so Mark M0XIC and Myself M0XJA offered to organise the event on the 27th of Jan.

Fortunately we had a couple of months to organise it and we had over 33 Nets held on the day by one or more Net Controllers and several hundred members joining one or several nets each.

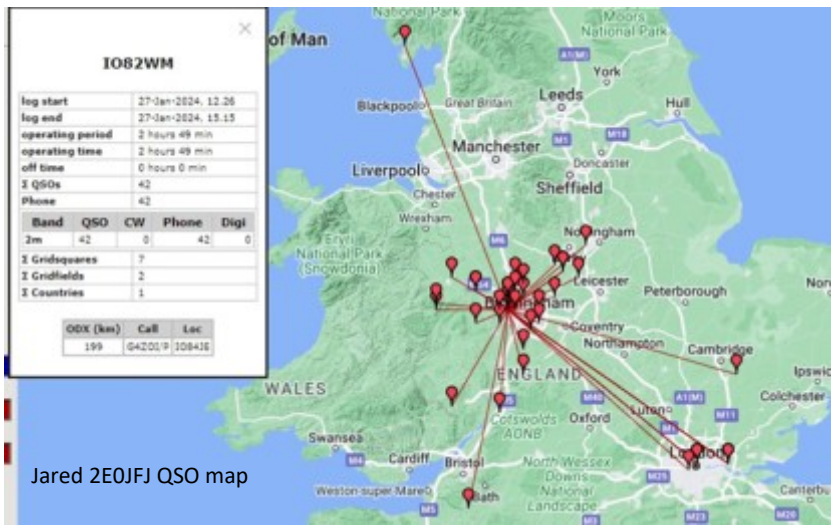
The Nets covered every part of the country from the south coast to Scotland and several in NI & Eire and filled 2M FM section with activity for the entire event.



John M0XJA QSO map

Not to be out done I ran a net from the Clee and Mark from Dudley ARS QTH both scoring well.

TDARS Jared(2E0JFJ) made many contacts to nets around the country from up on the Clee Summit



Jared 2E0JFJ QSO map

After the event the real work started where we collated the logs from the Net Controllers and produced the all important pictures detailing the QSOs made

Next event is TBA but probably around the end of April, join the group above for further information and even better join us on the next 145 Alive.
John M0XJA

Next 145Alive - end of April

Facebook search "145 Alive" or this direct link
https://www.facebook.com/groups/906901577214402/

Technical topics by Shabaz M7SYZ
Interesting receiver chip for SDR (or perhaps non-SDR)

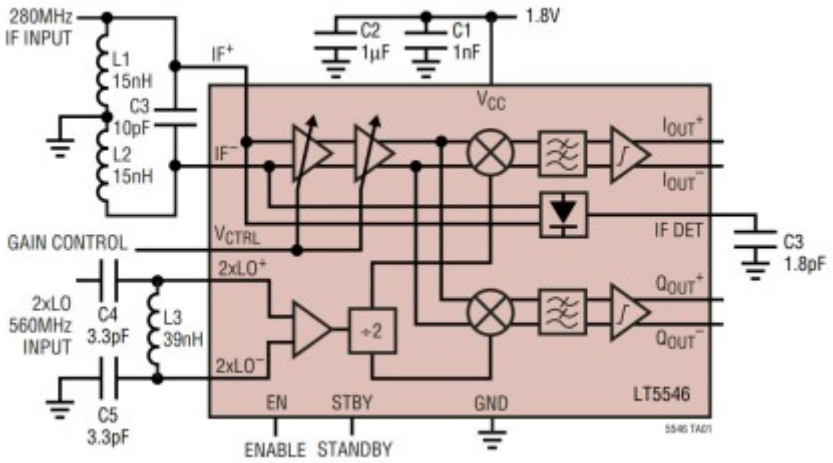
This integrated circuit caught my attention, it looks great for DIY radio receivers.

Specification—It is LT5546 (link to PDF datasheet)

It accepts 40-400MHz input, and outputs I and Q baseband signals, which could directly go into a sound card.
I was thinking that for the front end, it could be either HF or VHF, if say the IF was 45 MHz (the block diagram below shows a 280 MHz IF, but 45 might be easier).

Advantages

For the LO, that could come from a Si5351 chip, nice and simple.
What's nice is that the LT5546 has lots of IF gain already built-in (50dB, adjustable via an external voltage), so there would need to be very little external gain needed.
The output impedance is 1.5 kohm on the baseband I/Q outputs, so it might just about be possible to directly go into a sound card, although an op-amp buffer would be good.



Negatives?

There are only two slight negatives that I can see. One is the price, it is £11. But it does pack a lot of functionality for that price!

The second is that it is a surface-mount QFN chip. But, on the plus side, it has a generous spacing of the connections (0.65mm) so that would be easy to solder wearing a head-magnifier.

I might prototype up this chip on a board, with the IF input connection on one end, and the I/Q outputs on the other, just for experimentation purposes.

I don't want to try to implement a front end on the same board, otherwise it's a bigger project and it might not work well anyway.

Any Ideas?

Any ideas for the board would be appreciated. I'm tempted to put the Si5351 and a Pi Pico on the same board, so that the LO is sorted, since I'm familiar with those chips.
For the IF input, it is differential, with 200 ohm impedance according to the LT5546 datasheet, so I could stick a transformer there, like TC4-1T (which is available from AliExpress, although I have no idea if they are any good compared to the genuine Minicircuits transformers), so that the expected IF input will be 50 ohms impedance.

Technically all the above is under-using the chip a lot, since it has 17 MHz output bandwidth! A higher IF perhaps, plus a different ADC rather than a sound card, would really open up the capabilities. It is technically possible to take a cheap RSP-1 SDR clone, and cut the traces between the two chips inside there, and patch the LT5546 I/Q outputs to the chip nearest the USB port, since it's a high-speed ADC chip. But that's a lot more effort. But at least the option is there for the future!

Any ideas are welcome, even if it is just ideas about what to include/exclude on the board, since I'm just kicking the tyres currently. And if anyone else wants to give it a go, I can get some spare PCBs to people.

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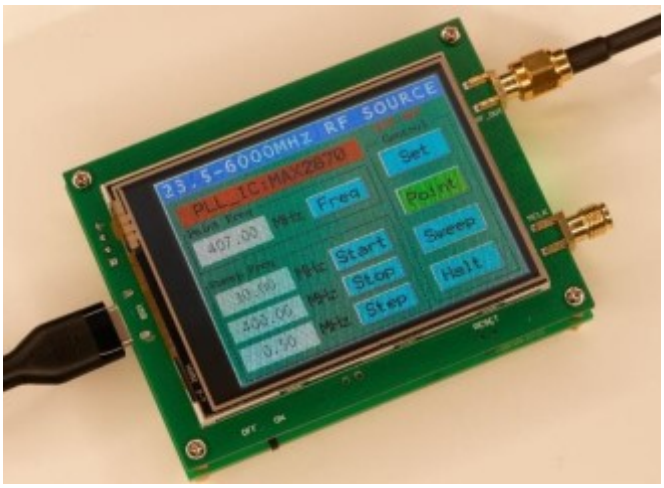
More from Shabaz M7YSZ

Trying out a Frequency Synthesizer—a MAX 2870 module

AliExpress has MAX2870 modules, I tried one out. The MAX2870 is an all-in-one chip that can generate 23.5 MHz to 6000 MHz! It has an internal PLL and VCO. All that's needed is a few resistors and capacitors (for the PLL loop filter), and a crystal (25 MHz works). Pretty amazing that that's all that is required to be generating signals well into the microwave frequencies. There is no modulation, so it is only useful for purposes such as a local oscillator (LO).

The chip has a SPI interface, which is compatible with 3.3V Arduino boards. The board I tried has a STM microcontroller and touchscreen built-in, and simply needs a USB power source to operate.



The frequency can be set in steps of 10 kHz, and 20 kHz at the microwave frequencies (a limitation of the software. The MAX2870 chip should be capable of 1 kHz steps I think).

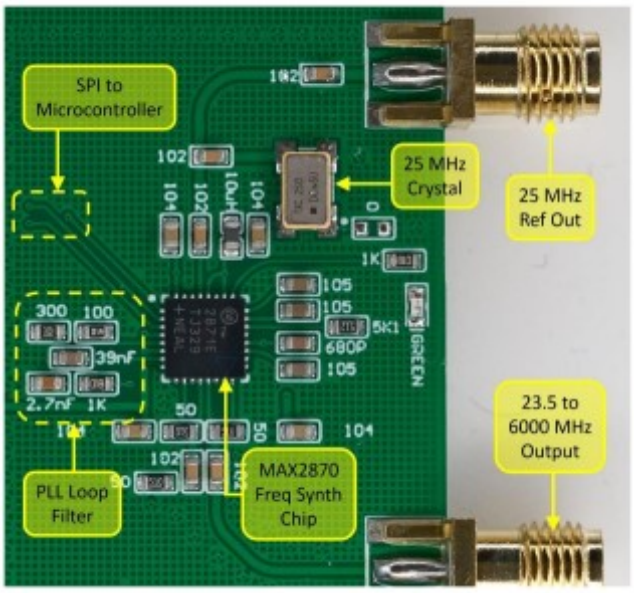
The output is a square wave that may need filtering. Some mixers are better with a square wave of course.

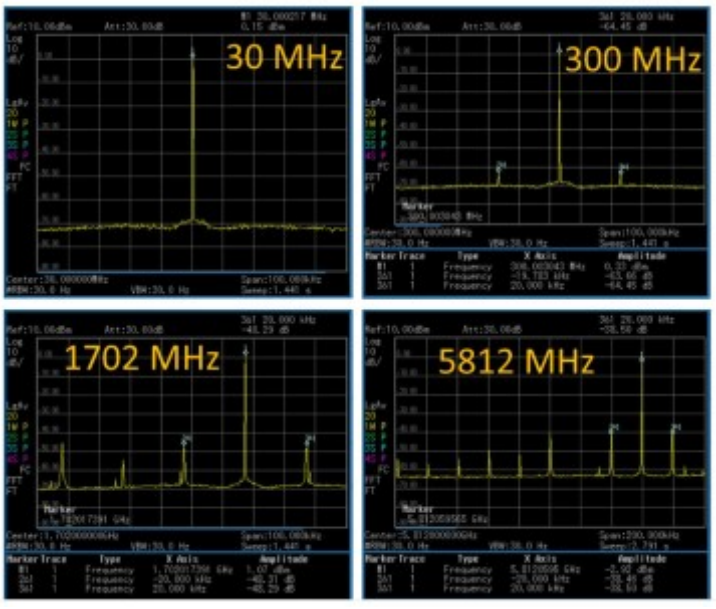
I checked the spurious content for four spot frequencies (30, 300, 1702, 5812 MHz). It's not bad at all. Some spurious content is visible at 300 MHz, at 20 kHz offset, but its very low (63dB down from the main signal). The spurii are higher in the microwave frequencies, but still pretty low!

You can also see that the output is stable, at about 0.25 dBm, with slightly lower output approaching 6 GHz.

Would I recommend this board? The answer is no. It cost £55 total including tax and delivery. I didn't like the 10 kHz steps, and the sweep functionality is buggy, the board is only good for spot frequency generation. On the other hand, the signal quality is not bad at all. My recommendation would be to purchase a MAX2870 chip, or a simpler breakout board with no microcontroller and LCD, and to attach your own microcontroller and LCD display, and that way you could set it for 1 kHz steps, and implement sweep properly (if needed).

The photo of the component side of the board shows it is simple. It would be possible to make a custom printed circuit board for this chip, but there are ready-made boards (with no microcontroller or LCD) on AliExpress for about £22. If you need such signal generation capability, I think that's the way to go, rather than purchase the £55 version.





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LOOKING FOR VOLUNTEERS FOR SCIENCE EVENT IN MARCH

There is a Science Technology Engineering and Maths event in Cosford Museum in March and we have been offered a place to showcase our hobby— hundreds, if not thousands of families will be coming along to see a variety of presentations and activities.

The organisers have asked TDARS if we would like to showcase our hobby at the STEM event on 23rd/24th March

I'm sure most of you already know that we are organising a RADIO based event within the STEM event at Cosford Museum under their banner of the museum's STEM "Space, Race and Fly"(1) event (23/03/24-07/04/24).
We already have talks arranged as well as STEM related activities and a TDARS stand inside the Cold War hanger, outside we have a HF/VHF Station as well as a radio vehicle, Satellite communicationss and QO-100 setup.

We have a number of volunteers but still require more so if you have some time to help promote TDARS in particular and Radio in general we would be very happy to hear from you!!

Take a look at the time tables for the below for information on what we are doing and when.
I'm hoping that we have sufficient volunteers to allow folk to take a look at the museum which is always worth a look especially if you have kids or grandkids to entertain.

SATURDAY	Talks	Activities	TDARS stand	Outside	Others
0700-1000				Put up aerials	
1000-1700	Outdoor Radio by Ben Lloyd RSGB **NOTE: until 1200**	TDAR activities 0900-1700 1300– 1700 Ben Lloyd RSGB Morse	Activities / stand Same location Plus 1 person	Small HF self-powered station & Fitted for radio Landrover and 12"x12" tent	Adhoc satellite operations as satellite passes occur QO0100 TV David Holman
1700 on				Remove equipment overnight	

SUNDAY	Talks	Activities	TDARS stand	Outside	Others
0700-1000				Put up aerials	
1000-1700	Weather balloon talk by Heather Lomond **NOTE: until 1200**	TDAR activities 1200– 1700 Leigh Preece M5GWH RSGB/ Morse	Activities / stand Same location Plus 1 person	Small HF self-powered station & Fitted for radio and 12"x12" tent	Adhoc satellite operations as satellite passes occur QO0100 TV David Holman
1700 on				Take down aerial masts & stands	

CONTACT John M0XJA (email acontractornow@yahoo.co.uk or groups.io

(1) https://www.rafmuseum.org.uk/midlands/whats-going-on/events/space-race-fly/

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