

Newsletter

Chesham & District Amateur Radio Society

www.g3mdg.org.uk

July 2020

We meet the 2nd and 4th Wednesdays of the month at the Whitehill Centre, Chesham, HP5 1AG

Welcome to the July edition of our newsletter

Welcome

This month we started the 'Air Miles' contest, just a little something to fill in some of your spare time. I was greatly surprised that just after 3 days and 3 entrants we had amassed over 200 QSO's and I was responsible for only 1 of those!.

My thanks go out to Jeremy (G3ZXG) for his Uncle Henry's yellow dog contribution, to Guy (M7GUY) for his article on setting up a DMR hotspot and Angie to for her notes on the Beyond Exams Scheme, thank you.

Bryan M0IHY

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Chairman - Jeremy Browne (G3XZG) Secretary - Angie Page (M6WTL)
Treasurer - Matt Whitchurch (M1DTG) Editor - Bryan Page (M0IHY)

All the above are members of the committee and can be contacted on cdars_committee@googlegroups.com

Chairman's Ramble

As I write this, it is Sunday evening after a rather wet day. There is the prospect of a further easing of the lockdown from 4th July and the plan is that this will enable some of us at least to meet in person on Wednesday the 8th.

Once again, the first thing I want to do is to thank all those who have kept the club as an active organisation over the last month.

We had our first sort of meeting on 24th June with a webex presentation on the RSGB beyond exams scheme. The object of this scheme is to encourage amateurs of all experiences, both within and outside clubs, to take on different activities with certificates being obtained, depending on how many of them a person successfully completes. There is in fact a list of 23 of these, but they don't include for some reason, bringing the beer. The committee will be thinking about how to take this forward as a club as it looks like a good way of increasing and varying what members do, and makes me realise just what a multi-faceted hobby it is. I was only able to listen to most of the webex, before I managed to get both my video and audio working, something which the rest of the meeting instantly regretted.

What we hope to do on the 8th July is to set up a station at Ashley Green. There is plenty of room outside the hall to do that and if successful, we would then like to have a meeting there when as many as possible can attend, to get everyone's view of the venue as opposed to returning to the Whitehill Centre. We have, as a club, been looking for an alternative for a long time, and this has become more necessary with the loss, in effect of the access to the rigs and the inability because of high noise levels from LED lighting, to operate remotely in the evening. There is LED lighting at the hall also, but nowhere near on the same scale. Those who have seen the hall were certainly impressed, but a move is a decision for the club, not the committee.

Finally, I will be interested to see the result of the categories in the "Air Miles" competition. I have stuck rigidly to the key, but claim the award for the most unpronounceable QTH, Niemczyn. Far too many consonants and what vowels it has are just shoved together.

Let's hope we will soon be able to plan full meetings. The nets though have been a great success and we will have to think how to continue those also.

73 for now, Jeremy.

The Editors Musings

I've been dabbling with the 'Air Miles' contest on FT8 this month, I'll do an article next month on how I found things, the pro's and con's. It's surprising how many QSO's (if you could call them that) you can knock up in a short time. My best contacts have been the U.S.A. (Florida), Brazil, Venezuela, Columbia, Bolivia, deep into Asiatic Russia, all on 50W on a 10 meter fishing pole in inverted-L format (10m up and 9.6m from the top towards the house), and a cobweb antenna at about 4 metres a.g.l., not bad for an inexpensive setup! Needless to say, I prefer some kind of exchange albeit it with a keyboard, morse key, or microphone, there is only so much FT8 I can handle, it becomes boring after a while.

Angie and I have ventured out for the first time in almost 14 weeks, we were shocked at how much had changed since we were last out. We still have to socially distance ourselves but hope to make it to the meeting on the 8th when we can bring the ferrite rings people have ordered and paid for.

Hotspots, or in my case 'Notspots'...

For my sins I decided to give a hotspot a try.

The internet has a very good article by M6CEB, it's quite comprehensive and guides you through the process of building and setting up a Raspberry Pi 3 hotspot.

As I had everything except the MMDVM board I could keep the costs low, just over £19 from a UK supplier, I joked with James (M0JCQ) that his was being 'rowed' over from China, mine would take around a week, James I think had to wait appreciably longer.

My board arrived, I read the instructions, it said "remove resistor R1" if I wanted to use it with the Pi-Star software, this I did, tiny little blighters, aren't they! Next thing was to download and load up an SD card with the Pi-Star software, this took about 3 minutes from start to finish.

"wait to boot 5 minutes connect wifi **Pi-star-setup** pass **raspberry**" was the instruction on line 3, I just love Chinglish! I duly plugged the Raspberry Pi in and was presented with a square divided into 4 on the screen, red, yellow, blue and cyan squares within, I waited 5 minutes, nothing happened, I waited an hour, still nothing happened, I turned the monitor off but left the Pi running. The next 30 minutes I spent putting an email together to the seller detailing what was happening, what I had done, etc., etc., I then retired for the evening.

Next morning I turned the monitor on, still the 4 brightly coloured squares displaying, this just wasn't right. Guy (M7GUY) had emailed me about installing a [wpa_supplicant.conf](#) file in the boot folder of the SD card, this I did, what this does is allows a headless unit (no monitor) without using an Ethernet cable on the first boot, this I've done with my Pi security camera, which worked successfully. I tried to boot again, still no joy.

This afternoon I received an email from the seller, it basically asked me what was wrong, could I send photographs, obviously my email had not been read, hmmm... I went through the whole process of what has happened so far and what I had done but this time I included photographs, 45 minutes later I sighed with relief as I clicked on the send button, I now await what they propose to put this matter right..

I received what I thought was a favourable response with apologies and the promise of a replacement but it would take up to 15 days, this I accepted. On the 1st of June I received an email saying the item would be sent within the next 24 hours. Today (the 19th June) my grey cells kicked in (they occasionally do that), I had totally forgotten about the hotspot, an email has now been sent suggesting a refund might be the order of the day if they are having trouble replacing said item.

From the response I got it seems there's a backlog with Royal Mail, I may have to wait a little longer, in the meantime enjoy the article by Guy (M7GUY) on how to set your hotspot up.

Now at the 26th of June and still no replacement, time for a refund methinks...

As long as I give a positive response (eBay seller) I can have my money back, it beggars belief!

Recent emails on the "phoenetic alphabet" have prompted me into some ill-researched thought and musings.

First, to be pedantic, the substitution of words for letters is not strictly phoenetics, which I think relies on using sounds to identify the letters.

Be that as it may, the origin of the use of words is, perhaps not surprisingly, military. It started I think in World War I, which was the first major conflict in which it was possible to transfer information by voice over a distance greater than shouting range. Distant communication had previously been achieved by forms of telegraphy or use of flags and other visual signals. The person either giving or receiving the information, which was done by telephone, needed to be clear, and could be in a dangerous and noisy environment, hence the need to use such things as "mike" for more etc.

Because of the way that the fighting was conducted, there was little need for the signallers of one country's forces to communicate with those of another and individual usages developed.

This became more apparent in World War II, when there was a great need to communicate between the allies as units from different countries combined in action. Not only did different countries use different words, but different branches of one country's armed forces did also. Hence the need for standardisation and what we now have as the ITU standard. When I looked this up, I was quite surprised to see that I followed it: Alpha, Bravo, Charlie, Delta, Echo, Foxtrot, Golf, Hotel, India, Juliet, Kilo, Lima, Mike, November, Oscar, Papa, Quebec, Romeo, Sierra, Tango, Uniform, Victor, Whiskey, X-ray, Yankee, Zulu.

Different forms still exist though and I suspect they may depend on who first taught the person which words to use. I recall one old amateur, G3KNE always as George 3, King Nan Easy, clearly old forces use. Other uses that stem from then are, baker, dog, fox, henry, item, love, nancy, peter, queen, sugar, uncle, yellow and zebra. Those can still be heard quite commonly. both here and abroad. Some Americans for instance would find the use of "yankee" offensive as it referred very much to the northern as opposed to the confederate states.

Added to that the need on occasions to use a more internationally recognised word when speaking to people for whom english is a second language at best and you get, America, Boston, Canada, Denmark, England, Florida, (France), Germany, (Guatemala), Honolulu, (Holland), Italy, (Italians never use India in their callsigns, why would they?) Japan, Kentucky, London, Mexico, Norway, Ontario, Portugal, (Panama), Radio, Santiago, Tokyo, (Texas), United, Washington, Yokohama and Zanzibar. I cannot recall hearing more international alternatives to Victor, Quebec or X-ray.

For a bit of fun I have devised a suggested new system, taking into account what we are now familiar with, as follows: Audio, Bond, Corona, Donald, Expert, Football, Garage, Human, Igloo, Jet, Khan, Lego, Megabite, Neon, Orbit, People, Quiddich, Robot, Star, Taxi, Universe, Vladimir, Western, (I give up on x), Youtube, Zinc.

Any other suggestions for a future newsletter?

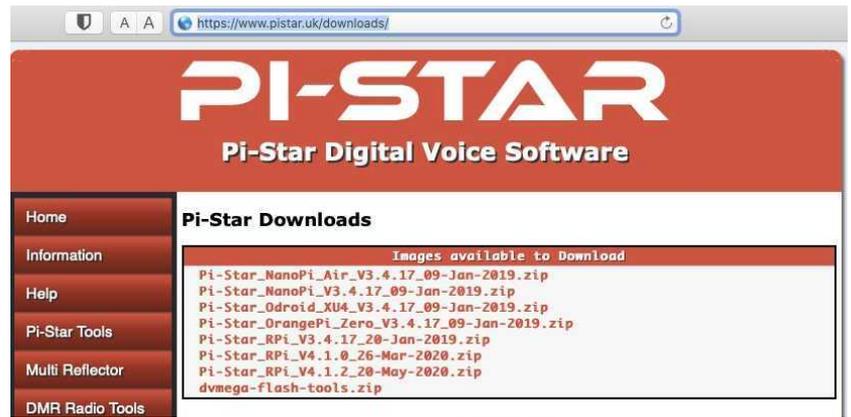
73, Jeremy. (Juliett Echo, Romeo Echo Mike Yankee.)

Download Pi-Star software
<https://www.pistar.uk/downloads/>

Select the image for your system,
typically using a Pi-Zero select

Pi-Star_RPi_V4.1.2_20-May-2020.zip

expand the zip file, inside will be a .img
the file.



Download and install software to write the image to the micro SD card for example Raspberry Pi Imager

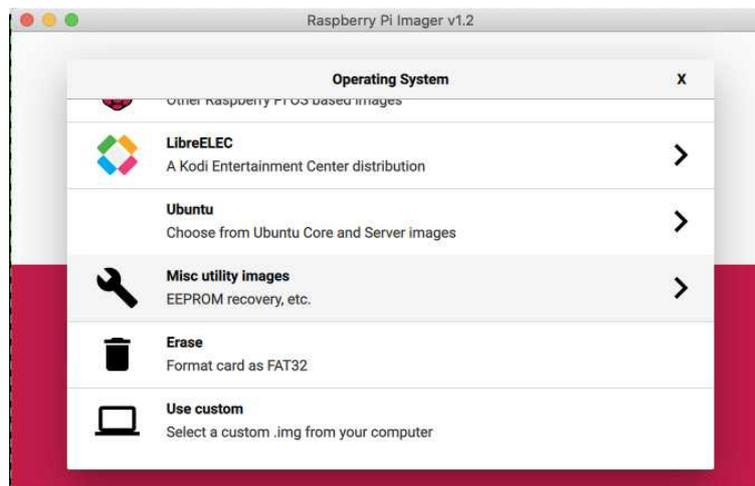
<https://www.raspberrypi.org/downloads/>

Select "Choose OS" and scroll down to "use Custom".



Insert a SD card (16Gb is plenty of space) and select it and write the image. It should only take 5-10 minutes.

Once complete you can remove the SD card from the computer.



Setting up a Pi-Star DMR Hotspot

Set WiFi credentials

Insert the SD card into your computer and it should mount the BOOT partition. Use a simple text editor, such as notepad, we're going to create a file called "wpa_supplicant.conf" which will define your WiFi. You can add multiple WiFi networks, eg, mobile phone, home WiFi, office WiFi, etc. The Pi will then look and try to connect to each in turn.

Copy these lines to the new file and save it to the SD card, (BOOT partition).

```
ctrl_interface=DIR=/var/run/wpa_supplicant GROUP=netdev
update_config=1
ap_scan=1
fast_reauth=1
country=GB

network={
    ssid="MY SSID"
    psk="My SUPER SECRET PASSWORD"
    id_str="0"
    priority=100
}
```

Once written, eject the SD card and you're ready to boot the Pi-Star.

Put the SD card into your pi-star and power it on. After a short time it should complete boot, you should be able to reach it with the URL <http://pi-star.local>. If not you might need to find it's IP address. This can be easily done by logging into your internet router and looking at the list of DHCP leases.

Initial configuration

Connect to <http://pi-star.local>, and login with the credentials

username: pi-star
password: raspberry

The screenshot shows the Pi-Star configuration web interface. It is divided into two main sections: 'Controller Software' and 'General Configuration'. Both sections have a table with 'Setting' and 'Value' columns.

Controller Software

Setting	Value
Controller Software:	<input type="radio"/> DStarRepeater <input checked="" type="radio"/> MMDVMHost (DV-Mega Minimum Firmware 3.07 Required)
Controller Mode:	<input checked="" type="radio"/> Simplex Node <input type="radio"/> Duplex Repeater (or Half-Duplex on Hotspots)

Apply Changes

General Configuration

Setting	Value
Hostname:	pi-mobile Do not add suffixes such as .local
Node Callsign:	MTABC
Radio Frequency:	438.800.000 MHz
Latitude:	50.00 degrees (positive value for North, negative for South)
Longitude:	-3.00 degrees (positive value for East, negative for West)
Town:	Town, L0C4T0R
Country:	Country
URL:	<input type="text" value="http://www.mw0mwz.co.uk/pi-star/"/> <input type="radio"/> Auto <input checked="" type="radio"/> Manual
Node Type:	<input checked="" type="radio"/> Private <input type="radio"/> Public
APRS Host:	euro.aprs2.net
System Time Zone:	Europe/London
Dashboard Language:	english_uk

Apply Changes

Setting up a Pi-Star DMR Hotspot

Work your way down the “General Configuration” settings.

- Node Callsign
- DMR ID
- Radio Frequency, pick one that’s free where you plan to use it.
- Location settings are optional.
- Node Type, if set to private will only accept radios with your DMR-ID, make public if you have multiple, though rules suggest this might not be permissible in the UK.

Select apply changes. Once refreshed which can take a few seconds more config options will display.

Before going much further set the radio/modem type to match your MMDVM modem and select apply again. It’s often necessary to set this twice on first configuration.

Setting	Value
DMR Mode:	<input checked="" type="radio"/> RF Hangtime: 20 Net Hangtime: 20
D-Star Mode:	<input type="radio"/> RF Hangtime: 20 Net Hangtime: 20
YSF Mode:	<input type="radio"/> RF Hangtime: 20 Net Hangtime: 20
P25 Mode:	<input type="radio"/> RF Hangtime: 20 Net Hangtime: 20
NXDN Mode:	<input type="radio"/> RF Hangtime: 20 Net Hangtime: 20
YSF2DMR:	<input type="radio"/>
YSF2NXDN:	<input type="radio"/>
YSF2P25:	<input type="radio"/>
DMR2YSF:	<input type="radio"/> Uses 7 prefix on DMRGateway
DMR2NXDN:	<input type="radio"/> Uses 7 prefix on DMRGateway
POCSAG:	<input type="radio"/> POCSAG Paging Features
MMDVM Display Type:	OLED Type 3 Port: /dev/ttyAMA0 Nextion Layout: ON7LDS L2

- Enable DMR and select Apply.
- Set the Display details if you have one.
- Apply changes

Setting	Value
DMR Master:	DMRGateway
BrandMeister Master:	BM_Europe_2001
BM Hotspot Security:	
BrandMeister Network ESSID:	Z348240 02
BrandMeister Network Enable:	<input checked="" type="radio"/>
BrandMeister Network:	Repeater Information Edit Repeater (BrandMeister Selfcare)
DMR+ Master:	DMR+_IPSC2-PhoenixF
DMR+ Network:	Options=
DMR+ Network ESSID:	Z348240 02
DMR+ Network Enable:	<input type="radio"/>
XLX Master:	XLX_950
XLX Startup Module:	Default
XLX Master Enable:	<input type="radio"/>
DMR Colour Code:	1
DMR EmbeddedLCOnly:	<input type="radio"/>
DMR DumpTAData:	<input checked="" type="radio"/>

Setting up a Pi-Star DMR Hotspot

DMR Configuration

- set DMR master to “DMRGateway”
- Apply changes

- BrandMeister Master: “BM_Europe_2001”, there is a UK one but it doesn’t seem to work well for me.

- The ESSID can be left blank if you only have one Pi, if you have multiple make sure each is unique.

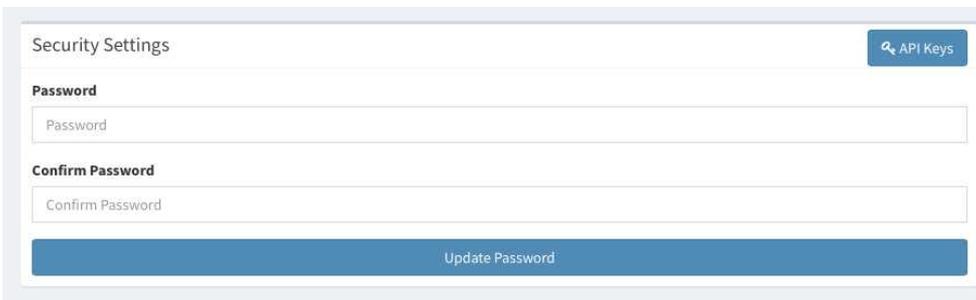
Brandmeister API key

The API key allows your pi-star to interact with brandmeister servers and set and unset static talk groups and reflectors.

You’ll need to create an account with Brandmeister, <https://brandmeister.network>, creating an account is straight forward and just requires for DMR-ID for validation.

Once you’re account is enabled, you can login and select “Profile Settings”.

Under Security Settings, on the right hand side is a button “API Keys”, selecting this to manage your keys.

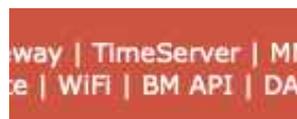


The screenshot shows the 'Security Settings' page in the Brandmeister mobile app. At the top right, there is a search icon and the text 'API Keys'. Below this, there are two input fields: 'Password' and 'Confirm Password'. At the bottom of the form is a blue button labeled 'Update Password'.



Select “Add” to create a new key, pick a name for the key. Not sure the value of the QR code, so just copy the string at the top, you can select the “Copy” button.

With copied reconnect to your new Pi-star and select configuration, and then select “Expert”, you’re now looking for the button “BM API”.



You can now paste this key into the field presented and select “apply changes” to finish.



Setting up a Pi-Star DMR Hotspot

Dashboards

There are two dashboards you can watch, "Dashboard" and "Admin". The Dashboard provides a good overview of it's function. The Admin board provides additional details on static talk groups, and with the API key set allows to add and remove them.

Hostname: pi-mobile Pi-Star 4.1.2 / Dashboard: 20200528

Pi-Star Digital Voice Dashboard for M7GUY

Dashboard | Admin | Configuration

Modes Enabled	
D-Star	DMR
YSF	P25
YSF XMode	NXDN
DMR XMode	POCSAG

Network Status	
D-Star Net	DMR Net
YSF Net	P25 Net
YSF2DMR	NXDN Net
YSF2NXDN	YSF2P25
DMR2NXDN	DMR2YSF

Radio Info	
Trx	Listening
Tx	433.900000 Mhz
Rx	433.900000 Mhz
FW	HS_Hat:v1.4.17
TCXO	14.7456 Mhz

DMR Repeater	
DMR ID	2348240
DMR CC	1
TS1	disabled
TS2	enabled
DMR Master	
BM Europe 2001	
DMR+ IPSC2-PhoenixF	
Rho Link	

Gateway Activity									
Time (BST)	Mode	CallSign	Target	Src	Dur(s)	Loss	BER		
09:03:44 Jun 22nd	DMR Slot 2	2E0FNS	TG 23531	Net	10.9	0%	0.0%		
08:41:23 Jun 22nd	DMR Slot 2	G1LTK	TG 23531	Net	0.5	0%	0.0%		
07:52:21 Jun 22nd	DMR Slot 2	M0GLJ	TG 23531	Net	2.6	13%	0.1%		
22:52:12 Jun 21st	DMR Slot 2	2E0ORE	TG 23531	Net	0.8	0%	0.0%		
21:11:35 Jun 21st	DMR Slot 2	G1SPA	TG 23531	Net	3.1	35%	0.0%		
19:57:41 Jun 21st	DMR Slot 2	M7ANW	TG 23531	Net	1.2	0%	0.0%		
19:51:56 Jun 21st	DMR Slot 2	M7GUY	TG 723531	RF	0.4	0%	0.7%		
19:46:57 Jun 21st	DMR Slot 2	E17IG	TG 23531	Net	1.6	0%	0.0%		
19:46:53 Jun 21st	DMR Slot 2	G4PAG	TG 23531	Net	20.6	0%	0.0%		
17:46:39 Jun 21st	DMR Slot 2	G4KUJ	TG 23531	Net	29.8	4%	0.0%		
17:46:04 Jun 21st	DMR Slot 2	ZW0YMS	TG 23531	Net	53.0	0%	0.0%		
17:41:59 Jun 21st	DMR Slot 2	G4GHZ	TG 23531	Net	13.8	0%	0.0%		
17:36:50 Jun 21st	DMR Slot 2	M7AJV	TG 23531	Net	0.5	0%	0.0%		
17:32:14 Jun 21st	DMR Slot 2	G4CCC	TG 23531	Net	1.1	66%	0.0%		
17:32:11 Jun 21st	DMR Slot 2	G4KWT	TG 23531	Net	4.8	3%	0.0%		
17:31:52 Jun 21st	DMR Slot 2	G4JTR	TG 23531	Net	6.6	0%	0.0%		
17:13:00 Jun 21st	DMR Slot 2	G6NLX	TG 23531	Net	8.8	8%	0.0%		
17:04:21 Jun 21st	DMR Slot 2	M6JSA	TG 23531	Net	2.3	0%	0.0%		
17:02:59 Jun 21st	DMR Slot 2	M0JSA	TG 23531	Net	2.7	26%	0.0%		
16:56:52 Jun 21st	DMR Slot 2	G4NJR	TG 23531	Net	1.6	23%	0.0%		

Local RF Activity							
Time (BST)	Mode	CallSign	Target	Src	Dur(s)	BER	RSSI
19:51:56 Jun 21st	DMR Slot 2	M7GUY	TG 723531	RF	0.4	0.7%	S9+46dB (-47 dBm)

Pi-Star / Pi-Star Dashboard, © Andy Taylor (M0BHWZ) 2014-2020.
ircDDBGateway Dashboard by Hans-J. Sarten (DL5DI).
MMDVMdash developed by Kim Huebel (DG9VH).
Need help? Click here for the Facebook Group
or Click here to join the Support Forum
Get your copy of Pi-Star from here.

Hostname: pi-mobile Pi-Star 4.1.2 / Dashboard: 20200528

Pi-Star Digital Voice Dashboard for M7GUY

Dashboard | Admin | Live Logs | Power | Update | Configuration

Gateway Hardware Information				
Hostname	Kernel	Platform	CPU Load	CPU Temp
pi-mobile	4.19.118+	Pi Zero W Rev 1.1 (512MB)	3.12 / 2.23 / 1.77	39.5°C / 103.1°F

Service Status					
MMDVMHost	DMRGateway	YSFGateway	YSFParrrot	P25Gateway	P25Parrrot
DStarRepeater	ircDDBGateway	TimeServer	PiStar-Watchdog	PiStar-Remote	PiStar-Keeper

Active BrandMeister Connections						
BrandMaster	Master	Default Ref	Timeout(s)	Active Ref	Static TGs	Dynamic TGs
BM Europe 2001	Not Set	Not Set	None	TG23531	None	None

BrandMeister Manager			
Tools	Active Ref	Link / UnLink	Action
Drop OSD	None	<input type="radio"/> Link <input checked="" type="radio"/> UnLink	Modify Reflector
Static Talkgroup	Slot	Add / Remove	Action
	<input type="radio"/> TS1 <input checked="" type="radio"/> TS2	<input checked="" type="radio"/> Add <input type="radio"/> Delete	Modify Static

Gateway Activity									
Time (BST)	Mode	CallSign	Target	Src	Dur(s)	Loss	BER		
09:03:44 Jun 22nd	DMR Slot 2	2E0FNS	TG 23531	Net	10.9	0%	0.0%		
08:41:23 Jun 22nd	DMR Slot 2	G1LTK	TG 23531	Net	0.5	0%	0.0%		
07:52:21 Jun 22nd	DMR Slot 2	M0GLJ	TG 23531	Net	2.6	13%	0.1%		
22:52:12 Jun 21st	DMR Slot 2	2E0ORE	TG 23531	Net	0.8	0%	0.0%		
21:11:35 Jun 21st	DMR Slot 2	G1SPA	TG 23531	Net	3.1	35%	0.0%		
19:57:41 Jun 21st	DMR Slot 2	M7ANW	TG 23531	Net	1.2	0%	0.0%		
19:51:56 Jun 21st	DMR Slot 2	M7GUY	TG 723531	RF	0.4	0%	0.7%		
19:46:57 Jun 21st	DMR Slot 2	E17IG	TG 23531	Net	1.6	0%	0.0%		
19:46:53 Jun 21st	DMR Slot 2	G4PAG	TG 23531	Net	20.6	0%	0.0%		
17:46:39 Jun 21st	DMR Slot 2	G4KUJ	TG 23531	Net	29.8	4%	0.0%		
17:46:04 Jun 21st	DMR Slot 2	ZW0YMS	TG 23531	Net	53.0	0%	0.0%		
17:41:59 Jun 21st	DMR Slot 2	G4GHZ	TG 23531	Net	13.8	0%	0.0%		
17:36:50 Jun 21st	DMR Slot 2	M7AJV	TG 23531	Net	0.5	0%	0.0%		
17:32:14 Jun 21st	DMR Slot 2	G4CCC	TG 23531	Net	1.1	66%	0.0%		
17:32:11 Jun 21st	DMR Slot 2	G4KWT	TG 23531	Net	4.8	3%	0.0%		
17:31:52 Jun 21st	DMR Slot 2	G4JTR	TG 23531	Net	6.6	0%	0.0%		
17:13:00 Jun 21st	DMR Slot 2	G6NLX	TG 23531	Net	8.8	8%	0.0%		
17:04:21 Jun 21st	DMR Slot 2	M6JSA	TG 23531	Net	2.3	0%	0.0%		
17:02:59 Jun 21st	DMR Slot 2	M0JSA	TG 23531	Net	2.7	26%	0.0%		
16:56:52 Jun 21st	DMR Slot 2	G4NJR	TG 23531	Net	1.6	23%	0.0%		

Local RF Activity							
Time (BST)	Mode	CallSign	Target	Src	Dur(s)	BER	RSSI
19:51:56 Jun 21st	DMR Slot 2	M7GUY	TG 723531	RF	0.4	0.7%	S9+46dB (-47 dBm)

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Need help? Click here for the Facebook Group
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Get your copy of Pi-Star from here.

It's ironic that last month I decided to do a bit on what was a safe distance to be away from an antenna knowing what power you were putting into it, now Ofcom propose compliance for limiting exposure to electromagnetic fields. But before I start this discussion, let me iterate what is said in the "**Full Licence Manual**", page 15, "**Exposure to RF energy**".

"So, if you operate 5m away from an antenna radiating 200 ERP your exposure would be in the region of 20 V/m. Similarly a field-day or demonstration station might have 400W to a 6dB gain antenna which would give a field strength of 28 V/m at 10m. Although no longer a formal limit, 28 V/m is often used as a guide above which you need to conduct a more careful analysis and take steps to reduce it."

Taking into account what has been said above, let's do the maths...

$$V/m = \frac{7 \times \sqrt{e.r.p.}}{\text{distance (m)}}$$

$$\frac{7 * \sqrt{200}}{5 \text{ metres}} = \frac{7 * 14.14}{5 \text{ metres}} = \frac{98.98}{5 \text{ metres}} = 19.8 \text{ V/m}$$

$$\frac{7 * \sqrt{400 * 2 * 2}}{10 \text{ metres}} = \frac{7 * \sqrt{1600}}{10 \text{ metres}} = \frac{7 * 40}{10} = \frac{280}{10} = 28 \text{ V/m}$$

I'm happy that we're using the correct formula as the results above are what the RSGB state in the Full Licence Manual.

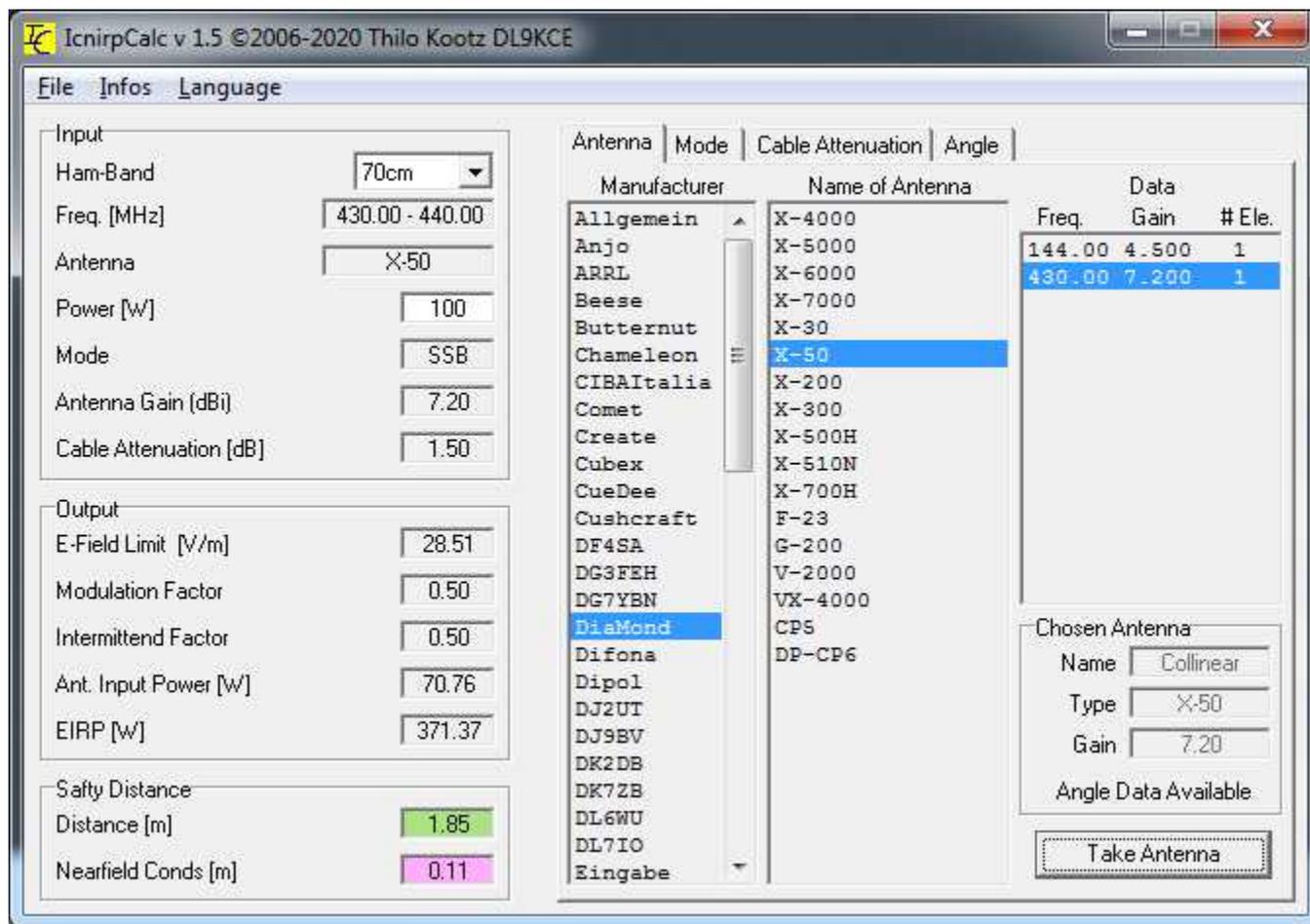
I downloaded the IARU ICNIRPcalc tool, it looked complex but gives a fair amount of information, albeit the antenna list being rather limited. I chose a Diamond X50 from the list (I have one of these), selecting both 2m and 70cm frequencies to see what they recommend as 'safe' distances.

Looking at the results from the program I felt something wasn't quite right, so using the same formula as used on the RSGB example I came up with my own values.

	ICNIRP	My calc
Power	100W	same
Gain	4.5dB	same
E-Field	27.50 V/m	70.27 V/m
EIRP	235.89W	same
Safe distance	1.53m	3.84m

If anybody can shed any light on why there would be differences in the two sets of calculations, I would be interested in an explanation.

The same can be said of the 70cm chart (next page).



	ICNIRP	My calc
Power	100W	same
Gain	7.2dB	same
E-Field	28.51 V/m	99.92 V/m
EIRP	371.37W	same
Safe distance	1.35m	4.82m

As you can see from above, the figures just don't add up.

So, what does this mean to any of us? Personally I have less than 3 metres either side of my antenna's (both vertical and pump-up mast) before I reach the boundary with my neighbours so that limits power to about 50W (which I tend to keep to anyway) giving me a V/m figure of 12.12 at 10 metres high (the pump-up mast is up at 10.5 metres), quite safe, however, my inverted-L vertical is a different matter and that gets used when neither of my neighbours are in their back gardens. The cobweb falls within spec at around 4 metres, this limits me to 20m, 17m, 15m, 12m and 10m, which is no problem as I'm doing rather well on 17m.

If you want to see the response from the R.S.G.B. you can see it at:

http://rsgb.org/main/files/2020/06/200605_Ofcom-EMF-Consultation_RSGB-Response.pdf

As many of you know the RSGB have set up a new scheme called Beyond Exams.

Chris Colclough, G1VDP is the RSGB coordinator and on Wednesday 24th June held a webex meeting to give us an idea what this is all about.

There are two categories to the scheme, ***The Club Scheme*** and ***The individual Scheme***.

The Club Scheme

This consists of 23 activities that an individual can take part in with the club and you can achieve various levels of awards from Bronze by completing 3 activities to Diamond completing all 23. The start date will be from 1st December 2019 with no finish date.

The Individual Scheme

This consists of around 150 activities that as an individual you can take part in. Once again the start date is 21st December 2019.

As we are trying to promote the club it will be beneficial to us to promote the Club Scheme and get individuals involved and encourage our new licence holders to find out more, whilst enjoying the club knowledge that we can share.

There has to be some champions in the group to help promote this and at the moment I seem to be that person until we sort out how we are going to tackle things. Hopefully once we can all meet up we can talk this through.

I have attached the link for the presentation for those who could not attend to give you an idea of what is required.

<https://www.youtube.com/watch?v=e1m68l4sVTA>

The following pages will give you an idea what the scheme is about...

Beyond Exams Club Scheme

At 'Club' level the scheme seems at its simplest

HAVING A GO

- HG1 Log fifty contacts on the VHF/UHF using any mode.
- HG2 Log contact with amateur radio stations in three of the "home" countries.
- HG3 Log fifty phone/CW contacts on the HF bands.
- HG4 Log fifty contacts using digital data modes on any band.
- HG5 Log ten contacts using image modes on any band.
- HG6 Log ten contacts using digital voice modes on any band.
- HG7 Log a contact through a satellite, or with the International Space Station.

GETTING INVOLVED

- GI1 Activate a SOTA summit.
- GI2 Log contacts in twenty Worked All Britain (WAB) squares.
- GI3 Log ten successful contacts during a contest.
- GI4 Help set-up/tear-down a special event station.
- GI5 Operate/log at a special event station.

TAKING PART

- TP1 Attend six club meetings.
- TP2 Take part in you club's net on six separate occasions.
- TP3 Undertake a regular role within your club.
- TP4 Make a presentation to your club on an Amateur Radio-related topic.
- TP6 Help organise an activity for a club meeting.

MAKING

- MK Build a piece of amateur-radio related equipment for your shack.
- MK Write a piece of amateur-radio related software for your shack.

PROMOTING AMATEUR RADIO

- PR1 Introduce someone to the hobby that starts a Foundation course.
- PR2 Attend a rally/exhibition to help promote your club.
- PR3 Help run an amateur radio training course.

There are certificates awarded for:

- Bronze - 3 activities completed.
- Silver - 5 activities completed.
- Gold - 10 activities completed.
- Platinum - 15 activities completed.
- Diamond - 23 activities completed.

If you have completed any of the above activities since 1st December 2019 they will count towards your awards.

Beyond Exams Scheme

Beyond Exams Individual Scheme

At 'Individual' level the scheme seems a little more complex and offers around 150 different activities to do with amateur radio, too many to list in the newsletter, however, here's a list of topics covered:

Title

Operating Generally
Operating digital, image and satellite
Operating awards
Contesting and radio sport
Participation activities (non-contest)
Promoting amateur radio
Making
Tinkering and experimenting
Learning and research

If you want further information you can follow the URL on page 14, or contact Angie via the club

This months club contests

July

VHF

Day	Date	Time UTC	Contest Name
Sat	04.07.2020	17:00 to 19:00	VHF NFD 70MHz
Sat	04.07.2020	14:00 to 16:00	VHF NFD 50MHz
Sun	05.07.2020	11:00 to 14:00	VHF NFD 144MHz
Sun	05.07.2020	05:00 to 07:00	VHF NFD 1.3GHz
Sun	05.07.2020	08:00 to 10:00	VHF NFD 432MHz

August

VHF

Day	Date	Time UTC	Contest Name
Sat	01.08.2020	14:00 to 18:00	4th 144MHz Backpackers
Sat	01.08.2020	14:00 to 20:00	144MHz Low Power Contest
Sun	02.08.2020	08:00 to 12:00	432MHz Low Power Contest
Sun	09.08.2020	14:00 to 16:00	70MHz Accumulatives No.5

'Air Miles', how far have we gone?

At the time of writing this (19th June) I note the following:

- Enough mileage has been accumulated (by just one individual) to travel to the moon.
- Almost enough mileage overall to the moon and back.
- The furthest QSO is over 5000 miles away.
- The nearest QSO is just over 3 miles away.

The total QSO's across all contestants comes to just under 600 at this time.

The values I'll be reporting on overall will be:

- Total miles accumulated, cumulative and by individual.
- Total QSO's, accumulative and by an individual.
- Highest average miles per QSO.
- Greatest distance of a QSO.
- Least distance of a QSO.
- Highest number of Maidenhead squares attained.

As the year progresses I shall be reporting on rolling totals on a month by month basis.

Why not join in the fun, although I stated last month that the competition was limited to HF, I see no reason why it can't include VHF/UHF, if you want to try it out you need to email me any log files you have, the format for HF is simple, just ADIF, for VHF/UHF the format of the data should be:

- time - 'dd-mm-YYYY hh:mm:ss' (24-hour format).
- band - 160m, 80m,40m, 20m, 17m, 15m, 12m, 10m ,6m. 4m, 2m, or 70cm
- mode - CW, FT8, SSB, etc, etc.
- callsign - you contacts callsign
- locator - their locator, if you don't get it you can look up QRZ.com and get it from there, or <http://www.levinecentral.com/ham/>, which I find best if it's not on QRZ.com.

You will need to attach the log to an email, it's name should be *yourcallsignYYYYMMDD.txt* with your locator included in the email, my email address is bryanpage1@btinternet.com, include "*yourcallsign* Log file" on the subject line.

If you're doing FT8 or JS8Call, just email me the log file, I have written BBC Basic programs to process both ADIF and WSJTX (and JS8Call) files.

Please ensure you have searched QRZ.com for any missing, or 4 character locators (this usually happens with FT8 if using WSJT-X, maybe JS8Call too) and fill in the missing characters, if you can't find it on QRZ.com, try www.levinecentral.com, this is a very comprehensive site, limited only by the number of lookups in any one day..

Any locators with only 4 characters will have 'mm' added (this is the middle of the square) to calculate mileage from (this will only be applied to callsigns not found on QRZ.com, or www.levinecentral.com). The subject line of the email should include "Air Miles log" and your callsign.

Remember, this is all in the name of having fun, nothing too serious...

This months results are over the page.

'Air Miles' results for June

The categories are:

1. Total mileage.
2. Number of QSO's.
3. Longest QSO.
4. Shortest QSO.
5. Average miles per QSO.
6. Number of Maidenhead squares attained.
7. QSO's by band.
8. QSO's by mode.

General

Most miles

G3ZNU		(419,243)
M0IHY		(392,932)
G3XZG		(86,867)
M7CXP		(22)

Longest QSO (miles)

M0IHY		CP6CL (6099)
G3ZNU		JR3NZC (5924)
G3XZG		R5VAN (1674)
M7CXP		G4DUL (11)

Average per QSO (miles)

M0IHY		(922.38)
G3ZNU		(890.11)
G3XZG		(886.40)
M7CXP		(11.00)

Most QSO's

G3ZNU		(471)
M0IHY		(426)
G3XZG		(98)
M7CXP		(2)

Shortest QSO (miles)

G3ZNU		(0)
G3XZG		(3)
M0IHY		(4)
M7CXP		(11)

Maidenhead Squares

G3ZNU		(380)
M0IHY		(341)
G3XZG		(94)
M7CXP		(1)

By Band

QSO's for 2m

M7CXP		(2)
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QSO's for 6m

G3ZNU		(347)
G3XZG		(66)
M0IHY		(4)

QSO's for 10m

G3ZNU		(122)
G3XZG		(14)
M0IHY		(10)

QSO's for 15m

M0IHY		(20)
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QSO's for 17m

M0IHY		(119)
G3ZNU		(2)

QSO's for 20m

M0IHY		(132)
G3XZG		(17)

QSO's for 30m

M0IHY		(52)
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QSO's for 40m

M0IHY		(86)
G3XZG		(1)

QSO's for 80m

M0IHY		(1)
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'Air Miles' results for June

By Mode

CW

G3XZG  (98)

FM

M7CXP  (2)

MFSK

G3ZNU  (115)

Olivia 8/250

MOIHY  (1)

SSB

G3ZNU  (15)

FT8

MOIHY  (425)

G3ZNU  (341)

Firstly my thanks to Malcolm (G3ZNU) for pointing out errors in the mileage calculation, now sorted and hopefully correct.

As can be seen, Malcolm has just about cleaned up this month although if you check the charts, everybody came first in something, that's what it's all about, having fun and enjoying doing it, we're all winners in one way, or another.

Well done to Peter for taking the plunge, you're on the scoreboard!

Now we've done the first month, I'm hoping to see more of you budding licencees having a go, personally, I shall be trying on JS8Call during July, FT8 has its uses, letting you know what the propagation is like and when the big boys come out to play, all very useful but boring (to me) after a while.

Some of you may think the analysis is too deep, you could be right, if you have any ideas on how to do it better, or improve it please let me know.

We've accumulated 899,055 miles, if we had been astronauts we would be on our way back from the moon for the 2nd time with just 53,265 miles to go!

MOIHY

Any other business

Upcoming exams

Anthony, a friend of Jules, has his Foundation exam booked for the 24th of July, we wish him well and have every confidence that we'll see a new callsign by the end of the month.

For sale

Icom IC-7600 HF / 50MHz 100W Transceiver

HF / 50MHz 100W Transceiver complete with User Manuals, Hand Mic, Power Lead, Extended 5.0MHz Coverage, In Excellent Condition.

The IC-7600 has all the features you would expect are here including PBT, RIT, XIT, keypad, 24-hour clock-timer, 101 memories and multiple scan modes. There is also a built-in Audio recorder and Voice Message Keyer.

This radio has 2 USB ports. The front panel USB port is for keyboard or USB memory and one on the rear panel for PC control and audio.

The Icom IC-7600 provides professional performance in the 160 metre to 6 metre amateur bands. It utilises Icom's proven IF-DSP technology and features selectable roofing filters at 3kHz, 6kHz and 15kHz. Dual frequency watch is available with same band operation.

There is a RTTY and PSK31 encoder/decoder built in! (see second photo).





This radio has six transmit meter functions and 3 meter display modes, plus a meter output jack on the rear panel.

Enjoy great stability with a built-in TXCO providing 0.5ppm (0-50C).

There is both a mechanical relay (16V/0.5A) and FET relay (250V/200mA) for keying an external amplifier. Separate RX-OUT and RX-IN antenna ports are provided allowing connection of external preselectors, etc.

There is also a transverter port.

Price £975 o.n.o.

Contact Terry G0VFW
g0vfw@thirlwell.me.uk
07846-446154

Please remember the email address is "thirlwell" and not "thirwell" (I found this out when emailing Terry, only to find it bounce!) - M0IHV.