OPEN FOR BUSINESS | Loads of deals with home delivery inside

RadioUser

May 2020 £4.99 www.radioenthusiast.com

FIRST LOOK | **New gear from handhelds to CB**

The Pandemic

The changing role of radio in these turbulent times

Going Off Grid

A look at apps, wi-fi, and gear for ad hoc networks

Going Loopy

Stuck indoors? Check our review of the new Reuter RLA4E Wide Band Active Magnetic Crossed Loop Aerial

Radio User REVIEW Radio User

Reasoning Engines and Radio Officers

Comms between manned and unmanned sea vessels

Reginald Fessenden: Radio's First Voice?

We profile one the lesser known pioneers of early radio

DRM Portables | Early Radio | Farmers' Voice Radio | International Air Show Guide
PropLab 3.1 Propagation Tool | UHF Frequency Changes | Weather Satellites

05
9 771748 811135
WARNERS
Display until 28th May 2020

WE ARE OPEN FOR INTERNET AND TELEPHONE ORDERS!

ALINCO

DX-R8E
Communications Receiver with SDR capability
- Frequency: 150kHz-34.999MHz
- Modes: AM / FM / CW / USB / LSB

£469.95

Optional 12V DC power supply.....£15.95

DJ-X3ED
Pocket Size Scanner
- 150kHz-1300MHz
- Modes: AM/FM/WFM
- Memory: 700 channels

£109.95

BEARCAT

BCT-15X
Latest Base Mobile Scanner with 'Close Call'
- 25-1300MHz (with gaps)
- 9000 memories
- AM/FM/WFM
- Band scope
- CTCSS/DCS decoding
- Alpha-numeric tagging feature
- GPS enabled

Supplied with:
- Mains adaptor
- DC Car Power Plug
- Telescopic Antenna
- Mounting Bracket and Hardware

£249.95

UBC-125XLT
500 channel AM/FM scanner
- 25-960MHz (w/gaps)
- Inc civil/Mil Airbands
- Close Call feature

£129.95

UBC-75XLT
Popular 'Airshow' scanner
- 25-512MHz (with gaps)
- Modes: AM/FM
- 300 channels
- Close Call

£99.95

EZI-33XLT
Compact handheld - easy to use!
- Covers: 78 MHz-512MHz (w/gaps)
- PMR, Marine, Aircraft, FM, etc.

£64.95

UBC-370CLT
500 channel AM/FM scanner
- Includes VHF FM broadcast radio
- Covers: 25 - 960MHz (w/gaps)
- Listen to PMR, Marine, Air, CB, Amateur

£119.95

JIM M75

Wide Band pre-amp
Low noise pre-amp with 3 band pass filters
- 24-2150MHz
- Variable gain
- 12V DC or PP3 battery (not supplied)

£89.95

AOR

AOR AR-8600 MkII
Communications Receiver
- Frequency: 530kHz-3000MHz no gaps
- Modes: WFM, NFM, SFM, WAM, AM, NAM, USB, LSB, CW

Optional Mains Power supply.....£25.95

£629.95

HEADPHONES

Yaesu STA77
Lightweight Stereo headphones - as used by our boss!

£79.95

ANTENNAS

Create Log Periodic Antennas - Japan *as used by the 'Professionals'*

CLP-5130-1N
21 Element LPA
- 50-1300MHz
- Gain: 10-12dBi

£379.95

CLP-5130-2N
17 Element LPA
- 105-1300MHz
- Gain: 11dBi

£299.95

DIAMOND D-777 Airband Antenna

Fibreglass 1.7m long, this antenna gives High Gain coverage of VHF/UHF Airband

£64.95

Scanmaster HFA
Active Receive Antenna
Covers: 1.8-30MHz
8" long c/w all leads - just needs 12V DC!

£44.95

Sirio SD-3000N Discone
High quality stainless steel, chromed brass & anodised aluminium construction
- 300 MHz-3GHz

£69.95

Scanmaster Desktop
Indoor Discone antenna
25-1300MHz complete with cable and BNC plug

£49.95

Tecsun Receive Loops

AN200
MW passive loop **£29.95**

AN48X NEW!
Covers: SW, MW, LW
Active wire loop.....**£39.95**

AOR LA-400
Low Noise - hear weak signals in the LW, MW and SW Bands
- Receives 10kHz-500MHz
- 30.5cm diameter Loop
- 20dB built-in Pre-amp

£399.95

End Fed Wire Receive Antenna

High quality complete kit includes mounting hardware & coax cable
- Covers: 2-30MHz
- Kevlar Mil spec. wire
- Length: 20m

£69.95

AIRSPY

Airspy HF+ Discovery
Enhanced version HF/VHF SDR receiver

With Pre-selectors for improved dynamic range
- 9kHz - 13MHz
- 60MHz - 260MHz
- Use over internet
- 60 x 45 x 10 mm

£199.95

AIRSPY R2
VHF/UHF/SHF Receiver
- Coverage: 24MHz-1,800MHz
- 10MHz panoramic spectrum
- 3.5 dB NF (42-1002) MHz
- Tracking RF filters

£199.95

AIRSPY Mini
High performance miniature SDR Dongle
- Covers: 24-1800MHz

£119.95

SDRplay

RSPdx SDR in metal case

Covers: 1 kHz - 2GHz
Now with Improved:
- Performance below 2MHz
- Pre selection Filters
- Strong signal handling

- Monitor/record up to 10MHz spectrum
- Three Software Selectable Antenna ports
- DAB notch Filter

£194.95

RSP 1A Wideband Budget SDR

- Covers: 1 kHz - 2GHz
- Software upgradable
- Good dynamic range
- Calibrated S meter

£94.95

RSP DUO Dual Tuner SDR

- Covers: 1 kHz - 2GHz
- Simultaneous - independent receive
- Software upgradable
- SDR UNO supports Diversity Tuning

£239.95

WHISTLER

Whistler TRX-2

£479.95

Whistler TRX-1

£419.95

Two Digital Scanners with these specs:-
- Receives 25-1300 MHz (with gaps)
- Covers DMR, MotoTRBO - and more!
- Upgradable CPU, DSP, and library
- Store Scan lists
- EZ Scan PC software
- IF/discriminator output
- Record & save to Windows
- Clock & Calendar function
- Spectrum Sweeper

SIRIO Antennas

Quality Antennas from Italy!

WY108-3N
Airband
3 element Beam
- Freq: 108-137MHz
- Gain: 7 dBi
- Boom: 1.4m

£89.95

VHF/UHF Verticals
CX4-68.....(68 – 73)MHz 4m 4.15 dBi **£69.95**
CX440.....(440 – 455)MHz pmr 4.15 dBi .....**£ 39.95**
CX455.....(455 – 470)MHz pmr 4.15 dBi **£39.95**
TORNADO 50-60...(50 – 60)MHz 6m 3.5dBi **£59.95**

HF/VHF/UHF Beams
SY3 .....3 el (26-28)MHz 10.65 dBi.....**£99.95**
SY4 .....3 el (26-28)MHz 13.15 dBi **£119.95**
SY50-3.....3 el 50MHz 8.5 dBi.....**£99.95**
SY50-5.....5 el 50MHz 10.5dBi.....**£129.95**
SY68-3.....3 el 70MHz 7.0 dBi.....**£79.95**
WY108-3n..3 el 108-137MHz 3 el. Air Band **£89.95**
WY140-6n..6 el 144MHz (wide band) 10.5 dBi...**£99.95**
WY400-6n..6 el 432MHz (wide band) 11.0dBi....**£79.95**
WY400-10n10 el 432MHz (wide band) 14.0dBi.**£119.00**

NEVADA Power Supplies

Quality Power Supplies 2 YEAR WARRANTY!

PSW-30
Switch Mode
- 25-30A supply
- Low noise

2 YEAR WARRANTY

£79.95

PS-40M
Linear
- 40A (max) with meter
- 1.5-15V DC
- Cigar adaptor output

£129.95

PS-08 .....Linear 8A (max) 13.8V DC **£34.95**
PS-30M.....Linear 30A (max) 3-15V DC.....**£99.95**
PSW-50.....Switch mode 50A (max) 9-15V DC..**£129.95**
PSW-30.....Switch mode 30A (max) 9-15V DC....**£79.95**
PSW-30H.....Switch mode 30A (max) 9-15V DC....**£69.95**
PS23-SW1...Switch mode 23A (max) 13.8V DC....**£59.95**
PSW-07.....Switch mode 7A (max) 13.8V DC **£29.95**
PSW-04.....Switch mode 5A (max) 13.8V DC **£24.95**

ALBRECHT

Albrecht AE-355M
Mobile and Desktop Scanner
- Comes with 7 pre-set memory banks
- Plus 100 user prog. memories
- Covers: 25 - 960MHz (w/gaps)

£89.95

NEVADA Quality Power Supplies

PS-30M Linear Power supply
- 30A (max) with meter
- Voltage: 1.5-15V DC
- Cigar adaptor output

2 Year Warranty!

£99.95

PS-40M .....Linear 40A (max) 3-15V DC.....£129.95
PS-08 .....Linear 8A (max) 13.8V DC.....£34.95
PSW-50 .....Switch mode 50A (max) 9-15V DC....£129.95
PSW-30 .....Switch mode 30A (max) 9-15V DC....£79.95
PSW-30H .....Switch mode 30A (max) 9-15V DC....£69.95
PS23-SW1 ....Switch mode 23A (max) 13.8V DC....£59.95

SPIDERBEAM MASTS

Fibreglass Telescopic Poles
12 metre Heavy Duty.....£89.95
18 metre Standard.....£199.95
22 metre 'Long John' NEW.....£399.95
26 metre Standard.....£499.95

Aluminium Telescopic masts
10 metre Standard.....£299.95
10 metre Heavy Duty.....£325.00
12.5 metre Standard.....£329.95
14.5 metre Heavy Duty.....£425.00
15 metre standard (2m retracted).....£399.95

ULTRA LOW LOSS COAX

Aircell 7
per metre.....£2.99 price per 102m drum **£269**
PL259 connector (part: 7390).....**£2.65**
N type connector (part: 7392).....**£5.25**

Aircell 5
per metre.....£2.75 price per 102m drum **£247**
PL259 connector Twin pack (Part: 7760 x 2).....**£4.95**
N type connector Twin Pack (Part: 7700 x 2).....**£7.85**

nevada®

www.nevadaradio.co.uk

CALL 023 9231 3090

LINES OPEN: MONDAY - FRIDAY
9AM - 5:30PM CLOSED SATURDAY

NEW! AOR AR5700D Digital Communications Receiver

A new standard in professional receivers!

- 9kHz - 3700MHz Analog & digital modes
- 10 Digital modes: TETRA, P25(Phase 1), DMR, Mototrbo, dPMR, NXDN, D-CR, D-STAR, Alinco, Yaesu.
- Automatic detection of digital modes during scan & search
- Up to 900kHz wide digital I/Q output

900kHz Wide I/Q OUTPUT

£4595.00

Huge specifications & software control – more details on our web!

KEEP IN TOUCH during the crisis!

Family, Friends, Neighbours

Midland G5C

Licence free - 1km range

With Vox & Baby sitter function

~~£59.95~~ LIMITED OFFER £39.95

Gemma from Sales

over 20,000 items in stock!

Your ORDERS are still being shipped SAME DAY - where possible!

NEW

Icom IC-R8600

Wideband Communications Receiver

- Coverage: 0.01-3000MHz
- Decodes D-STAR, NXDN, dPMR and APCO P25

PART EXCHANGE or FINANCE available

£2499.99

PRICE MATCH

Now with TETRA!

AOR AR-DV1

100kHz-1300MHz Wide band reception

New Firmware - gives TETRA decoding and more! Decodes virtually ALL popular digital modes: DMR, D-STAR, Yaesu Fusion and lots more!

Supplied with: 4GB SD Card

£1199.95

NEW

Bearcat SDS-200E

Digital Scanning Receiver

With DMR, NXDN, and ProVoice monitoring modes

- Covers: 25 - 512MHz, 806 - 960MHz, 1240 - 1300MHz
- Too many features to list here - visit our web site for more details!

£779.99

AOR

LATEST FIRMWARE

AR-DV10

Digital Handheld Scanning Receiver

- 100kHz-1300MHz analogue and digital modes
- TETRA, P25 (Phase 1+2), DMR, Mototrbo, dPMR

~~£999.95~~

£939.95

ALINCO

DJ-X11E

All Mode 1200 channel

- Frequency: 0.1-1300MHz
- AM/FM/WFM/ SSB/CW
- 1200 memories
- Twin VFO feature
- IQ output for SDR use
- 1800mAh Li-ion inc

£299.95

ICOM

NEW

R-30

Digital & Analogue Multi Mode Scanner

- With dual watch and dual band recording
- Listen to two signals (analogue + analogue or analogue + digital)
- Decode D-STAR, P25, NXDN and dPMR digital (conventional) modes

£569.95

BEARCAT

NEW

SDS-100E

Advanced Digital & Analogue Scanner

- Frequency: 25-1300MHz (w/gaps)
- Weather Resistant IPX4

Standard Version (licence required to activate DMR, NXDN) £599.95

Activated Version (DMR, NXDN already activated) 649.95

AOR

AR8200 MkIII

Wideband scanner/receiver

- 530kHz-3000MHz
- AM/FM/SSB/DATA
- 1000 memories
- TCX0 high stability oscillator card slot - expand to 4,000 memories
- Preselected Front End

£459.95

AOR

AR8200D

Wideband scanner/receiver

Higher specification than the AR-8200 with:

- Voice recorder
- APCO25 decoding
- Voice Inversion
- Higher capacity 1800mAh batteries

RRP ~~£679.95~~

£659.95

ICOM

IC-R6E

Pocket sized Wideband Scanner

- Freq: 100kHz-1309.995MHz
- Modes: AM, FM, WFM
- 1300 memories
- High Speed Scan 100 channels/second
- 15 hours receive capability

Optional BC-194 Drop-in charger stand £22.95

£199.95

BEARCAT

UBCD-3600XLT

Digital Scanner with 'Close Call' and Analogue AM/FM

- Receives: 25-1300MHz
- SD card slot

£425

UBCD-3600XLT - NXDN

Same specs as above but with NXDN activated NXDN digital protocol is used by Kenwood & Icom

£479.95

Serving our customers for 50 years

follow us on twitter: @NevadaRadio

follow us on facebook: www.facebook.com/nevadaradio

- Unit 1
- Fitzherbert Spur
- Farlington
- Portsmouth
- Hampshire
- PO6 1TT

50 YEARS nevada

Contents

RadioUser

ISSN 1748-8117

May 2020 Vol. 15 No 5
On sale: 30 April 2020
Next issue on sale: 28 May 2020

RadioUser
Warners Group Publications plc
The Maltings, West Street
Bourne, Lincs PE10 9PH
www.warnersgroup.co.uk
Tel: 01778 391000

Editor
(c/o Warners Group Publications plc)
Georg Wiessala
wiessala@hotmail.com

Designer
Mike Edwards
mike.edwards@warnersgroup.co.uk

Advertisement Manager
Kristina Green
kristina.green@warnersgroup.co.uk
Tel: 01778 392096

Production Manager
Nicola Lock
nicola.lock@warnersgroup.co.uk

Marketing Manager
Katherine Brown
katherine.brown@warnersgroup.co.uk

Marketing Executive
Luke Hider
luke.hider@warnersgroup.co.uk

Publisher
Rob McDonnell
robm@warnersgroup.co.uk

Subscriptions
Subscriptions are available from as little as £11. Turn to our subscriptions page for full details.

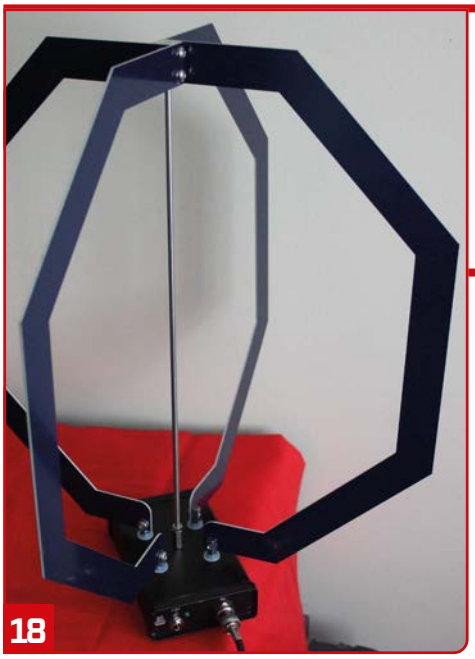
Subscription Administration
Radio User Subscriptions,
Warners Group Publications plc
The Maltings, West Street
Bourne, Lincs PE10 9PH

Subscriptions Hotline: 01778 395161
subscriptions@warnersgroup.co.uk

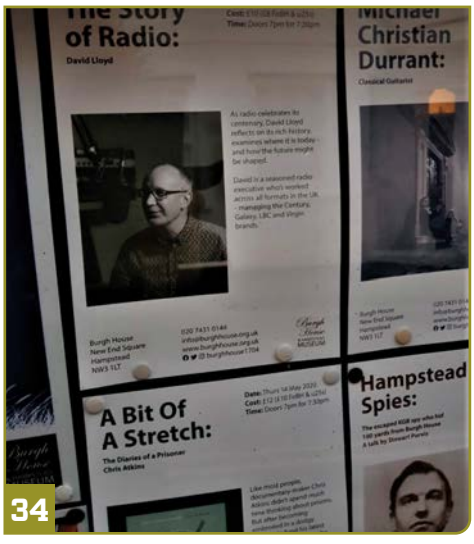
Technical Help
We regret that, due to editorial time scales, replies to technical queries cannot be given over the telephone. Any technical queries by e-mail are very unlikely to receive immediate attention either. So, if you require help with problems relating to topics covered by RU, then please write to the Editorial Offices, we will do our best to help and reply by mail.

Book and back issue orders
Send your completed form to:
RadioUser Subscriptions Dept
Warners Group Publications plc
The Maltings, West Street
Bourne, Lincs PE10 9PH

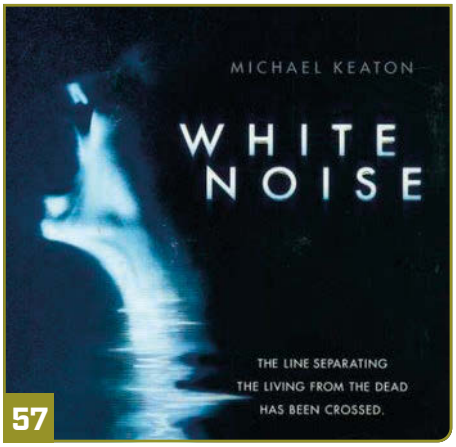
WARNERS GROUP PUBLICATIONS PLC



Cover Story



Welcome



The Lockdown and Radio

Hello and welcome to the May issue of *RadioUser*. As I write this, the unprecedented UK lockdown brought about by Covid-19 is entering its fourth week and is projected to last at least for another three. For all those who are at home, radio, now more than ever, is a lifeline, comfort and necessity. Many radios are being given away for free, and many a radio station is revamping its schedules.

Beyond a noted increase in bored teenagers, the key trends I have been able to pick up on this month were increased (online) sales volumes for all radio traders, both in terms of broadcast radios and two-way communications devices, SDR receivers, amateur radio transceivers, CB radios, network devices and walkie-talkies in all their forms.

It seems that now more than before, staying in touch with people and the world at large, is key.

The human urge to communicate is innate and irrepressible.

These trends are reflected in this month's large section on *News & Products*, as you will see.

Beyond that, we have some outstanding reviews this time around: Keith Rawlings has been impressed by the new crossed-loop magnetic aerial from Reuter, the RLA4E. Furthermore, our friend Nils Schiffhauer returns to review the semi-professional PropLab 3.1 propagation prediction software, with astonishing results. There are also two book reviews in this issue, to keep you busy reading.

In our feature column this month, Christina Longden returns with an update on *Farmers' Voice Radio*, to showcase a key example of the indispensable socio-economic functions of radio.

If you browse through our regular sections, you will see that our spectrum

ranges from historical perspectives on the early days of radio and the life an Irish broadcaster and an underrated radio pioneer, to weather satellite reception after a turbulent Spring; from Hospital Radio to communications between manned and unmanned vessels; from off-grid network radio and new UHF airband frequencies to portable DRM radios and radio from Peru and Japan. And yes, you will learn about killing goats, listening to ghosts, 'paracoustics', *pareidolia* and 'weaponized' weather – all involving the manifold use of radio.

The *Rallies* pages are – such is the nature of the current virus – more than a little unpredictable and in flux at the moment, I would always advise you check with local organisers and visit our *Radio Enthusiast* website regularly. It is there, that you will also find my posts on new gear or radio news.

Stay indoors, stay safe and healthy and enjoy your radios.

Most importantly, stay in touch with others.

www.radioenthusiast.co.uk

Georg Wiessala
Editor, *Radio User* Magazine

What's New

Have you got something new to tell our readers about? If so, then drop a line to **wiessala@hotmail.com**

COVID-19 News from Traders

Martin Lynch

More deliveries mean more stock to despatch to you. This Monday we had huge shipments from Yaesu, Kenwood & Icom. If you are thinking about any new piece of kit to stop the boredom of being stuck indoors, (and wanting to beat the unfortunate price increases due to our exchange rate sliding through the floor), then now may be a good time to buy. Our Used Equipment is going fast too! Very pleased to report that our mail-order business is busy and whilst all my sales guys are working in their slippers from home, they can hardly keep up with all the phone calls. We're still getting 2-3 collections every day and deliveries are generally arriving on time. Alternatively, you can just order direct from the web, as the entire system is linked to our guys on their PC's at home & warehouse to process your orders. Our showroom, workshops & *ML&S Training Academy* are temporarily closed and I'd especially like to apologise to the dozens of candidates who booked spaces. My Chief Trainer Steve Venner G0TAN has recently contacted everyone to tell them the bad news. We'll be running extra courses to catch up with the cancellations after the all-clear has been announced. Can't come soon enough. Thank you for being so supportive of my once small corner shop almost thirty years ago. A lot of you are still with me, many go back further into the seventies when I was a mere lad working for Bernie & Brenda at the Amateur Radio Exchange in Ealing. That was 44 years ago. Those were the days and yes, they're still going strong I'm very pleased to report. Don't forget to put your clocks forward this Sunday the 29th of March and you guessed it, another contest. It's the CQ WPX SSB over the 28th & 29th of March. Please stay safe, enjoy your radio and a big 73 from all of my brilliant team at ML&S, currently spread over Staines, Reading, Barnet, Colchester, Addlestone, Dorset, two in Watford & elsewhere! Stay safe!

https://www.hamradio.co.uk

Moonraker

COVID-19: A message for our customers: Following recent announcements, we have closed our Woburn Sands Shop and will not be providing a Click-and-Collect Service. However, you can still shop with us online or by telephone. Fortunately, we can work remotely and we can still answer your calls and e-mails. Our warehouse, couriers and postal services are operating as normal. But most importantly we hope you are keeping safe and well in this difficult and uncertain time. Please stay in contact and don't forget, the clocks go back on Sunday so you can spend an extra hour indoors! Keep smiling.

https://www.moonraker.eu

SDRPlay

At the time of writing, Jon Hudson and the folks at British-based SDRplay sent an update saying "Throughout these very difficult times, SDRplay will continue to operate and support our customers. As well as our popular support ticket system, the company is exploring new and innovative ways to engage with and support our community of radio enthusiasts. We'd also like to take the opportunity to send our best wishes to all our customers and their friends and families as this emergency develops."

https://www.sdrplay.com

Sotabeams

In the most recent news from SOTABEAMS, Richard G3CWI wrote, "Hi folks, the bands are buzzing here - but not for good reasons. Many people are self-isolating and those who are well are passing their new leisure time on the radio (often sharing their vast experience of pandemic management). I was out yesterday and it was hard to find a clear frequency on 2m FM. In the SOTABEAMS office, we are all well. Lisa and Martin are working from home with Aaron and I manning the office. The postal service is normal and we are fully operational - so do feel free to order with confidence. Your orders will help us to get through this difficult period. We do buy in/or have made, several items and we are finding suppliers for manufactured items are reluctant to give us firm delivery dates. Where we run out of items we always take them off the store. If you can put the item in your basket, it means that it's 99% sure that we have it - no need to check with us. Where items have gone out of stock, please don't email us asking when we will have stock - usually, we don't know. As soon as we do know, this information will be on the product page. Thanks! Travel restrictions will limit my ability to make videos but as I have a reasonably-sized garden, I will continue as long as I can." Richard's YouTube channel, *Radio Adventures with Richard*, is here:

https://www.youtube.com/channel/UCPitnKUs4iqEyRFirvTagMg

Inrico TM7, Network Radio & 4G

A recent post by *Network-radio.com* advised as follows: "We are all going through difficult and challenging times. It's a good opportunity to stay at home and update our radio gear. As you all know, most countries are phasing out 3G and we should seriously look into adding 4G equipment to our shack. The Inrico TM-7 plus is the first 4G mobile network Radio. Great for amateur radio use with the IRN platform, for Zello, Team Speak 3 and Echolink via 3G or Wi-Fi. And it works as a Wi-Fi hotspot too! This network radio is fully compatible with the International Radio Network (IRN) and with Echolink. Are you looking for two-way radios? What if you could have a walkie talkie app on your phone? Let us introduce you the best walkie-talkie app ever made: Zello is walkie talkie app for android, iPhone, IOS and there is also Zello for PC. This radio-like smartphone has a PTT that will key up the transmitter. As far as you have a data plan

or a Wi-Fi connection, then you have yourself a two-way walkie talkie app with worldwide range. First, download the Zello app. Then, just press your Zello PTT button and you will be heard! You can have 1-to-1 private communications or 1-to-many communications on a private Zello channel. There are also many public Zello channels, with different purposes, around the world. Some amateur radio RF networks are connected to Zello private channels. With such, if you are a licensed ham, then you can stay online with Zello and have QSO's with your ham friends". There are many Zellos worldwide."

https://tinyurl.com/yxyczzeu

RadioUser STOP PRESS!

COVID-19
News from Traders

Nevada

Mike Devereux, MD of the Nevada Group, wrote in to say that, despite the Covid-19 Virus, it is 'business as usual' at NEVADA with internet and telephone sales departments working flat out. Couriers are calling several times a day' and orders are being delivered promptly. Indeed, Gordon Hurrell, a Nevada online customer, e-mailed to say, "I have bought things before from you which have arrived with speed, but under the current situation I was amazed to receive my goods within 24 hours". Whilst the showrooms are closed, and we cannot accept personal callers, the warehouse is operating as normal, but with stringent safety measures in place to ensure both 'social distancing' and thorough cleaning and sanitisation. The picture shows Mark and Sarah packing in the Nevada warehouse, just before the full lockdown and additional safety measures were put in place.

https://www.nevadaradio.co.uk

ICOM News

Ian Lockyer at Icom UK has written in about two new products in Icom's LTE (Long-Term Evolution) radio range. There is more information about the ICOM LTE Remote Speaker Microphone for Vehicle Operation here: https://tinyurl.com/r7rmoxj
ICOM's Marine Radio website is now at this URL on *YBW.com*: https://tinyurl.com/rfxhrdr
In this context, please be aware of the recent *RYA Guidance for Marine Radio Distress Relays:* https://tinyurl.com/shpygv8
Last but not least, Ian reported on the *Croydon Youth Zone*, to which Icom radios were supplied, courtesy of *Wall to Wall Communications*: https://tinyurl.com/ro397l3

Radio News

DAB: Licenses Extension: The ten trial small-scale DAB multiplex operators have had their temporary licences extended till the end of 2021. The contracts were awarded by Ofcom five years ago to run for just nine months, but were extended some times, and were due to run out on March 31st 2020. But the regulator told the licence holders this month they will now be able to operate their multiplexes till December 31st, 2021. Also, a clause that Ofcom could terminate any multiplex licence with 30 days' notice has now been removed. An Ofcom spokesperson said: "We recently communicated with trial licensees to tell them we have extended their licences until December 31, 2021, as their existing licences expire on 31 March." The industry has been waiting for Ofcom to begin advertising Small Scale DAB licences in other parts of the UK, following Government approval to do so last year. During the call for expressions of interest to run multiplexes, over 400 applications were submitted covering over 300 locations.
(Source: RadioToday, Ofcom)
https://tinyurl.com/vu2ynat

INNOVATIVE RADIO IDEAS: A new Facebook Group has been created for all radio stations around the world to curate and exchange ideas on how they are dealing with Coronavirus COVID-19. It's been set up in America by Benztown and P1 Media Group, providing research, strategies and consulting for anyone wanting to join and share. The Group is called Coronavirus Radio Ideas and already has over 500 members including many from the UK. Andreas Sannemann, Chief Executive Officer, Benztown, said: "Today, the radio industry is here for people in communities around the world, just as it has been through good and bad times over the years. We are glad to be able to bring together radio professionals across the globe through this new Facebook page and meeting place. "We are hoping that it will serve as an inspirational space for radio stations to connect around the Coronavirus by sharing their creative concepts, sparking new ideas in the process that will ultimately help people." Ken Benson, Partner, P1 Media Group, noted: "We can do so much more together than separately. This terrible pandemic is presenting an opportunity for radio to educate, inform and even entertain listeners like never before. We hope this Facebook Group will empower the international radio community to come together and exchange their ideas and experiences as we work to serve our communities."
(Source: FB/ National Press)

New products from Martin Lynch

RadioUser STOP PRESS!

Wouxun 8W Dual-Band Handie KG-UV9D 'Mate'
From its rugged build enclosed in a bright orange case, this new high-power dual-band Handie from Wouxun is aimed for use where maximum transmission output is required. The radio benefits from selectable 8W, 5W & 1W power. The new KG-UV9D Mate includes a bright colour screen, Dual RX, Duplex work on A&B areas, and voice announcement. It is in stock now and is priced at £139.95.
www.HamRadio.co.uk/KGUV9DMate

Kerberos SDR 4 Channel Coherent RTL-SDR
This new product from Kerberos is an ultra-compact RTL-SDR with 4 channels. It has been designed for direction-finding, passive radar, beam-forming or just four RTL-SDRs. This low-cost device has already caused great interest from the commercial & military world. Kerberos has even developed custom software that shows off direction finding, as well as passive radar capabilities. The package includes 4 x RTL-SDR's, a USB Hub (so only one USB connection is required), and it is enclosed in a metal case. ML&S 's Gary Spiers M0TIG released a video introduction on ML&S TV demonstrating its use and features. The device is available from ML&S, at an introductory price of £169.95.
https://tinyurl.com/wswcbcv
www.MLandS.TV

RadioSport RS60CF Deluxe Dream Anniversary Edition Headset
This new luxury headset from RadioSport in the USA supports Dual-Watch/Dual Receive rigs, 24dB external noise suppression with flexible mic boom and interchangeable microphones. Enclosed in a carbon fibre look shell, these headsets are built to last. In stock at £239.95 with a 10% discount offer on your required interface cable.
www.HamRadio.co.uk/RS60CFAnniversary
www.MLandS.co.uk

Klingenfuss downloads

There are many useful downloads, documents and sample pages at this URL, for all those with an interest in utility Dxing. You will also find a free supplement, of January 2020, of the 2019/2020 Guide to Utility Radio Stations, reviewed in *RadioUser* earlier this year. This website will help you make up your mind as to whether or not you will need to buy any of Jörg's frequency guides and other books.
https://tinyurl.com/tao6o9o

Stay in Touch with Your Neighbours

Peter Waters (Waters & Stanton) stocks the new Midland G5C UHF licence-free PMR 446 UHF radios, in the UK version, with 3-pin adaptors. You can use those anywhere, they are ideal for friends and family, and small enough to keep in your shirt pocket. Supplied with rechargeable batteries and UK chargers. Mike made the point that, "It's now more important than ever to keep in touch with neighbours, close family and friends while apart. Our Two Way Licence-free UHF walkie talkies have a range up to 1km (depending on local terrain). Featuring Voice control, Auto battery save and a baby sitter monitor function. Supplied complete with rechargeable batteries, mains adaptor and belt clips". Special offer during lockdown: The radios are currently reduced from £59.95 to £39.95.
https://tinyurl.com/robzbcn
www.hamradiostore.co.uk

SDRuno: Version 1.4 Supports Plugins

SDRplay Ltd. has announced a new version of its SDRuno software. Coming out in April is Version 1.4, which supports plugin development. Plugins are a way for existing software developers to integrate the power of *SDRuno* within their existing applications, thereby reducing the dependency on interfaces like "Virtual Audio Cable". The new plugin system also gives anyone with some C++ coding knowledge, the ability to create exciting new interactive applications (e.g. decoding, display, demodulators, custom signal annotation, and so on). SDRplay is working with several authors of popular applications software to make available *SDRuno* plugins for their software.

The RSP family of SDR receivers range in price from around £100 to £240 and are available directly from SDRplay Ltd., or Martin Lynch &Sons, Moonraker, Nevada, Radioworld, SDR-Kits, and Waters & Stanton.
www.SDRplay.com

Enter our competitions at www.radioenthusiast.co.uk/competitions

RadioUser STOP PRESS!

CB Radio

Nevada is pleased to announce the release of the NEW Midland Alan 48 Pro AM/FM CB Radio. This new, top-of-the-range, CB features a digital squelch to eliminate background hash more effectively and an improved noise blanker to reduce interference and improve readability. The front panel layout makes the radio easy to use, with quick channel selection and a large LCD display. A scan control quickly locks on to busy channels enabling fast access to places of activity. The Alan 48 Pro is a multi-region radio, suitable for use in any European country, ideal for both the trucker and holidaymaker/traveller. The radio is priced at £109.95 and is available from Midland UK distributors Nevada.
www.nevadaradio.co.uk

Radio News

ARTIFICIAL INTELLIGENCE AND RADIO: The term 'Artificial Intelligence' is being heard more and more in the radio and audio media industries. What does that phrase mean, exactly, in our technology marketplace? In the new Radio World e-Book, ENCO Systems, MultiCAM Systems, Veritone, and Worldcast Systems explain what AI means for them and how these technology innovators are applying AI to their products and services. Learn about dramatic improvements thanks to Automatic Speech Recognition; how algorithms choose the best camera pre-sets for visual radio, how AI-powered services and applications enable stations and networks to accelerate workflows and deliver value, and how AI in transmitter design can help broadcasters reduce energy costs.
(Source: Radioworld)
https://tinyurl.com/wehsv6u

THE SECRET USSR RADAR: The secret Soviet radar hidden in Chernobyl's shadow was a fascinating BBC programme of 10th March 2020. In a remote forest, a few kilometres from the Chernobyl power plant, the huge Duga-2 radar tower stands as a relic of Soviet history. The video is by Adrian Hartrick and Dominika Ozynska.
(Source: BBC Reel)
https://tinyurl.com/wum6r5k

EXTRA PROGRAMMING: DAB station Atmosphere Radio is adding over 50 hours of shows and features to its schedule as the station reacts to COVID-19 pandemic. New presenters are joining the line-up including Suzi Martin, Andrea Fox and Caroline Verdon. Suzi Martin also works for Channel 4 and E4 as a continuity announcer and has worked for stations including Sun FM, TFM, Capital North East, Heart North East and Real Radio. She joins the station hosting a daily morning show from 8 am – 12 pm. Former Heat Radio and Juice 107.2 presenter Andrea Fox does continuity for ITV and hosts The Penny Drops and The Age Of Plastic podcasts. Andrea will be hosting Saturday mornings 8 am – 12 pm.
Caroline Verdon also works for Radio Aire and was previously based at JACK FM Oxford, Heart Dorset and 2CR FM. She has won numerous radio awards including 2 Sony Awards as a News Director and was 'Presenter of the Year' two years running at the Arqivas. Caroline can be heard every Sunday from 8 am – 12 pm. Other schedule additions include The Dance Years feature now running seven days a week and Atmosphere Anthems host Robbie Harrison joining the weekday line-up from 1 pm – 5 pm. Programme Director Steve Simms said, "we always notice a spike in our online listenership when we feature presented or curated shows with our existing line-up of Graeme Park, Neal McClelland and Robin Schulz in the evenings. Now people are stuck at home, so they need company and a positive outlook on the world. Our new daytime line-up reflects that. Suzi Martin brings energy and a great production background to the role, Andrea Fox's knowledge of our music and broadcast area is a huge benefit and Caroline Verdon's experience and humour will add some much-needed content." Atmosphere Radio is on DAB in Brighton and Portsmouth and online.
(Source: Atmosphere Radio)
https://tinyurl.com/uvv35l5

BBC NEWS CONSOLIDATION: The BBC's Director of News, Fran Unsworth has spoken about how the corporation will continue to offer its audiences trusted and accurate news during the Coronavirus crisis. The plan includes some changes in how BBC Radio's news will be delivered. Much of the regular output of radio news is protected at the moment, but it's being kept under review. Initial changes include radio summaries on BBC Radio 2, 3, 4 and 5 live being brought together into a single output from 1 am on Friday, with 6 Music using the same script. News production and output on Asian Network and Newsbeat will be shared. On Radio 4, the Saturday morning programme, The Week In Westminster is being suspended after this weekend and on World Service English, The World This Week, World Update and Weekend are also being suspended. There are also changes being made to TV, digital and podcast news output. Director of News, Fran Unsworth, said, "These are unprecedented and difficult days. Trusted, accurate information is vital in a public health emergency and the BBC has a key role to play. We will continue offering our audience a continuous news service on TV, radio and online but this will look a bit different in the weeks ahead. Like many organisations, we are unable to have all our staff on-site due to the Coronavirus outbreak. We are therefore making some changes to what we do to streamline our output to ensure we can work with fewer people and protect the staff who are at work."
(Sources: BBC, National Press, On The Radio)
https://tinyurl.com/tn7k8qd

RADIO COVERAGE OF CORVID-19: Of course, lots of radio stations and podcasts are covering Coronavirus, with varying degrees of scaremongering and reporting. I find the 24/7 coverage streamed by IRRS in Milan to be good – it is a mix of independent US and UK radio stations, and sources in English:
https://nexus.org/mp3
The best guidelines, though perhaps not quite what you were asking for, would be those audio messages given by UNESCO for radio stations around the world to use, in many languages:
https://tinyurl.com/vrfp62k
I will be writing about both these in the forthcoming (June 2020) issue of *RadioUser*.
(Source [and thanks to] Chrissy Brand).

Radio News

BBC RADIO 5 LIVE TO TAKE RADIO LONDON OVERNIGHT SHOWS: BBC Radio 5 Live will take BBC Radio London's overnight shows for the foreseeable future In a bid to prioritise its resources. And as all other BBC local stations currently take 5 Live overnight, they will also relay the programmes of BBC Radio London instead. Dotun Adebayo is the weekday overnight host on BBC Radio London from 1 am till 4 am, but he is scheduled to move to 5 Live from April 5th. It is unknown at this stage what will happen at that point, but it is presumed Radio London will continue with live programmes around the clock for the foreseeable future. 5 Live will opt-in at 1 am and leave at 5 am, meaning they will also take the first hour of the Early Breakfast Show for London which starts at 4 am. From Monday, all BBC Local Radio stations won't start breakfast till 6 am. The changes are all being made due to the pressure from varying staffing levels around the BBC during the Coronavirus outbreak.

A BBC spokesperson confirmed the changes to RadioToday, saying: "We need to be realistic about the significant pressure COVID-19 has on our staff and continue to prioritise our resources, including in our news output across BBC Radio. This way we can provide the best possible service for our audiences, who at these extraordinary times count on us in so many ways. We have already started sharing the radio news summaries across our stations. From Monday, overnight between 1 am and 5 am Radio 5 Live will join up with local radio to broadcast one UK BBC overnight programme. This decision allows us to keep our other distinctive 5 Live news programmes going for our listeners." Earlier today, the BBC announced details of some programme sharing between BBC Radio 4 and BBC Radio 5 Live, but these are not going ahead pending further details being clarified and our story on the plan has been removed.
(Source: BBC Radio 5 Live, Radio Today, National Press)

RELAXING LICENCE OBLIGATIONS: Ofcom will take the current pandemic into account should stations not deliver their promised Format or Key Commitments over the next few months. "Compliance with regulatory obligations is important but we want to assure broadcasters that they should feel empowered to take all necessary steps to protect their staff at this difficult time," Ofcom said today. The regulator says complaints will still be assessed and stations should still have measures in place to make and retain recordings of broadcast output and produce these on request, but via email rather than post. Ofcom reminds stations that all content relating to the Coronavirus should be accurate and up-to-date, and it will consider any breach arising from harmful Coronavirus-related programming to be potentially serious and will consider taking appropriate regulatory action, which could include the imposition of a statutory sanction. Ofcom also warns that if contingency plans for compliance come under threat, broadcasters should consider carefully whether they should remain on air. "Broadcasters are reminded that given the suspension of schools across the UK, care should be taken when broadcasting content during the daytime when children will be available to see or listen to content. "For the next three months, where broadcasters are genuinely unable to continue to meet the programming and production requirements set out in their licence as a result of the disruption due to COVID-19, we would consider the force majeure condition in the licence to be engaged, and a licensee would not be liable to enforcement action as a result. We will, of course, review the position again at the end of that period. We would ask that broadcasters be prepared to explain Ofcom as to what steps they have taken to seek to ensure compliance insofar as possible, and keep us informed as to how they have made reasonable adjustments where necessary with a view to continuing to provide the best possible service to their audiences insofar as they can." Any new community radio station which needs extra time to launch, or has issues paying due licence fees, should contact Ofcom.
(Source: RadioToday, March 2020)

UNION JACK STANDS UP TO CORONA: Union JACK has created a way for comedians to reach their fans with the launch of #StandUpToCorona. The curated radio show highlights stand-up and comedy content on British radio designed to make the British public laugh at this time of uncertainty, whilst also giving comedians a national platform to broadcast their content when many have seen their gigs, tours and events cancelled. *#StandUpToCorona* can be heard on Union JACK radio at 7 pm every Monday, Wednesday and Friday. Listeners can expect to hear classic stand-up clips from comedians including Ed Byrne, Omid Djalili, Marcus Brigstocke, Andy Parsons, Rhona Cameron, Simon Evans, Adam Bloom, Sean Meo, Junior Simpson and Mike Gunn, originally heard on the 90s TV programme *Live At Jongleurs*. As well as providing live and pre-recorded stand-up from up-and-coming and established comedians, *#StandUpToCorona* will also feature classic comedy clips, such as Blackadder and Fawlty Towers (but don't mention THE WAR! – Ed.), comedy sketches, impressions and more.
(Source: RadioToday, National Press)
https://tinyurl.com/v3bjqhj

RFinder B1 All-Rounder

From the US (*Network-radio.com*, by CT1EIZ) comes news about an exciting new hybrid radio product: The RFinder B1 is a Dual-Band VHF/UHF 4G Transceiver, combined with an embedded powerful smartphone. It delivers up to 4W of RF Power out of its very robust case. The device is compatible with most worldwide smartphone providers, including Verizon, AT&T, T-Mobile, Google FI, and so on. If you are running Android, you can install all the available Play Store apps. This means that you can install Zello, Team Speak, EchoLink, and many others, and you can use the built-in PTT button to key the transmission on such apps. If you don't reach an EchoLink node, just use your RFinder 3G, 4G or even Wi-Fi, and you are connected. Never miss a QSO again, just because there isn't a nearby repeater. And because the RFinder has an updated database of worldwide repeaters, EchoLink nodes and DMR talk groups, you never have to memorize anything. You just search the station or repeater you want to connect, and the RFinder will change all the settings for you, either using DMR or conventional analogue FM. Click on a station, and your radio's settings are changed.

Visit our Book Store at www.radioenthusiast.co.uk

TOP TITLES

Radio Today Guides

These guides provide easy to follow instructions on how to get the most out of specific Icom models. From troubleshooting, reviews of modifications and links to further extend knowledge, these guides provide key information on how to get the most out of your new equipment.

ICOM IC-9700 £15.99 plus p&p • ICOM IC-7300 & IC-7610 £13.99 plus p&p

Practical Wireless 2019 Archive CD

All issues of Practical Wireless published in 2019 available in a handy CD ROM. Pre-order your CD today!

NOW AVAILABLE

£39.99 plus P&P

SUBSCRIBER PRICE £19.99 PLUS P&P

Radio User 2019 Archive CD

All issues of Radio User published in 2019 available in a handy CD ROM. Pre-order your CD today!

NOW AVAILABLE

£39.99 plus P&P

SUBSCRIBER PRICE £19.99 PLUS P&P

Practical Wireless 2018 Archive CD

All issues of Practical Wireless published in 2018 now available in a handy CD ROM.

NOW AVAILABLE

£39.99 plus P&P

Radio User 2018 Archive CD

All issues of Radio User published in 2018 now available in a handy CD ROM.

NOW AVAILABLE

£39.99 plus P&P

Scanners 7

Includes details of a number of "apps" for smartphones specifically for radio data decoding, including programs for digital scanner communications decoding for which a smartphone can be linked to an existing scanner radio to decode.

£9.95 plus p&p

Broadcast Brothers

A true, autobiographical story about love and loyalties in families and family businesses the world over, risk, luck, laughter, hard work – and what happens when the little guys take on the big guys.

~~£14.99~~

£11.00 plus p&p

World Radio TV Handbook 2020

The World Radio TV Handbook is the world's most comprehensive and up-to-date guide to broadcasting on LW, MW, SW and FM, with details on national TV.

£35.00 plus p&p

Harry Leeming's in the shop

A collection of Harry's long running In The Shop series in Practical Wireless.

£19.99 plus P&P

Radio Listener's Guide 2020

The 32nd edition of the annual guide for UK radio listeners, is now on sale. Providing news and information for listener's, with coverage of all the key developments in analogue, digital and internet radio.

£7.00 plus p&p

Microwave Know How

Text: Aimed at those who are interested in building equipment for the amateur radio microwave bands.

~~£12.99~~

£9.00 plus p&p

Broadcasting Democracy: Radio & identity in South Africa

Providing an exciting look into the diverse world of South African radio, exploring how various radio formats and stations play a role in constructing post-apartheid identities.

£11.50 plus p&p

Carrying on the Practical Way

Since 1996, there has been an ongoing series. Here's a collection of 20 years' worth of projects.

£19.99 plus P&P

RSGB Yearbook 2020

Over 90,000 callsigns included as well as Special Contest Calls, Permanent Special Event Callsigns and Repeater, Beacons.

£19.99 plus p&p

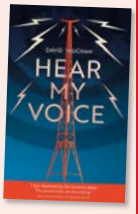
RSGB Deluxe Log Book & Diary 2020

Containing a wealth of extra material. The latest UK Band plans, RSGB Contest Calendar, DXCC prefix list and RSGB QSL Bureau information.

£5.99 plus p&p

Hear my Voice

A historical radio novel set around the time of the German annexation of the Sudetenland



£9.99 plus p&p

Mike Richards' Data Modes

Since he started his regular column some years ago, Mike Richards G4WNC has explained the many data modes using a computer with your radio.

£19.99 plus P&P

Sigint: The Secret History of Signals Intelligence in the World Wars

Written by a former British Army Intelligence Officer who served in Germany after the Second World War.

£10.99 plus p&p

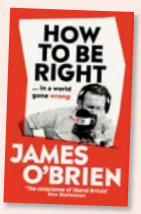
Making a Noise

John Tusa looks back over a long and varied career in radio, television and the arts. In this autobiography, Etched with candour, this is an entertaining memoir of Tusa's life.

£15.00 plus p&p

How to be Right!

This book is highly recommended to anyone with an interest in talk radio.



£12.99 plus p&p

Antenna Collection Archive

A PDF archive of Practical Wireless antenna reprints since 1981

£19.99 plus P&P

ORDERING IS EASY

Buy online at www.radioenthusiast.co.uk

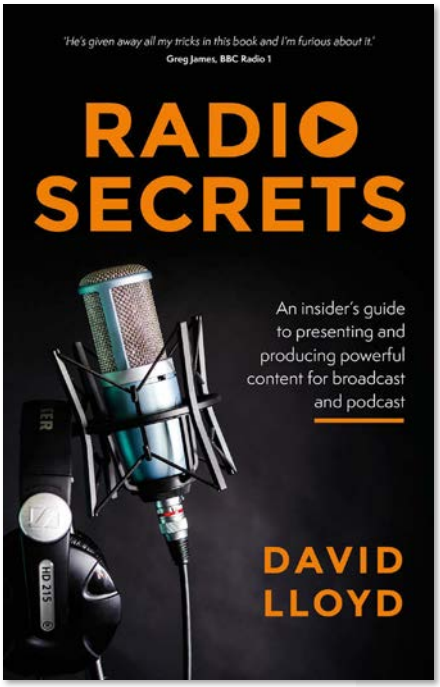
or call 01778 395161

Browse the full Book Store at www.radioenthusiast.co.uk

An Idiosyncratic View of Commercial Radio

David Harris
mydogisfinn@gmail.com

David Harris looks at a new title by the former presenter and radio station executive David Lloyd. The book is aimed at broadcast industry professionals and builds on some of the same author's previous publications.



Radio Secrets
by David Lloyd.
Rethink Press. 2019. £14.99. 236 pp. pbk.
ISBN 9781781333846
www.rethinkpress.com

David Lloyd (b. 1961) has worked for Radio Trent, Leicester Sound, Gem AM, Lincs FM, Century 106, Galaxy 105, Saga 106.6, Virgin, Orion Media, BBC Yorkshire, and the Radio Authority (the predecessor of OFCOM).

He was both a presenter and a station executive, and he now acts as a radio consultant and chairman of Notts TV. In October 2015, (*RadioUser*, October 2015: 39), I reviewed his first book, *How to Make Great Radio*, and the February 2018 his second title (*RadioUser*, February 2018: 33), *Radio Moments*.

The latter was a memoir of his career in broadcasting, and, in *Radio Secrets*, he revisits the ground he covered in *How to Make Great Radio*.

The book is aimed at broadcasters, producers and podcasters. It is divided into 30 short chapters and has several pages of notes but, sadly, no index or bibliography. Whilst Mr Lloyd has a lifetime of experience in radio, I felt the book seemed to lack something. On the one hand, it is not a practical textbook on broadcasting such as *Radio Broadcasting* by Robert McLeish and Jeff Link (see *RadioUser*, March 2016, 53).

Conversely, it is not full of personal anecdotes about how the author tackled the various themes articulated in the book. (see *Across the Waves* by Nick Bailey [*RadioUser*, September 2019:] or *Red Light Zone* by Jeff Zycinski [*RadioUser*, June 2019: 49], for some good examples of broadcasters writing about their craft.)

At times, *Radio Secrets* reads a bit like a self-help book, with bits of psychology and numerous quotes thrown in, many of which seem to come from outside of the broadcasting industry.

I have often felt that commercial radio in Britain is a bit like the fast-food industry. They are both heavily promoted, ubiquitous, bland and somewhat forgettable. Virtually all commercial radio stations in the UK are now owned by Bauer, Global or Wireless Group (part of Richard Murdoch's News Corp). Just as McDonald's and KFC (who own Taco Bell and Pizza Hut) dominate the High Street, the big three commercial radio empires dominate the radio spectrum.

David Lloyd's book assumes that radio is all about selling advertising and having high audience figures. There is a lot of talk in the book about the importance of presenters having 'authenticity' and 'likeability'. The author emphasises the need for presenters to focus on 'you' (the listener). However, the book at times reads as if it is a training manual for staff in a fast-food restaurant. Radio should be entertaining, informative and even educational, but these elements don't seem to form part of the business plan of a commercial station.

I am sure that commercial radio is a pretty desperate, cut-throat business with growth by acquisition the only way to build a business, due to the inherent limitations of the radio spectrum. However, I would like to have learnt how it became this monster, and whether there is an alternative to multi-channel blandness.

After all, Classic FM has offered something different and been successful so why are the other stations so bland? Occasionally Mr Lloyd touches on matters such as the role of focus groups in choosing 'oldies' for radio playlists.

I have always been puzzled why a particularly dreary record such as *Baker Street* by Gerry Rafferty should be played constantly by some stations as their token 'golden oldie'. I would have like to have learnt more about how radio stations come to such decisions.

Mr Lloyd worked as an employee of big radio corporations. However, I feel that, now that he is in retirement, he might have cast off the corporate handcuffs and might have challenged the conventional wisdom that what is broadcast by commercial stations is good for us. Even the fast-food industry has taken on board vegan and vegetarian diets, environmental issues and healthy eating.

Except for the now rather out of date *Local Radio, Going Global* by Guy Starkey (see *RadioUser*, July 2015: 22), there are few critical studies of Britain's commercial radio business. The RAJAR figures for December 2019 show that commercial stations had a 64% reach (BBC 61%) and a 46.6% share (BBC 51%).

I am sure we will hear more from Mr Lloyd in the years to come and I look forward to reading a critical analysis of commercial radio in the UK.

WATERS & STANTON
EUROPE'S HAM STORE

Visit our website - the radio enthusiasts' dream
www.hamradiostore.co.uk

Tecsun PL-680 Portable receiver with SSB & VHF Airband

This is a really excellent portable receiver. It covers LW and MW, the full SW band, the FM broadcast band and the VHF airband. Unusually for this type of radio, it also resolves SSB, and does this very well.

£149.95

- 1900 station memories
- Multi-tuning methods:
- Auto tuning storage (ATS)
- Auto-scan tuning, 5 secs pre-listening
- Multi tuning methods
- DX / Normal / Local antenna gain
- CW stereo earphones, external antenna, mains adaptor, carrying case

Coronavirus

We are open for internet and phone orders only, place an order with us today and we will dispatch same day where possible - our couriers are collecting and delivering without any issues.

For telephone orders our lines are open 9am to 5.30pm Monday to Friday. **01702 204965**

Peter Waters G3OJV

ICOM IC-R8600 Super Wideband Communications Receiver

The IC-R8600 covers the radio spectrum from 10kHz-3GHz. It also has the capability to decode selected digital communication signals including, D-STAR, NXDN, dPMR and P25. The IC-R8600 incorporates the latest software demodulation technology incorporated on Icom's latest HF Amateur radios, providing superior performance and intuitive operation. With the optional remote control software for a Windows PC, received audio and spectrum scope data can be transferred through an IP network for monitoring from remote locations.

- Fast moving, real-time spectrum scope and waterfall functions
- Clear audio quality
- Many more features!

£2,499

ICOM

Icom R6
Compact Wideband Handheld Receiver

Featuring 100 channel per second scanning speed, 1300 memory channels, 15 hours of continuous receive capability, optional drop-in charger stand and voice control squelch. All these new features combined with a high degree of usability means that the IC-R6 will be equally at home with any casual listener of broadcast stations or the serious scanning enthusiast seeking a pocket sized quality receiver.

- Frequency: 100kHz-1309.995MHz
- Modes: AM, FM, WFM
- 1300 memories
- High Speed Scan 100 channels/second
- 15 hours receive capability

£199.95

Optional BC-194
Drop-in charger stand **£22.95**

AR-8200D
Wideband Scanner/Receiver

Higher spec than the AR-8200 with additional features:
- APCO25 decoding
- Voice recording
- MicroSD card slot
- 4GB MicroSD card included USB port
- CTCSS built-in
- Voice inversion built-in

~~£679.95~~ **£659.95**

Tecsun PL360
Portable Multi Band Radio

DSP technology gives excellent sensitivity, selectivity & S/N ratio.
- Covers MW / LW / SW
- FM freq range 87.5-108MHz
- FM stereo via stereo earphone
- 450 station memories
- Several tuning modes
- Excellent sound quality

£44.95

NEW! PROFESSIONAL COMMUNICATIONS RECEIVER

AOR AR-5700D

- **9kHz - 3.7GHz**
- **Full Digital Decode**
- **PC Panoramic Display**
- **In Stock!**

- FM, FM-stereo, AM, synchronous AM, USB, LSB, CW, analog I/Q, FM video.
- D-STAR / GMSK / AMBE DV mode only
- YAESU / C4FM / AMBE+2 V/D narrow mode only
- ALINCO / GMSK / AMBE EJ47 (F1E) mode only
- D-CR / C4FM / AMBE+2
- NXDN / C4FM / AMBE+2 6.25kHz mode only
- P25 Phase 1 / C4FM / IMBE Conventional mode only
- dPMR / C4FM / AMBE+2 Tier 1 only
- DMR / C4FMx2 / AMBE+2 Tier 1 and Tier 2 only
- TETRA direct mode (T-DM) / π/4 shift QPSK / ACELP
- TETRA traffic channel (T-TC) / π/4 shift QPSK / ACELP
- Mototrbo, dPMR, NXDN, D-CR, D-STAR, Alinco, Yaesu.
- Automatic detection of digital modes during scan & search
- Up to 900kHz wide digital I/Q output

We are pleased to announce the introduction of the long awaited AR-5700D professional communications receiver. Very much aimed at serious monitoring for commercial and government applications, it will also appeal to advanced listeners and ham operators who want a receiver that will handle almost any mode on any frequency. A bold claim that the AR-5700D has achieved. Whether the mode is digital or analogue, there is little that the AR-5700D cannot decode. It is also PC friendly with SDR capability, video decoding and up to 2MHz panoramic display. And of course you get Japanese engineering and reliability. We list some of the many features on the left.

£4595,00

IC-R30

The brand new IC-R30 covers 100kHz to 3.3GHz and as well as the analogue modes, also decodes D-Star. A lovely big screen with loads of memory capability, built in recorder and long battery life with USB charging facility.

£569.95

www.hamradiostore.co.uk call: **01702 204965** email: **sales@wsplc.com**

Waters & Stanton Ltd • Unit 1 • Fitzherbert Spur • Farlington • Portsmouth • PO6 1TT

@wsplc blog.hamradiostore.co.uk facebook.com/WatersandStanton YouTube Waters and Stanton

1

Radio, Resources & Resilience

Christina Longden continues the inspiring story of Farmers' Voice Radio, an initiative we have reported on before, and which uses the medium of radio to help small farmers in Africa achieve more equitable livelihoods.

Christina Longden
projectmanager@lyf.org.uk

Nearly 16 months ago (*RadioUser*, January 2019: 66) we shared the story of *Farmers' Voice Radio*, and of a remarkable, UK-based, charity, which uses radio in Africa to connect farmers with the knowledge they need to succeed.

Farmers Voice Radio was developed by the Lorna Young Foundation (a small charity named in memory of the Fairtrade pioneer). The Lorna Young Foundation (LYF) supports smallholder farmers in Africa to access vital farming and market information so that they can engage on a more equal footing within what is often an exploitative supply chain. First piloting their approach in Kenya, with Dorman's Coffee and Coro FM, the LYF instigated a radio programme named 'Farmer's Gold'.

Ian Agnew, Chairman of the LYF explains: *"The farmers created the radio content themselves, in regular 'listener groups', that took place in the community setting and were facilitated by a local farmer organisation. Listeners from across the region texted in questions which were answered by local experts, such as buyers and agribusiness experts."*

Farmer's Gold reached up to 4.5 million listeners, and 70,000 new disease-resistant coffee trees were planted in Kenya, within just a first few weeks of the show being broadcast. Radio is the most affordable and accessible communications medium for poor farming communities in Africa.

The Farmers' Voice Radio approach is particularly effective because it is highly participatory, inclusive and relevant; the needs of the rural communities are identified and addressed on-air by the farmers themselves, in local languages.

Since the Kenya initiative, the LYF has been trialling Farmers' Voice Radio in Tanzania, the Democratic Republic of Congo, Ghana and Uganda. Thanks to these successes, the LYF has decided to open-source Farmers' Voice Radio. This means that the LYF is giving away, for free, the Farmers' Voice Radio methodology and resources for radio stations and farmer organisations around the world.

On World Radio Day 2020, LYF launched its new Farmers Voice Radio website and resource hub at www.farmersvoiceradio.org.

Since our previous article in Radio User, the LYF has been implementing a Farmers' Voice Radio project in partnership with the University of Reading's Walker Institute, to improve the resilience of rural communities in Ghana to the effects of climate change. These radio programmes are called *Farmer and the Water*, with a focus on rain harvesting, drought-

ALL PICTURES: LORNA YOUNG FOUNDATION

resistant crops, soil fertility and improving health and nutrition.

Joseph Abugbila, a farmer in Jawani community comments: "*After I was trained on the tie ridges [through the radio programmes] … my field has been able to retain enough moisture and nutrients for my crops, leading to an increase in my yield*."

In Uganda, farmers in the eastern Katawki District face severe risks of floods. Here, Farmers' Voice Radio is engaging rural communities with flood warning systems. The Agricultural Officer, Stephen Ojakol, comments: "*If farmers can get that information regarding the weather then they will be able to plan their farming activities… and be prepared for the hazards that may come. [On the radio] the farmers will be able to share ideas and improve their farming activities where necessary*."

But back to Ghana again, to the northern districts of East Mamprusi & Tempane. Last year, Farmers' Voice Radio gained funding from the UK Aid's 'Small Charities Challenge Fund', along with contributions from some other donors. Here, Farmers' Voice Radio is being implemented in partnership with CARE Ghana and GBC-URA Radio, and the focus of the programmes is shea butter. Shea butter is a highly desirable ingredient used in many food and cosmetic products, and shea nuts are collected and processed by women.

Northern Ghana is one of the principal areas where shea nuts are grown, but deforestation and climate change are decimating shea tree parklands. Farmers' Voice Radio is bringing together the shea nut collectors, butter processors, local shea cooperatives and buyers to address the information needs of the very isolated women who are seeking to make a living from shea and strengthen the shea supply chain.

So, what next for Farmers' Voice Radio? Ian Agnew explains, *"We are now seeing enormously uplifting results from Farmers' Voice Radio– both in terms of crop yield and quality and concerning the improvements of livelihood prospects for the farmers themselves. So, we feel confident that giving our resources away for free will attract more trusted partners from the private, public and third sectors."*

Climate change is the fastest growing challenge now facing the world's poorest farmers, and the beauty of the Farmers' Voice Radio model is that it can be used to discuss any crop, in any country in the world. Ian adds, *"But we need more stakeholders who have an interest in these crops and smallholder supply chains to come forward and to commit themselves to a radio-based revolution that is supporting the lives of the world's poorest farming communities."*

If you can help Farmers' Voice Radio – whether through donating or fundraising, introducing the LYF to potential corporate sponsors, connecting us with a radio station in developing countries or technical advice on effective online training options – you can find out more at this URL: **www.farmersvoiceradio.org**

Fig.1: Farmers Voice Radio: A GBC presenter interviewing shea butter producer Tamale, Ghana. Fig. 2: Farmers Voice Radio listeners: Shea butter producers at *Tungtieya Women's Association*. Fig. 3: Farmers Voice Radio in DRC: Jasmin, cocoa farmer and radio presenter. Fig. 4: Farmers Voice Radio in Tanzania with Chai FM presenters.

The Reuter RLA4E Wide Band Active Magnetic Crossed Loop Aerial

Keith Rawlings reviews an exciting new high-quality indoor loop aerial from the Reuter stable, looking at the aerial's build-quality, some reception results, and specific features and accessories.

Keith Rawlings
Keith.g4miu@gmail.com

Welcome to this month's column. It seems we are having a run on loops at present. This month I am pleased to say that our friend from Germany, Burkhard Reuter, has sent an RLA4E model for us to look at.

Readers may remember that I reviewed the excellent *Reuter Pocket C4* SDR transceiver in the May 2018 edition of RU (*RadioUser*, May 2018: 8). That radio impressed me with its innovative design, overall build quality and first-rate performance.

https://tinyurl.com/vx56srt

Basic Description of the RLA4

A few years on, the new RLA4E is an active broadband receiving loop, covering the range of 50kHz to 71MHz. It is intended for indoor or (temporary) outdoor use (Fig. 1).

The two elements on the RLA4E, which are made from etched FR4 PCB, are arranged at an angle of 90 degrees to each other and are remarkably small, measuring a mere 360mm high, and with the same dimensions across. They have been designed to give a symmetrical and low-impedance feed to the differential amplifiers used in the loop. These elements sit on top of a smart anodized aluminium case, which houses the amplifier. This is also small, measuring just 80W x 130D x 25H (Fig. 2).

There are two connectors fitted to the case: A BNC socket for the lead to the receiver, and a 2.5mm DC socket for power. The unit may be powered from the DC connector or, in addition to this, via the RF cable, a very useful feature as we will see.

The assembly of the loop was easy


1

enough. As I began the review, I had no documentation (I do now) so I simply looked at the supplied parts; cross-referencing this with the photos on the Reuter website, I began to lightly screw the supplied parts into place. Once in position, they were 'nipped' up using a Torx driver.

I found that once the aerial was assembled, it was physically stable and also looked quite stylish. I think if it was mounted in a living room it could pass for an architectural ornament!

The RSW3B Control Unit

Also supplied for the review was the RSW3B (Fig. 3). This unit is designed to operate the RLA4E remotely, providing control of mode and directional switching. It is built into the same type of case as the RLA4E.

With the RSW3B the RLA4E can be powered through the feeder.

On the front panel, there is a single rotary encoder and a nice clear OLED display.

On this display, information is given regarding the current draw of the amplifier (in mA), the nominal loop direction of 0-180°, and a position-indicator (fully-left is 0° and fully-right is 180°.

The encoder is used to shut down the RLA4E by rotating fully to the left. When turned to the right, towards maximum, the RSW3B gives directional control of the loop through 0-180°.

The controller works in this way: When the control is set to read 0°/180°, only loop 1 is in operation; and, when set to 90°/270°, only loop 2 is in operation. At 45°/ 225° (or 135°/ 315°) settings, both loops are active and have the same gain. When the loop is set in a direction that is between these main receiving directions, the loops (or their respective amplifiers) are varied with different gains and phase delays.

The control unit is also equipped with Wi-Fi. A Windows app enables the RSW3B to be remotely controlled over a network, and I am told that an Android and Linux APP will follow (Fig. 4).

Unfortunately at the time of the review, I was unable to try out the Wi-Fi feature.

However, it will add to the versatility of the RLA4E/RSW3B combination.

The Loop In Use

First off, I mounted the RLA4E loop on a cabinet in my shack and placed the RWS3B controller next to my keyboard. I connected up a 12V supply and linked the aerial output of the control unit to a switch so that I could make comparisons to other aerials.

The first receiver I used was my RSP2. Already tuned, as it was, to the 20m amateur band I started there.

With a 2MHz bandwidth, I could see plenty of signals over the span between 13-14MHz, so much so that I had to check to make sure I had not mistakenly switched to my 66ft end fed as the

ALL PICTURES: KEITH RAWLINGS, EXCEPT FIG. 8: GEORG WIESSALA

Station	Frequency	Max	Minimum	Indicated Difference
BBC R5	909 kHz	-35 dBm	-70 dBm	35 dBm
BBC R4	198 kHz	-44	-78	34 dBm
MSF	60 kHz	-91	-107*	16 dBm
DCF77	77.5 kHz	-85	-107*	22 dBm

* Noise Floor

Table 1: Signal strengths, as indicated on the RSP2 RSSI.

Single loop dimensions: 360 mm x 360 mm
Amplifier dimensions (W x H x D): 85 mm x 50 mm x 127 mm
Frequency range: 50kHz … 71 MHz
Average noise level (without loops): <= -139 dBm/Hz (at 10 MHz)
IP3: >= +30 dBm (2x -6 dBm measuring tone at 10 MHz)
IP2: >= +78 dBm (10.0 MHz + 10.2 MHz -6 dBm test tone, 0.2 MHz measured difference tone)
Output voltage: >= 1.1 Veff, 1 dB compression
Supply via DC jack: +12.0 V ±0.1 V, maximum +14.4 V!
Supply via HF cable: +7.0 V … +13.8 V, maximum +14.4 V!
Power supply: max. 100 mA
Power supply socket: DC-connector pin 2.5 mm (0,1")
HF output: BNC 50 Ohm
Weight: <= 1 kg (depending on loop material)
Environmental conditions: 0 … +50 °C ambient temperature, <=90 % rel. humidity Non-condensing, indoor application, limited outdoor application
Compliance: CE according to DIN EN 55013, EN 55020, EN 60065 RoHS / WEEE directive, ear reg. nr. 27676700.

Table 2: Specifications of the RLA4E Loop Aerial.

Fig.1: The main loop.
Fig. 2: The loop base.
Fig. 3: The control unit.

number of signals I was seeing; their levels too were greater than expected.

By tuning the control unit, I found that I could reduce the noise floor by some 14dBm *as indicated* on the RSP2 RSSI with wanted signals staying at around the same levels.

Moving to the 5MHz region, I got a similar reduction in the indicated noise floor. However, at 4.9MHz I have an annoying source of local QRM, which is nearly 1 MHz wide (Fig. 5, Top).

I found that the RLA4E could reduce the QRM considerably with little effect on wanted signals (Fig. 5, Bottom). I also get some VDSL problems on HF, notably at 8.500MHz.

The image in Fig. 6 demonstrates this, with results from my end-fed in the garden at the bottom of the image. Above this is the RLA4E.

You can see that the levels are much reduced, but wanted signals are largely unaffected.

Across the Bands

Over a few evenings, I caught WRMI Miami on 7780kHz; while signals were generally about the same as on my end fed (S4-7), sometimes signals on the loop had a superior Signal to Noise Ratio (SNR).

This was something I found repeated on other bands.

I also found that I could effectively 'tune-out' strong PLT QRM on 11MHz and above.

Moving to medium wave, the RLA4E provided ample gain, and this necessitated the introduction of a 12dB in-line attenuator on the RSP2, as even with the gain adjusted down I was still getting the occasional overload warning.

This is something I had to do when I looked at the CCW loop amplifiers (*RadioUser*, March 2020: 44-46; May 2020: 44-46).

The loop worked very well, and I spent most of one evening with the loop sitting just behind me, while I listened to a perfectly readable broadcast of BBC Radio Scotland on 810kHz.

The screenshot in Fig. 7 shows a weather facsimile image (WEFAX) received on the loop.

During an afternoon listening session, I made a few comparisons to demonstrate the loop's ability to create a null when steered by the RSW3B. The results are shown in Table 1.

As you can see the loop has respectable directional properties.

However, to get the best out of the RLA4E and RSW3B combination requires some careful tuning.

The nulls can be very sharp, and there is a slight delay before the commands reach the loop.

If tuning too quickly the user will get the impression that nothing is happening.

The RLA4E returned reasonable results here receiving NAVTEX, but signals on the NDB band were rather noisy (possibly a local issue).

Although it is not always fair to compare dissimilar aerials, overall, the RLA4E pretty much matched my Inverted-L End Fed throughout my tests – not bad going!

I found that, by using the minimum signal (i.e. a 'null'), it was possible to roughly determine the direction of some transmissions, allowing for the 180° ambiguity.

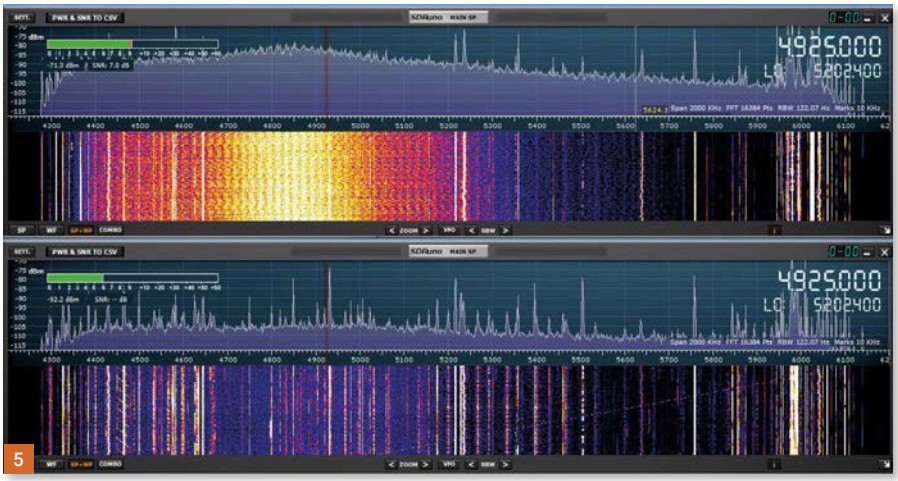
In Outdoor Use

I mounted the RLA3E at about 1m high on a plastic crate out in the middle of my lawn and ran a cable back to my operating position.

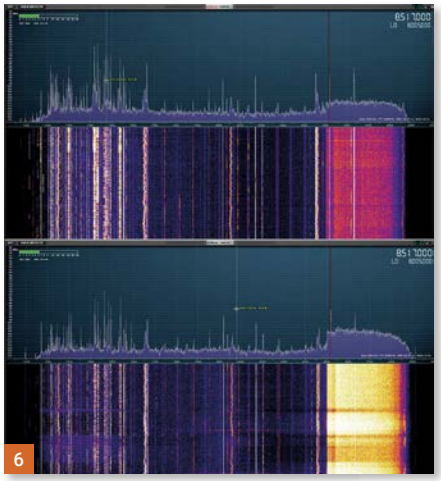
Once again using my RSP2, I was presented with a spectrum display of signals wherever I tuned.

The loop worked well. On HF, I noticed that signal levels were not hugely stronger than they were with the loop indoors, demonstrating the loop's good performance when used inside.

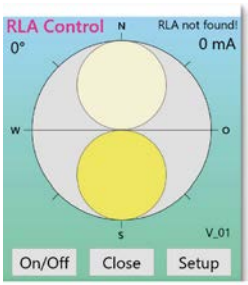
Reception on lower frequencies, such as NDBs, was much improved.



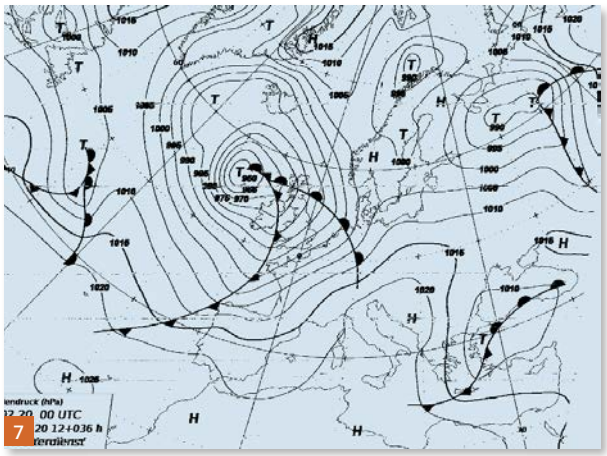
5



6



4



7

8

Fig. 4: The Wi-Fi App. Fig. 5: Effective reduction of local QRM. Fig. 6: Reduction in VDSL QRM between end-fed and Loop. Fig. 7: WEFAX reception was good. Fig. 8: A good-looking piece of shack equipment too…

Other than that, the RLA4E performed very much as it did when indoors.

Overall Conclusions

To sum up, I was surprised at the effectiveness of the RLA4E. The levels of interference picked up while being used indoors were remarkably low. Reception throughout its operating range was excellent, matching my 66ft Inverted-L End Fed in most cases, and exceeding it in some areas.

The remote controller was a valuable addition, making it easy to steer the loop for best results, be that tuning for optimum signal reception or a reduction of local noise.

The inclusion of Wi-Fi for remote computer tuning is a nice touch, and I wished I had been able to try it out.

At no time did I find any IMD problems that were due to the loop. All the receivers I used during my evaluation were happy with the RLA4E with no signs of overload. The exception was the RSP2, which benefited from some attenuation on the medium waves and below.

It is well documented that the best place for an aerial is outside and, usually, as high up as possible.

Modern electronics generate a lot of noise and signals are often attenuated by buildings, because of this it is fair to say that a small loop, especially when used indoors, could be not be expected to provide sparkling results. The RLA4E clearly has not been informed of this!

I was impressed with how well it performed, by how well it has been engineered, and by how ornamental it looks (Fig. 8) – not, of course, that the latter is the most important feature.

It would be an excellent choice for those limited to indoor HF aerials and a good choice for portable use and when taking a radio away on holiday.

Summed up in one word…Impressive!

My thanks go to Burkhard Reuter for the supply of the loop and his prompt answers to my questions.

Dimensions (W x H x D):
85 mm x 50 mm x 127 mm
Frequency range: 10 kHz … 156 MHz
Power supply: +10.0 … +15.0 V- / max. 150 mA
Connectors: BNC 50 Ohm, hollow pin 2.5 mm, SMA female (not "reversed")
Maximum cable length from control unit to antenna depends on HF cable, max. 10 ohm DC resistance
Weight: <= 500 g
Environmental conditions: 0 ... +40 °C ambient temperature, <=90 % rel. humidity
Non-condensing, indoor application
Compliance: CE according to DIN EN 55013, EN 55020, EN 60065
RoHS / WEEE Directive, ear-Reg. 27676700.

Table 3: Specifications of the RSW3B Control Unit.

The RLA4E retails at €499.00, and the RWS3B costs €199.00.
https://tinyurl.com/uvmvwk8

Table 2 shows the specifications of the RLA4E loop, while Table 3 contains those of the RSW3B unit.

Until next month, good listening!

BBC MW Transmitters, Britbox, and an Obituary

Keith Hamer
Keith405625.kh1@gmail.com
Garry Smith
Garry405625.gs@gmail.com

Keith Hamer and Garry Smith continue our look at the early days of radio, pay tribute to a much-loved RTÉ presenter, feature Britbox and report on current TV DXing successes and future opportunities.

In our column in September last year (*RadioUser*, September 2019, 30-31), we mentioned that, between 1922 and 1929, the BBC opened several stations to expand their radio service. This process began with two additional stations being brought into service on November 15th, 1922: Birmingham (5IT from Witton on 420 m) and Manchester (2ZY on 385m from Trafford Park).

The station at Newcastle-upon-Tyne (5NO, 400m) was brought into service on Christmas Eve, 1922. Cardiff (5WA, 353m) began on Tuesday, February 13th, 1923, to be followed by Glasgow (5SC, 415m) on March 6th. In October 1923, Aberdeen (2BD, 360m) and Bournemouth (6BM on 410m) were brought into service on Wednesday the 10th and 17th, respectively. The Bournemouth station was originally intended to be located in Plymouth.

In December 1923, the 2LO station changed from broadcasting on 369m to 365m. The other seven stations also changed wavelengths in December.

Due to poor reception on crystal wireless receivers in some areas, eleven medium-wave relay stations were installed, each with an ERP (Effective Radiated Power) of approximately 200W. Wireless sets in those days were affectionately known as 'Cat's Whiskers'. This was because a thin copper wire, resembling a cat's whisker, was used to make contact with the device's crystal detector.

The crystal was usually made of galena, commonly known as lead sulphide. This type of wireless didn't require any source of power, and the sound was monitored using headphones.

BBC Close MW Transmitters!

Nearly a century later, the picture is a different one. The BBC recently announced that they are closing a further 18 medium wave transmitters across England, Scotland and Wales as part of the next stage of their plan to cut costs.

Services being closed range from BBC Radio Solent's two AM frequencies on the South Coast to BBC Radio Scotland's service in Aberdeen.

Six more BBC Local Radio services will no longer be transmitted on AM. These include *BBC Three Counties Radio* (630kHz and 1,161kHz), *BBC Radio Merseyside* (1,485kHz), *BBC Radio Newcastle* (1,458kHz), *BBC Radio Solent* (999kHz and 1,359kHz), *BBC Radio Cornwall* (630kHz and 657kHz) and *BBC Radio York* (1,260kHz).

Britbox: The Ultimate Repeat Channel!

A new streaming subscription channel was officially launched on Thursday, November 7th, 2019. The channel, given the somewhat cheesy name *BritBox*, is the UK broadcasters' entry into the fiercely competitive war of pay-television 'streaming'. The service is a joint venture between the BBC, ITV, Channel 4 and Channel 5 (Fig. 1).

Many months ago, when the service was originally announced, the (then) BBC Director-General, Tony Hall, proudly boasted that the subscription fee would be £5 per month and cheaper than other rival channels. At launch on November 7th, the charge had already gone up to £5.99 per month!

The channel features what the BritBox publicity department describes as "*classic series*" which, being translated, means repeats of programmes. Viewers have already paid for these shows with their BBC licence fee and higher prices in shops for virtually all goods, due to the enormous costs involved with producing and showing television commercials! However, there will be *some* new productions ('new', that is, for British television) including *The White Princess* depicting nuns living on a remote island. It was originally shown on Australian TV in July 2019.

BRITBOX

1

RTÉ

2

GÖSTA VAN DER LINDEN

3

No doubt fee-paying subscribers can't wait for that little gem to appear!

Tribute To Marian Finucane

Perhaps Marian Finucane may not be a household name with radio listeners living in Great Britain, but it certainly is for those in Éire and Northern Ireland. She was a veteran broadcaster and presenter with Raidió Teilifís Éireann (RTÉ), the national public service broadcaster in Éire. Sadly, Marian died suddenly at her home in Naas, County Kildare, on Thursday, January 2nd, 2020, aged 69.

Marian Finucane was born in Dublin on May 21st, 1950. She joined RTÉ as a Continuity Announcer in 1974. Two years later, she became a programme presenter. A big advocate for women's rights, in 1979, she presented a radio programme called *Women Today*. In the same year, she won the *Prix Italia* broadcasting award for a hard-hitting documentary film. For nearly two decades, she was a present-

Fig.1: The new Britbox logo. The streaming channel was officially launched on November 7th, 2019. Fig. 2: Veteran award-winning broadcaster and presenter with Raidió Teilifís Éireann (RTÉ), the late Marian Finucane. Fig. 3: The Finnish YLE-2 Test Card "G" (Channel E2, 48.25MHz) from Tampere (10kW ERP), radiated in the early 1970s, received by Gösta van der Linden. Fig. 4: The 'Number 1 TV' test pattern from Ghana, received by Sándor Rottenbacher (Hungary) via the Badr satellite at 26° East. Fig. 5: The Grundig Satellit 700 brings back many happy memories for the editor.

er on RTÉ Radio 1 and hosted *The Marian Finucane Show* on weekend radio (Fig. 2). In 2008, she received a *PPI Radio Award* for outstanding achievement in broadcasting. The awards were sponsored for many years by the *Phonographic Performance Ireland* organisation. In 2017, sponsorship was handed over to *IMRO -the Irish Music Rights Organisation*.

RTÉ Director-General, Dee Forbes, said: *"Ireland has lost a unique voice. RTÉ has lost a beloved colleague. She tackled the big social issues of the day with command and insight."*

A mass for Marian was celebrated on January 7th in Kill, County Kildare, followed by a private burial at St. Brigid's Church. Amongst those attending the service were the Irish Taoiseach, Leo Varadkar, many RTÉ colleagues including the Director-General, plus several government ministers. A book of condolence was opened at RTÉ's Radio Centre in Donnybrook, Dublin.

DX Corner

It is not uncommon to experience an upsurge in Sporadic-E activity during the winter months, and this time, conditions created some exciting DX opportunities. Turn the clock back 50 years, and Band I would have been flooded with test cards. A typical example is the reception of YLE from Finland (Fig. 3).

Sporadic-E DX

On December 1st, 2019, between 0955UTC and 1030UTC, Chris Howles (Lichfield) encountered a Sporadic-E opening on the OIRT FM band (65MHz – 74MHz) producing stations from Belarus.

An impressive Sporadic-E opening occurred on the 28th with the MUF (maximum useable frequency) reaching the top of the normal FM band. Sixteen Polish stations and a 100W relay at L'viv (Ukraine) on 87.7MHz were the highlights. The opening produced a wealth of OIRT FM signals from Belarus and Ukraine; the

SÁNDOR ROTTENBACHER

4

5

greatest distance achieved from the latter was Kiev (Kyiv, Hromads'ke Radio) on 70.4MHz at 2,224km.

George Garden (Gourdon, Scotland) monitored the FM band on the 14th for the Geminids Meteor-Shower event. At around 1800, the band became quite active.

On January 12th, 2020, a Sporadic-E opening between 1530 and 1750 affected the OIRT FM band. Chris Howles identified 28 stations from Belarus, three from Ukraine, and Radio Rossii (Unecha) from Russia at 2,298km.

Tropospheric DX

Simon Hockenhull (Bristol) encountered an intense tropospheric opening between December 29th and 31st with reception possible both day and night. Direction initially favoured north-east France, Belgium and north-west Germany. However, on the 31st, conditions switched to the south and south-west producing some Spanish 'firsts'.

All reception was achieved using a Grundig Satellite 700 and a Roberts Play radio via their telescopic aerials. On the same day, Chris Howles also received his first-ever Spanish tropo signal from Euskadi Irratia (Bergara) on 87.7MHz at a distance of 1,062km.

On January 29th, Andrew Jackson (Birkenhead) logged Belgian and French FM transmitters. On the 30th at 1500, Brian Manley (Greenwich) identified several Belgian FM stations using a Samsung mobile phone with the headphone lead acting as an aerial. At night, using his car radio, Brian identified French, Dutch and Belgian stations. On the same day, Stephen Michie (Bristol) successfully captured DAB+ signals from Radio Noord (Netherlands).

Enhanced conditions provided Tom Crane (Hawkwell) the opportunity to test the VMade 8902 terrestrial TV set-top box, which covers both the DVB-T and DVB-T2 standards. Surprisingly, two German multiplexes were decoded on the 29th, which use the HEVC (High-Efficiency Video Coding) system. These were present on channel D40 and D25, the latter including *Das Erste* and *WDR HD Essen* services. Various Belgian, French and Dutch multiplexes emerged on the 29th and 30th.

New OIRT Transmitters

The new Sporadic-E season is about to begin. Table 1 shows new OIRT FM stations, which are either planned or have already entered service.

Tim Bucknall (Congleton) advises that an unlisted Channel R2 (59.25MHz) transmitter at Balasinești, Moldova, has been discovered. The bad news is, by the time you read this, Moldova may have completed their analogue switch-off, planned for March 2020.

Satellite Reception

Sándor Rottenbacher in Hungary has been very active scanning various satellites. He has sent a multitude of interesting test cards and identification captions including one from Ghana (Fig. 4).

Many thanks to all the DX enthusiasts who have submitted their reception reports. Hopefully, the FM and DAB encounters will encourage more of us to monitor the bands!

Stay Tuned!

Please send archive photographs, information, news or suggestions for future topics to **Garry Smith, 17 Collingham Gardens, Derby DE22 4FS**, or to the e-mail addresses at the head of this column.

70.58MHz Radio Rossii (Krasnaja Poljana)
71.00MHz Radio Rossii (Krasnoselkup)
73.61MHz Narodnoye Radio (Tver).

66.98MHz UA Radio Cultura (Kropyvnytskyi)
72.44MHz Sarvan FM (Savran')
68.45MHz Lyubashivka FM (Lyubashivka)
72.74MHz Mikolaivka FM (Mykolaivka).

Table 1: Current and Future OIRT FM Stations.

Proplab 3.1 and the Art of Raytracing

Nils Schiffhauer returns to RadioUser for a flying visit, to look at some sophisticated software for the prediction of propagation conditions on HF, and he shows how this differs from older, legacy propagation software.

ALL PICTURES: NILS SCHIFFHAUER , EXCEPT FIG. 4: ROYAL OBSERVATORY OF BELGIUM

Nils Schiffhauer, DK8OK
dk8ok@gmx.net

As we are at the beginning of a new Sunspot Cycle (No. 25), there is raised interest now in taking a much closer look at propagation software. The launch of solar research satellites, like the NASA/EASA *Solar Orbiter* early this year, and India's *Aditya-L1*, planned to be launched in late 2020, helped to focus many hobbyists', and the general public's, attention to solar (or 'space-') weather even more sharply.

For HF aficionados, the empirical "*Ionospheric Communications Analysis and Prediction Program (IONCAP)*, from 1983 (and its predecessors, such as ITSA1, 1966), is still the foundation behind many popular models for the display and prediction of HF propagation – point-to-point and over an area.

Moreover, VOACAP, developed in 1985 by the Voice of America (VOA) and published eight years later with some offshoots and variations, has become the most popular version of this ground-breaking software, which came to light at the confluence of three wider developments: The first widely available PCs, huge statistical data from observations and experiments, and deeper knowledge of how propagation works.

It also emerged before the decline of 'classical' HF intercontinental communications. A development by the US Government, it had become available for free, is still available, and has now branched out into many online services. Fig. 1 shows but one example of these field strength observations. What you can see are some typical diurnal and seasonal variations. These are further influenced by solar activity and by the wider fluctuations of the Earth's magnetic field.

https://www.voacap.com

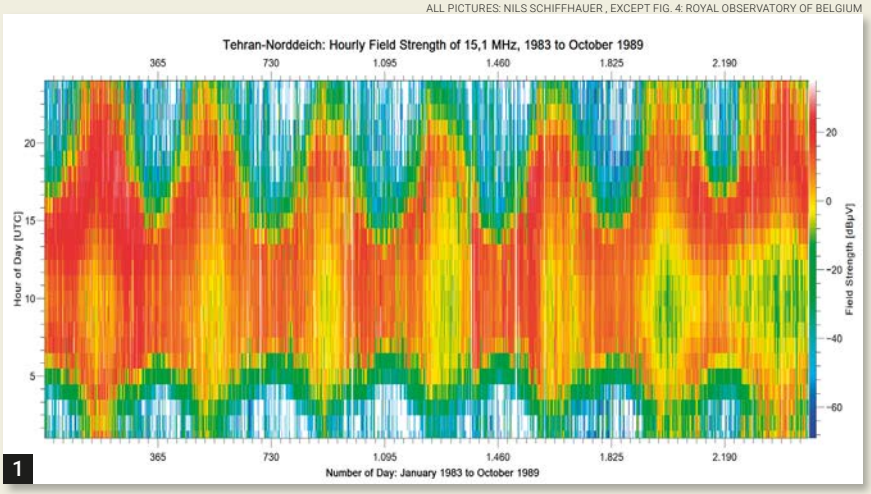


Fig.1: Daily normalized field strength values from 1983 to 1989 on the path Tehran to Norddeich. The transmitter was Kamālābād on 15084kHz.

Data Delivery

VOACAP and other slightly 'greying' software, is based on a generalized view of propagation. It delivers largely averaged values, all referring to a signal-to-noise model and delivering rather smoothed values, which must be taken with a grain of salt if applied to *daily* DXing.

By contrast, the images in Figs. 2 and 3 show the tough reality of receiving.

Regarding the calculation of the probability of HF propagation *for a specific hour and a specific month*, this type of program delivers just one averaged value. Nothing less, nothing more.

Prediction of propagation for a specific day, hour (or even minute) will stretch the model too far, as does the input of the daily sunspot number, instead of one smoothed over the entire month.

The picture in Fig. 4 illustrates the difference very well.

If you take into account the inherent limits of this kind of model, it takes you reliably through decades of successful DXing. Just try one of the offline versions which are cleverly-programmed and will save you a lot of work for the more usual cases of reception (Fig. 5).

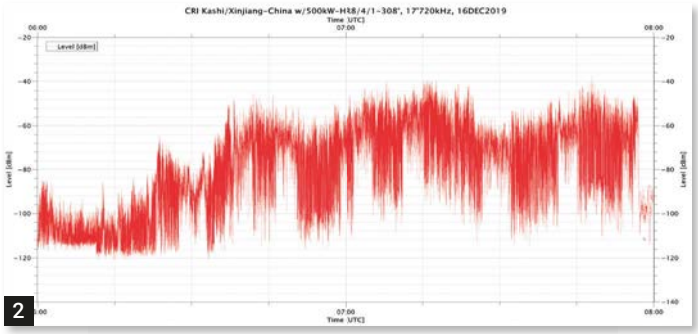
https://www.sws.bom.gov.au/Solar/1/6

IRI, IRTAM, and Ray Tracing

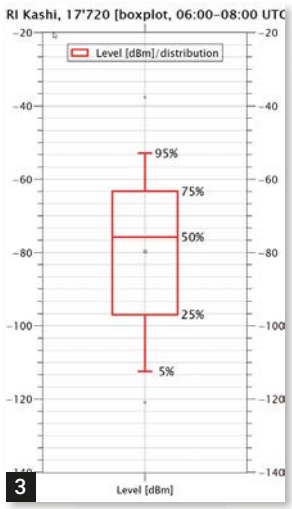
The state-of-the-art technology in this area is based on the *International Reference Ionosphere (IRI)*. This, for our purposes, is best visualized by the movie-like *IRI Real-Time Assimilative Mapping IRTAM*. This technology is based on live observations from many ionosondes, scattered all over the world.

The image in Fig. 6 illustrates the united power of IRI and ionosondes. IRI itself can be traced back to the 1960s, in its way of combining observations into a steadily-refined advanced model of the ionosphere.

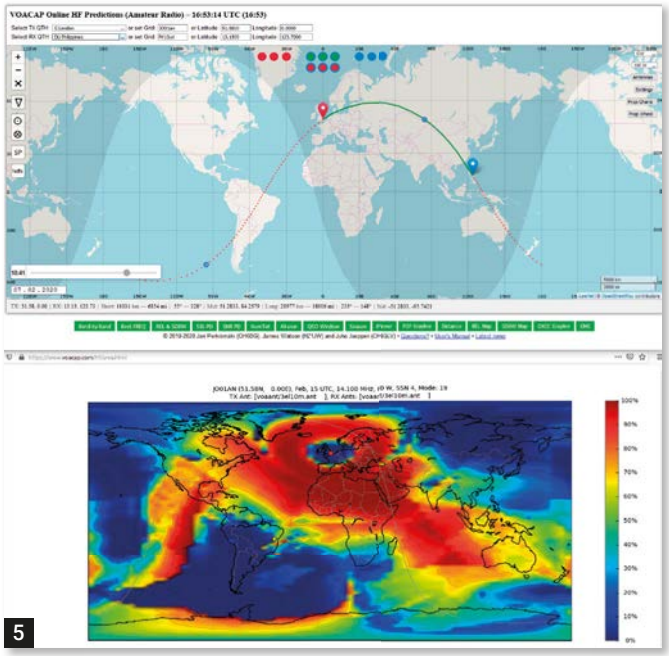
For a given location, the IRI standard



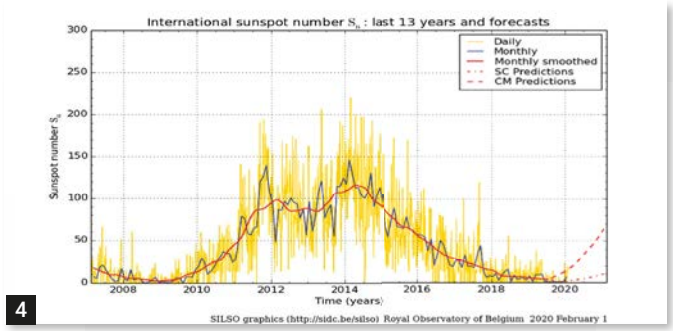
2



3



5



4

Fig. 2: In reality, the field strength is not represented by one steady value per hour, but is highly variable, as this CRI-transmitter from Kashi/Xinjiang in Chia on 17720kHz shows during its two-hour broadcast to Europe. Fig. 3: The distribution of the signal has been segmented mainly in quartiles. Reliable propagation software will reduce this further to a forecast of simply about -85dBm. Fig. 4: The relationship between daily sunspot number, as observed, and the monthly smoothed number, as it must be used in most propagations' software. The difference may well amount to 100% on some days. Fig. 5: With online prediction tools, you click on a specific path, and you will get a map of different factors. Here, these represent the reliability of amateur radio communication on 14.1MHz on 15th February, at 1500 UTC around London.

describes all relevant data of the ionosphere, such as electron density, electron temperature, ion temperature, and ion composition, in the altitude range from about 50 to 2,000km. It also indicates the electron content.

http://irimodel.org
http://giro.uml.edu/IRTAM

In terms of propagation prediction software, ionospheric research and the ever-increasing PC power made so-called 'ray-tracing' a reality, some 25 years ago. This technique calculates the path of electromagnetic waves through the ionosphere with its many effects. This allows not only simulating simple multipath propagation (2D) but taking into account the magneto-ionic effect, where the Earth's magnetic field and the atmospheric ionization split a wave into so-called ordinary (o) and extra-ordinary (x) waves (3D).

This has quite an effect on propagation. To my knowledge, the technology was briefly available for free with AREPS (Fig. 7), a software developed by the *US Space and Naval Warfare Systems Command (SPAWAR)* in San Diego in the early 2000s.

However, sometime later, the HF module was cancelled, then the software as a whole. That was a pity, as it has been a very efficient stand-alone tool. The Italian software IONORT (from 2011) and the Australian program PHaRLAP (first release in 2006) both rely on Matlab as their machine room, for which they constitute a so-called 'toolbox'. They are free but this isn't the case for Matlab, a mighty multi-paradigm, numerical computing environment and proprietary programming language.

It cheapest barebone version is sold to students well below £100 with commercial versions coming at a price. Give it a try if you or your children or grandchildren are students.

By the way, the US Department of Defence set up a project in 2018 to combine VOACAP, PHaRLAP and IRTAM into a future real-time propagation software called *HF Active Radio Propagation (HARP)* – a US$150.000 project with, as yet, no publicly available results.

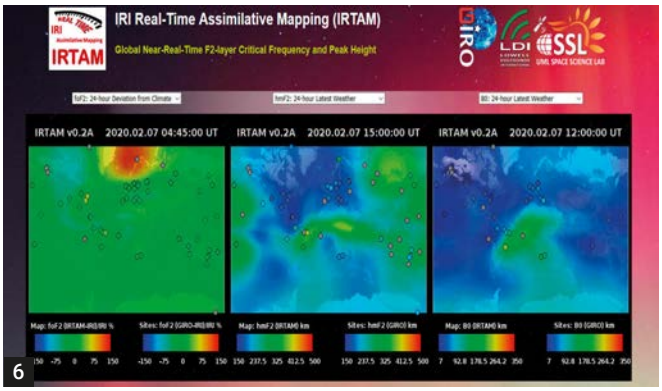
https://tinyurl.com/wlhn6vs
https://github.com/blair3sat/ionosphere-rt
https://tinyurl.com/t6swd8a
https://de.mathworks.com

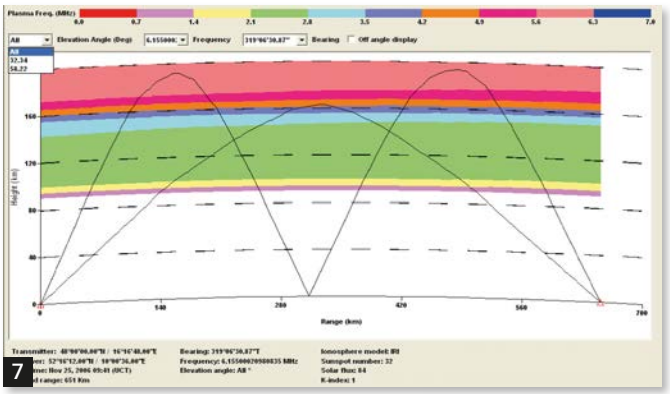
Proplab: Raytracing for the Rest of Us

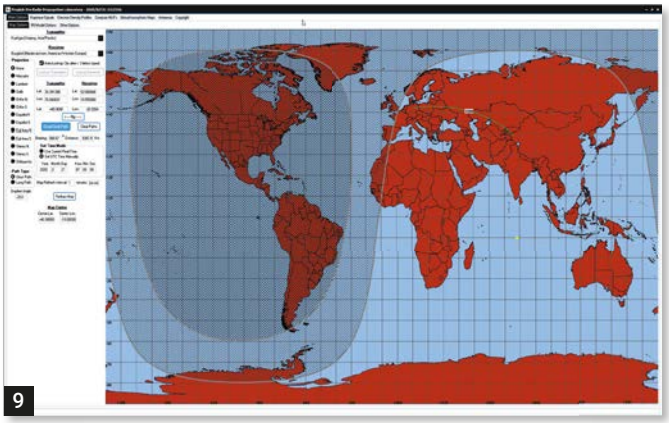
With Proplab, Canadian scientist Cary Oler developed a more widely available standalone software, introducing 2D and 3D raytracing as early as 1994, then running under DOS. The 2D simulations ran like a charm, but the 3D module needed very careful input design before they came up with just one calculation overnight (or, more often than not, showing an 'error-message' at breakfast).

Nevertheless, the 2D simulation was a great step forward, as it allowed for the simulation of short-lived propagation, such as contacts between Mid-Europe and California on some winter afternoons.

Now Proplab 3.1 (US$240) is available for use with Windows10, and its use is all but 'fool-proof'.







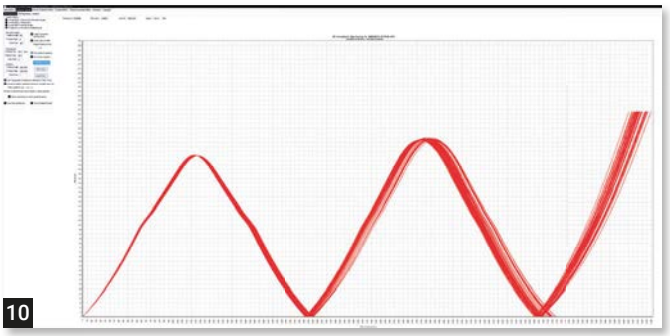


Fig. 6: Free IRTAM real-time movies reflect actual measurements of the state of the ionosphere. Fig. 7: This AREPS raytracing shows that the Moosbrunn signal from Austria is received on two paths with different 'times-of-flight' at my location at 09:45UTC on 6155kHz. Fig. 8: Proplab is based on IRI2007, which is modified by solar and geomagnetical data, current, past and future. Fig. 9: All is prepared for calculating the 5088km-long path from Radio China International's morning transmission on 15.500kHz towards Europe. Fig. 10: 2D simulation of this path shows 'textbook-like' propagation over two 'hops'.

https://tinyurl.com/lo66469

Proplab is a true experimenters' laboratory. It makes use of IRI-2007, takes account of all relevant data like current (not only 'smoothed') solar flux, and the state of the geomagnetic field, expressed by different measurement values (Fig. 8). If you wish to analyse the current conditions, all values will populate themselves automatically from their sources via the internet. Alternatively, you may use past or future values. All these values modify the reference ionosphere, to represent Mother Nature even better.

For the calculation of a point-to-point path, you will have to define the position of transmitter and receiver, assisted by a huge database.

Great Circle Lines and 3D Models

The software draws a great-circle-line between both locations (Fig. 9), and you must add the date and the time. You may switch between your current PC time to a past or future date and time.

After that, you are ready to open the tab *Raytrace Signals*.

Here you define transmission-elevation-angles, frequencies, and azimuth angles. I did this for the transmission of China Radio International (CRI) in the 19-meter band to Europe, at 07:00UTC on 21st February 2020 (Fig. 10).

When you look at the graph, you can detect a 2-hop, 'textbook' kind of propagation with nearly all rays in the range of 5.5° to 6.0° antenna elevation hitting my antenna.

So far, so good. But Proplab really comes into its own shines when you perform some serious 3D propagation condition modelling (Figs. 11a-d).

Here, the software shows the wave 'splitting up' into 'ordinary' and 'extraordinary' rays. Each different way through the ionosphere results in multipath propagation. This can cause deviation from 'standard' propagation (via the great circle path) by sometimes some ten degrees!

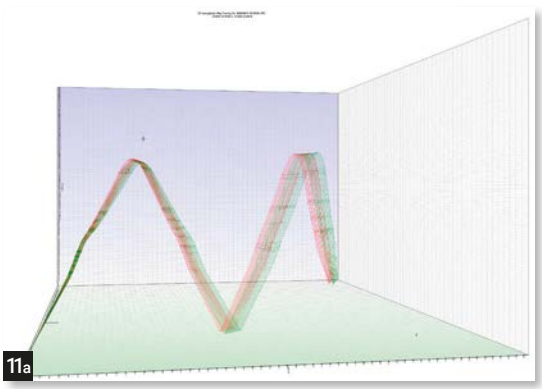
The 2D calculation only looks at the 'ordinary' wave, but the 'extraordinary' wave often features a much higher Maximum Usable Frequency (MUF).

This shows DXing opportunities conventional software will ignore by design.

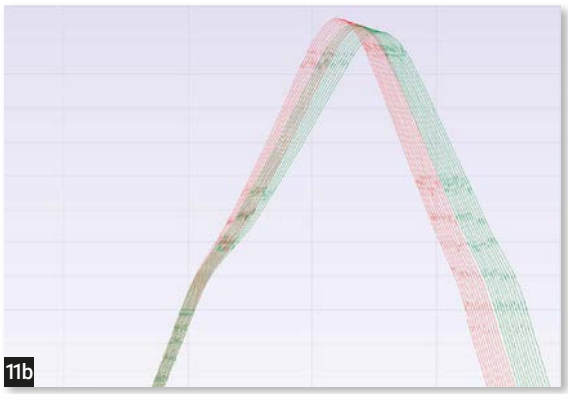
You may also study some 'focusing' or 'de-focusing' effects, enhancing or degrading propagation in a way, older software will fall short of to explain.

3D calculations will still take their time. You should start with a 2D model to calculate propagation in general, for instance, the actual elevation angles from the transmitter hitting your antenna. By doing this, you reduce the time-consuming variables, which the 3D calculation method has to crunch through.

Proplab will also calculate propagation from one location towards an area, in 2D

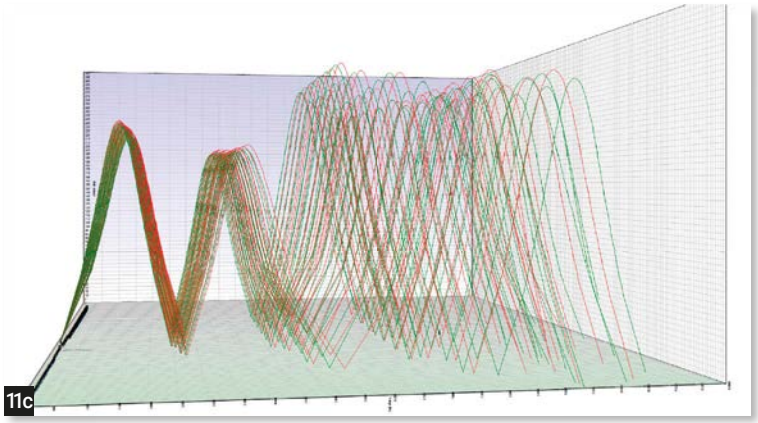


11a

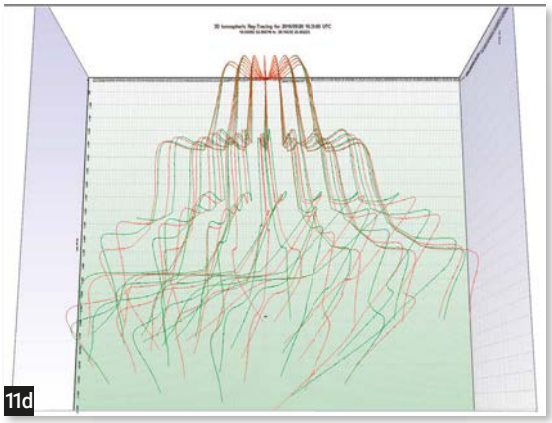


11b

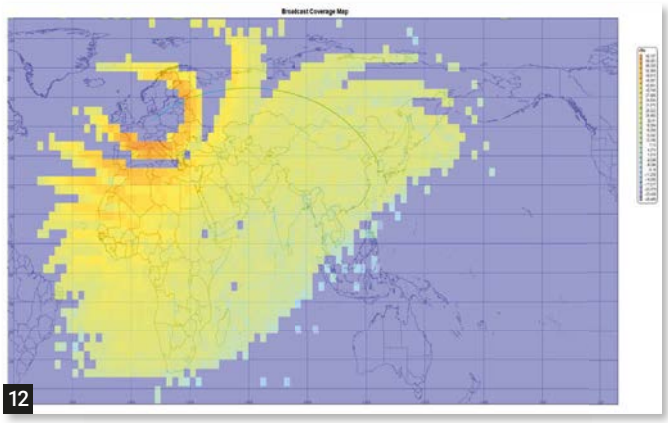
Fig.11a: This shows the same path as does Fig. 10, but is now featuring 3D modelling. Fig.11b: When zoomed-in, this 3D calculation reveals even greater detail, like refraction and the splitting-up of the ray by the ionosphere.



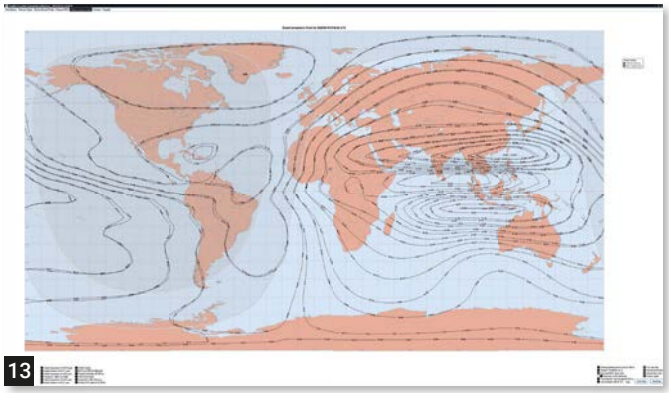
11c



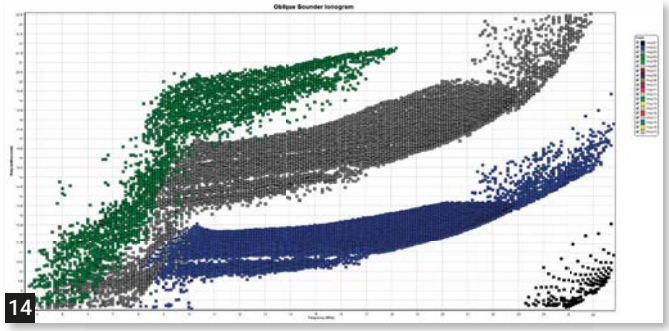
11d



12



13



14

Fig.11c: On this 3D path of a 21MHz signal one early summer evening from DK8OK to Pretoria/Republic of South Africa, azimuth and elevation have been slightly changed at the transmitter, resulting in greater deviations in all directions from the second 'hop'. Fig.11d: The 3D results may be viewed from all directions to stress specific details. Fig. 12: The area served by a Yagi antenna pointed towards Singapore on 14MHz on a spring morning from my location. Fig. 13: The world's MUFs in mid-February, 2020. Compared with the legacy-method, the ray-traced MUF is up to about 3MHz higher. Fig. 14: This artificial ionogram shows the 'time-of-flight' (duration) v. frequencies between Qatar and DK8OK on a summer's evening. The best choice would be at around 22MHz; a 'two-hop' propagation with fewer multi-path effects.

or 3D (Fig. 12). It provides world maps, showing decisive ionospheric properties like the MUF with different variants of spatial resolution (Fig. 13).

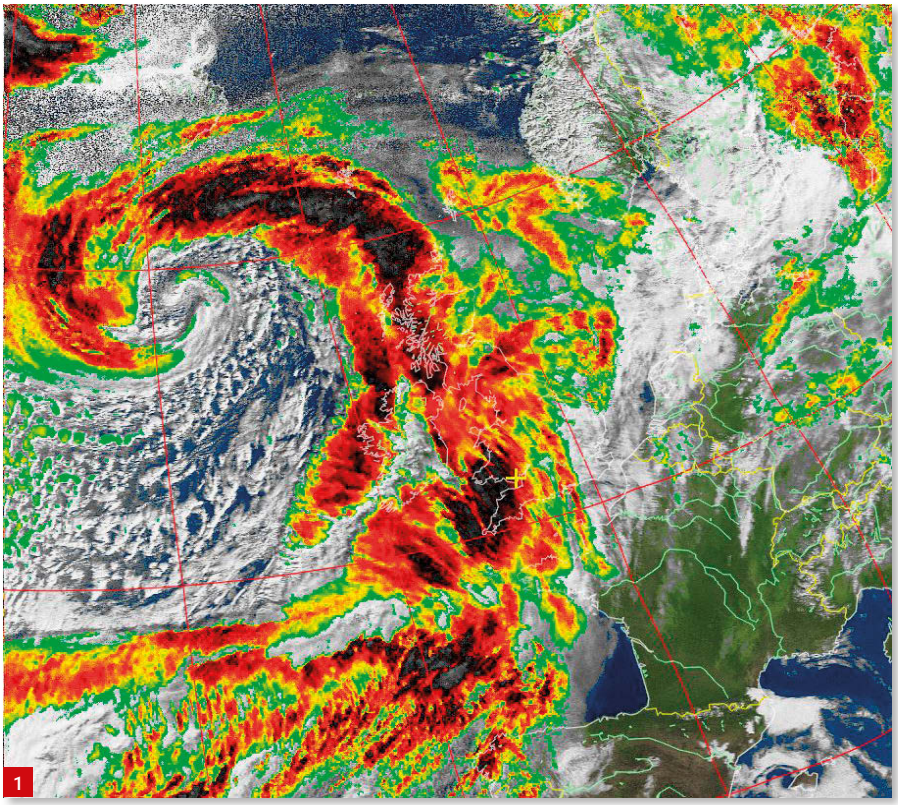
Furthermore, the software synthesizes ionograms from 2D and 3D calculations (Fig. 14), and it does much, more. Although I am part of a generation which, at school, learned to calculate with a slide ruler, I have the strong desire to speed up 3D calculation.

Proplab is an excellent and very advanced piece of software for calculating propagation and 'simulating' effects in nature. However, it is not the first choice of the faint-hearted who are satisfied with an easy online HF propagation prediction tool that may work reliably in about three-quarters of all cases.

Receiving & Decoding Images from Weather Satellites

Tim Kirby
longworthtim@gmail.com

This month Tim Kirby takes off to investigate how you can receive up-to-the-minute images from weather satellites with relatively simple means.


1

You can't help but take an interest in the weather. It's a 'British' thing after all! Living out here on the west coast of Wales, the weather forecast has now assumed greater importance than before to us. Storms can make quite an impact on where we live here, so it is best to be forewarned of any 'impending weather'. The gale warnings from both Milford Haven and Rosslare Coastguard received on the marine VHF band are very useful from that point of view, but I have also been enjoying some weather satellite pictures – received off-air and posted onto Facebook.

For this month's column, I thought it would be interesting to find out a little more about these pictures. What satellites transmit the pictures? How you can we receive the signals from the satellites and how are these turned into pictures that you can view on your computer screen?

I decided to ask David Bowen, a friend from Brecon in Powys about it, as he'd been sharing some stunning images he had received from the weather satellites onto Facebook. David told me that the satellites of the US National Oceanic and Atmospheric Administration ((NOAA), which have been around for a long time, produce good pictures.

https://www.noaa.gov

However, he also said that the images from the new Meteor M2 satellite are even better. The Meteor M2 satellite uses a different image format and, therefore, different programs to decode it.

As it happens, I was chatting to David online as a Meteor M2 pass came over. It was a pass well to the east of us, but David received a picture. What intrigued me was that, although the raw data or picture that was received off-air had some noise bars in it (this is usually as the satellite moves through the polar diagram of the antenna) – by the time that David had run the data through some software – there were no noise bars at all. There were several very attractive and interesting maps to look at.

The basic image, including noise bars, is shown in Fig 1. After processing, David produced Figs. 2, 3 and 4.

What a transformation that is!

Back to Basics

All the weather satellites – both the NOAA craft and the Meteor M2 satellites – transmit on 137MHz. The NOAA satellites that you can receive here in the UK are NOAA15, NOAA18 and NOAA19. The signal from the NOAA satellites needs a 48kHz bandwidth, and the Meteor M2 requires an even wider 120kHz bandwidth to be available in your receiver.

What this means is that if you, like me, decide to hook up an amateur radio receiver, which is narrow-band FM (NFM), to a software decoder, you will get slightly disappointing results. This is because the bandwidth of the receiver is probably configured for 12.5kHz (or, at most, 25kHz) channels, whereas the full bandwidth required to receive even the NOAA satellites is 38kHz. But if that's what you've got – give it a go, and you might receive something with the NOAA satellites.

We'll talk more about how you can receive them shortly.

SDR Technology

Most people are using one of the new breed of SDR receivers to decode the passes. David, for example, uses an SDRPlay RSP1A. Others operate the Airspy receiver. Because the SDR software allows you to define your receiver bandwidth, it's easy to set it to exactly what's needed. David also says that the very cheap RTL-SDR USB dongles work very well indeed if you are just interested in weather satellite reception as there are any number of tutorials and articles to help you get started.

There's also plenty of software available.

For the older NOAA satellites, you need to pass the audio from the SDR software into a decoder for the images. Most monitors use

the *WXtoImg* software:
https://wxtoimgrestored.xyz/downloads

However, *WXtoImg* is no longer being developed. You can download a copy of the Professional version at no cost. David says that he uses the *SDRConsole* software.

https://www.sdr-radio.com/download

He has automatic satellite tracking enabled. He then feeds the audio output from *SDRConsole* to *WXtoImg* through a Virtual Audio Cable (VAC) on the computer.

https://www.vb-audio.com/Cable.

There's an automatic scheduler, which allows *SDRConsole* to select the appropriate frequencies for the different satellites as they pass overhead. So, you can configure it all up, go out for the day and you should come back to a selection of different images. Well, that's the theory at least – as you can see there are several different software components to the system – so there's a bit of setting up to do before it's all working properly.

If you have the RTL-SDR type dongle, rather than using *SDRConsole*, many tutorials suggest using the *SDRSharp* software suite. The other components will be the same, you are just using *SDRSharp*, talking to *WXtoImg*, once again utilizing the Virtual Audio Cable.

Reception and Aerials

We haven't talked about aerials yet! You might be tempted (like I was!) to try and employ a 'white stick' vertical to receive the satellites. But although you'll receive 'something', the results will probably be sub-optimal as those aerials are not designed to receive signals from 'up in the sky' – they expect the signals to be at a lower angle and generally close to the horizon.

On a very useful page on the excellent RTL-SDR.COM website, there's a tutorial on receiving the NOAA weather satellites with the cheap RTL-SDR receivers.

https://www.rtl-sdr.com/rtl-sdr-tutorial-receiving-noaa-weather-satellite-images

There's all sorts of information there, as well as video tutorials, and you will find a very useful section on aerials. Traditionally, a turnstile antenna (crossed dipoles) has been used for this sort of application. There are various commercial sources of these and I found some on eBay – or of course, you can make your own.

What may be even simpler, is to try using a V-dipole:
https://tinyurl.com/w42ckk4

As you will see, this is very simple to construct out of bits and pieces you probably have around. You could stretch some wire along bits of garden cane, for example, if you didn't have a suitable length of aluminium rod and join them onto your coax using a choc block. It might not be pretty, but as a friend of mine says, 'done is better than perfect'. Another nice tutorial including some more tips on antenna construction can be found at this URL:
https://tinyurl.com/s2zu8l3

You'll need to know the frequency of the satellites if you are turning manually! NOAA-15 is on 137.62MHz, NOAA-18 on 137.9125MHz, and NOAA-19 on 137.10MHz. Meteor M2 is on 137.90MHz.

I asked David what antenna he uses for his weather satellite reception and he generally uses a turnstile around 10m above ground. If a pass is very close to the horizon, he might try using a Yagi (beam) antenna – if you have a 144MHz beam, it will probably work to some extent on 137MHz, but of course, you will then need to track it through the pass, which adds another level of complexity.

This is probably unnecessary, at least when you are just starting.

There are also some excellent tutorials on how to receive the Meteor M2 satellites available. Have a look at this website here:
https://tinyurl.com/ufg9mld

You can also find some videos on YouTube; these may help fill in some of the gaps if you are not sure about something.

Resolution and Image Quality

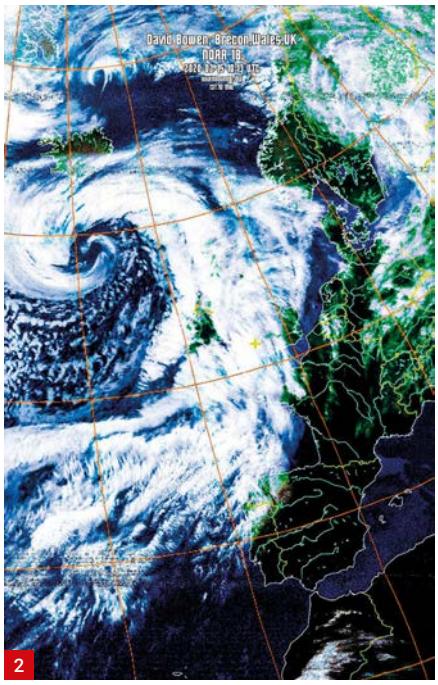
The Meteor M2 satellites provide much higher resolution than the NOAA satellites. You can read more about the Meteor M2 satellites and the free software which is available to decode the signals at this URL:
http://www.meteorgis.space

The Meteor M2 satellite transmits on 137.900MHz. As mentioned above, you'll need to set the bandwidth to 120kHz. David mentions that you'll need various programs, all freely available as part of the *MeteorGIS* suite; *Meteor_GIS* and *LRTP_Decoder*, as well as a satellite tracking program.

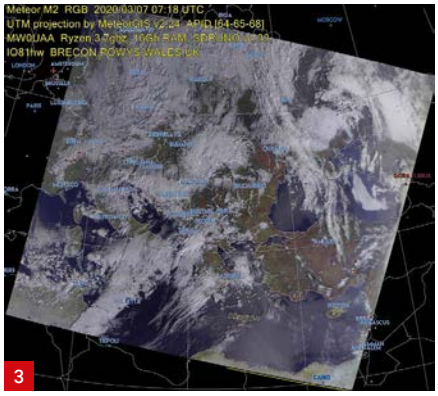
David mentions *Orbitron*:
http://www.stoff.pl

The software integrates seamlessly with the other software to allow automatic tracking and decoding of Meteor M2 passes. With Orbitron integrated, the software will automatically compensate for Doppler Shift of the satellite as it comes over (you'll remember that the satellite will gradually 'fall' in frequency throughout the pass, due to the phenomenon of Doppler shift).

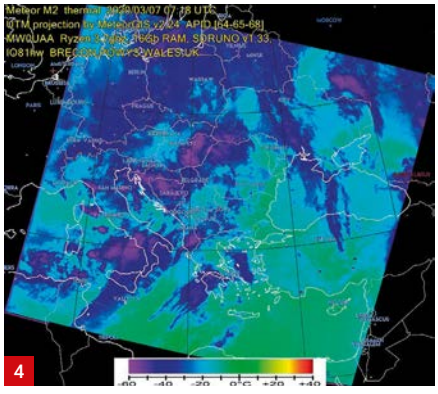
David has very kindly supplied some of his recently decoded and processed pic-



2



3



4

Fig.1: A 'raw' image from the Meteor M2 satellite. Fig. 2: Rainfall image processed from data in Figure 1. Fig. 3: Thermal image derived from data in Figure 1. Fig. 4: UTM projection image assembled from data in Figure 1.

Fig. 5: *Storm Dennis*, as captured by NOAA 18.
Fig. 6: Rainfall during *Storm Dennis*.

tures, including some very striking images of *Storm Denis*, which hit the UK with almost hurricane-force winds in February.

The image in Fig. 5 shows the cloud cover and the one in Fig. 6 displays the rainfall.

My warm thanks to David for sharing his pictures and experience with decoding images from the NOAA and Meteor M2 satellites.

Meteor M2

Unfortunately, only one of the Meteor M2 satellites is currently in operation. M2-2 had been launched, and – up until the end of last year – it was working well. However, in December 2019, transmissions ceased abruptly. Amateur radio operator Dmitry Pushkin R4UAB, a keen satellite monitoring enthusiast, reported the problem on Twitter, and other hobbyists around the world also noticed the satellite had gone silent.

A few days later, the Russian space agency, *Roscosmos* (*Роскосмос*) reported that, *"an abnormal situation was recorded on the Meteor-M spacecraft No. 2-2, associated with an external impact (presumed to be a micrometeorite) on its structure. As a result, Meteor's orbit was compromised and all onboard systems not involved in ensuring its functioning were turned off."*

http://en.roscosmos.ru

Although *Roscosmos* has regained control of the satellite, the power supply was severely damaged. This means that there is now insufficient power to use the 137MHz transmitter; there will be no further transmissions from Meteor M2-2. It is hoped that there may be a further launch of a Meteor M2 satellite.

The Group for Earth Observation (GEO)

If you are interested in weather satellites – both NOAA and Meteor satellites in Low Earth Orbit, and the geostationary EUMETSAT operation, which, perhaps, we will cover another time – then you might well be interested in the Group for Earth Observation (N.B.: *not*: 'Group *on* Earth Observations' - Ed.).

http://www.geo-web.org.uk/index.php

On its website, you will find some stunning images which have been received. You can also download the latest Newsletter (No. 65, March 2020),. And there is an archive of previous Newsletters.

This is beautifully presented and produced and makes for some very interesting reading.

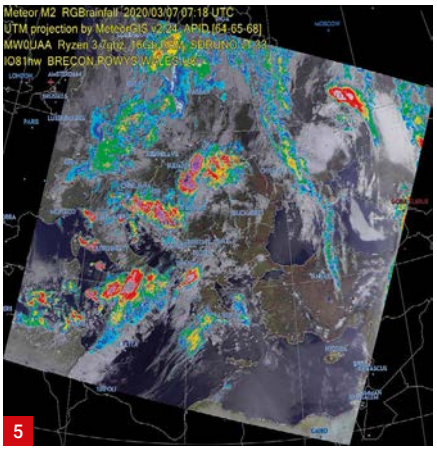
https://tinyurl.com/u5e99ah

If you have enjoyed reading about weather satellites then it's highly recommended!

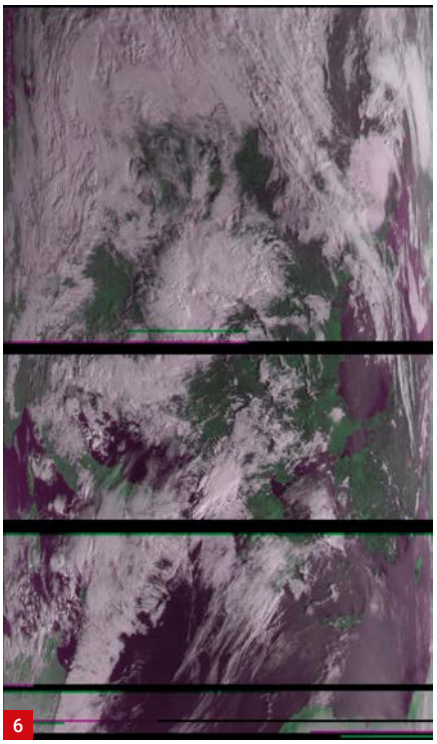
Perhaps the even better news is that there are no membership fees to pay, so you can read the group's excellent work for free. The group also have a presence on Facebook and Twitter, so you can follow them there and keep up to date with developments in the area.

Resources

AMSAT UK: Receiving weather Satellites:
https://tinyurl.com/rlf3yah
DJ9EV: https://www.dj9ev.de/wxsat
EIMETSAT:
https://tinyurl.com/uscnv7r
GEO:
http://www.geo-web.org.uk
Instructables:
https://tinyurl.com/toy5zuj
Kamisch, J., and Jenkins, S.F. (eds., 2013) Geostationary and Polar-Orbiting Weather Satellites: Background and Assessment (Nova)
Kunstmanen (Dutch Satellite Group): http://www.kunstmanen.net
LUXORION (Astrosurf): http://www.astrosurf.com/luxorion/qsl-satellites-reception2.htm
Remote Imaging Group (RIG, Historical):
http://www.time-step.com/rig/news.htm
RTL SDR Tutorial:
https://tinyurl.com/w3rzj4n
SDR-Radio.com: 'Weather':
https://www.sdr-radio.com/weather
Weather Satellite Tools (David Taylor):
https://www.satsignal.eu/software/wxsat.htm



5


6

Concluding Remarks

That's it for this month! Particular thanks to David Bowen for his help putting the column together – we both hope you will be inspired to try receiving weather pictures for yourself (Figs. 1-6).

See you next month, for another instalment of *Scanning Scene*.

TECSUN
World Class Radios

Tecsun PL-880

This new Flagship SSB portable radio uses multi-conversion & DSP decoding technology

Frequency coverage

- FM: 64 - 108 MHz
- Short Wave: 1.711 - 29.999 MHz
- Medium Wave: 522 - 1620 kHz
- Long Wave: 100 - 519 kHz

Specifications

- 3050 station memories
- Low / Mid / High sensitivity switch for long distance reception (DX)
- Alarm clock with snooze function
- Sleep timer (1-120 minutes)
- Treble / Bass Tone selection
- Built-in charging system
- Dimensions: 192 x 33 x 113mm WDH

Accessories supplied include:

- Extending SW antenna
- USB charging lead
- Stereo earphones
- 18650 type 2000mAh lithium battery
- Quality soft carrying case

£189.95

Tecsun S-2000

LW/MW/FM-Stereo/Shortwave (with SSB) and Airband.

Frequency coverage

- Shortwave: 1711 - 29999 kHz
- VHF Air band: 118 - 137 MHz
- LW: 100 - 519 kHz
- MW: 520 - 1710 kHz
- FM Stereo: 88 - 108 MHz

Specifications

- Signal Attenuator
- Dual timer alarm
- Wide/narrow filters
- 1000 station memories
- Auto Tuning Storage for FM/AM
- Dual alarm clock function
- MP3: Aux input

£299.95

Tecsun S-8800 (GM)

Synthesized portable/desktop receiver with handheld remote control unit, SSB reception and Gun Metal tuning knob. deal for use at home or when travelling!

Frequency coverage

- Long Wave: 100 - 519 kHz
- Medium Wave: 522 - 1620 kHz
- Short Wave: 1711 - 29999 kHz
- FM: 87 - 108MHz

Specifications

- SSB function with LSB/USB
- 650 station memories
- Alarm & sleep/timer functions
- DX/Local antenna gain control
- Built-in battery charging feature
- Unit size: 173 x 272 x 88mm

£279.95

Tecsun AN-48X

Active loop antenna

- Effective Frequency Range
- LW: 120-400kHz
- MW (AM): 520-1700kHz
- SW: 3500 20,000kHz

£39.95

Tecsun AN-200

Receiving Loop
Simply place near radio to boost reception!

- Frequency coverage: 520kHz - 1710kHz

£29.95

Tecsun PL-680

Portable world band receiver with SSB and full frequency coverage including VHF Airband.

Frequency coverage

- FM, MW , SW, LW
- Civil Air band 118 - 137 MHz

Accessories supplied include:

- Stereo earphones
- External antenna
- Mains adaptor
- Carrying case

Specifications

- Dual conversion
- SW Single Side Band (SSB) with BFO control
- 1900 station memories
- Multi-tuning methods
- DX / Normal / Local antenna gain
- Built-in Ni-MH battery charge function
- Power sources:
  4 x UM3 (AA size) batteries (not supplied)
  230V Mains adaptor (included)
- Dimensions: 190 x 35 x 112mm WDH

£149.95

nevada®

DISTRIBUTORS OF TECSUN www.nevadaradio.co.uk phone 023 9231 3090

e-mail sales@nevada.co.uk address Unit 1 Fitzherbert Spur Farlington Portsmouth PO6 1TT

MOONRAKER

ONE STOP RADIO SHOP

Sales line 01908 281705

E-mail sales@moonraker.eu PayPal VISA MasterCard

Postage (UK Mainland Only): Small items just £2.99
Medium items just £4.99 Maximum charge just £8.99

www.moonraker.eu

Moonraker UK Limited, Cranfield Road, Woburn Sands, Bucks MK17 8UR Open Monday-Friday 9:00-5:00pm

ICOM

Icom have been building radio receivers and scanners for a variety of applications for many years, enabling professionals and Amateur enthusiasts to monitor an increasing number of broadcasts. Icom's receiver and scanner range includes models that connect to your home PC, desktop or base-station receivers,

Handheld

IC-R6 100 kHz–1300 MHz AM/FM/WFM 1300 memory analogue scanner **£199.95**
IC-R30 100 kHz-3300 MHz All mode professional digital scanner **£569.95**

Base

IC-R8600 is a super wideband communication receiver that covers the radio spectrum from 10 kHz to 3 GHz. It also has the capability to decode selected digital communication signals including, D-STAR, NXDN, dPMR and P25 ..... **£2499.95**

Accessories

BC-194 drop in charger for IC-R6 ..... **£21.95**
CP-18E cigar lighter cable **£24.95**
CS-R6 cloning software for IC-R6 ..... **£34.99**
SP-27 clear acoustic earpiece **£24.95**
BC-223 rapid charger for IC-R30 ..... **£59.95**
BP-287 hi capacity 3280 mAh replacement battery for IC-R30 ..... **£77.95**
BP-293 dry cell case (3x AA) for IC-R30 ..... **£35.95**
CS-R30 programming software for IC-R30 ..... **£59.95**
LC-189 soft case for IC-R30 ..... **£24.95**
CS-R8600 software for IC-R8600 ..... **£72.95**
RS-R8600 remote control software for IC-R8600 ..... **£99.95**
RC-28 remote control system for IC-R8600 ..... **£279.95**
SP-38 desk top speaker for IC-R8600 ..... **£149.95**
SP-39AD external speaker with DC power supply for IC-R8600 ..... **£199.99**
AH-8000 100-3300 MHz professional discone receiving antenna ..

bhi Noise Cancellation Products

bhi design & manufacture a range of DSP noise cancelling products that remove unwanted background noise & interference from noisy voice & radio communication channels to leave clear speech. Aimed at a number of different radio related & voice communication markets, our products incorporate unique Digital Signal Processing technology to enable clear communications from within noisy environments.

NES10-2 MK4 Noise Eliminating Speaker replaces the MK3 version and removes unwanted background noise, hiss, hash, QRM, QRN, computer hash, plasma TV interference, white noise etc from speech, so that you can hear more clearly and listen stress free. Works across all radio bands and is also suitable for shortwave listening and for use in radio base stations. **£119.95**

Uniden

Uniden is the best known manufacturer of scanner radios in the world. Under its renowned "Bearcat" brand name, Uniden scanners are at the cutting edge of design and technology. Their high-end scanner radios, while complex, are used by radio hobbyists, media, businesses and at all levels of government and there lower end versions are beautifully designed and easy-to-use

PRE-LOADED UBC-125 DELUXE AIR BAND KIT WITH ACCESSORIES JUST £199.95

Handheld

EZI-33XLT 78-174/406-512 MHz 180 channel analogue scanner **£64.99**
UBC-75XLT 25-512 MHz 300 channel analogue scanner ... **£99.95**
UBC-125XLT (best seller) 25-960 MHz 500 channel analogue scanner **£129.95**
UBCD-3600XLT (NXDN Version) 25-1300 MHz Digital & Analogue scanner **£479.99**
SDS-100 Advanced 25-1300 MHz Digital & Analogue scanner..... **£589.95**

Mobile/Base

UCB-355CLT 25-960 MHz 300 channel analogue scanner .. **£84.95**
UBC-370CLT 25-960 MHz 500 channel analogue scanner **£119.95**
BCT-15X GPS enabled 25-1300 MHz 9000 channel analogue scanner **£249.95**
SDS-200E Activated DMR+NXDN+ProVoice 25-1300 MHz Digital & Analogue **£779.99**

Accessories

UBCD3600XLT soft leather case **£29.95**
UBC-125/75 soft leather case **£24.95**
ARC-536 pro software for UBCD-3600XLT **£49.99**
ARC-536 basic software for UBCD-3600XLT **£29.99**

DIAMOND ANTENNA

Based in Japan, Diamond Antenna manufactures a wide range of antennas and accessories for both hobby radio and commercial use. They are well known products that meet the highest standards in quality.

Scanner Antennas

D777 is a VHF/UHF civilian and Military air band receiving antenna. It has a gain of 3.4dB on VHF (120MHz) and 5.5 dB UHF (300MHz) with a length of 1.7m and SO239 socket for easy connection **£64.99**
D-190 is a high performance wideband discone antenna covering 100-1500 MHz including 10m RG58 terminated in PL259 ..... **£89.99**
D-130M is a Discone antenna with wide frequency coverage on receive 25 to 1300MHz and covers 6m (20W) and 2m (200W) when used with a transmitter. This model is supplied with 15m RG58A/U and 2 x PL259 plugs **£119.95**

WHISTLER

The Whistlers Scanners are USA designed and built to last – The TRX-1 & TRX-2 are our best-selling digital versions with sales 10-1 against any other brand. We have worked with Whistler to customise a UK band plan for these scanners! This ensures the radios cover UK bands in the correct steps and the correct mode. When a user does a service scan it will search in the correct steps for the selected band ensuring maximum received stations.

Handheld

WS1010 25-512MHz 200 channel analogue scanner **£89.95**
WS1040 25-1300 MHz storage for 1800 frequencies analogue scanner **£299.95**
TRX-1E 25-1300 MHz best-selling Digital & Analogue scanner **£419.95**

Mobile/Base

WS1025 29-512 MHz 200 channel analogue scanner **£89.99**
WS1065 25-1300 MHz storage for 1800 frequencies analogue scanner **£279.95**
TRX-2E 25-1300 MHz best-selling Digital & Analogue scanner **£479.95**

Accessories

MRW-TRX3 Triple hand held replacement antenna pack to increase performance **£39.95**
TRX-1 or TRX-2 SD Card – preprogramed with Airband, Marine, 446, FM/DMR/NXDN/25 Repeaters + FM/DMR simplex **£19.99**

FlightAware

Live Flight Tracking

FlightAware has revolutionized the world of USB SDR ADS-B Receivers with the FlightAware Pro Stick and Pro Stick Plus, high-performance USB R820T2 software defined radios (SDR) with a built-in RF amp for maximum ADS-B/MLAT performance. The first of its kind, FlightAware's Pro Stick is compatible with PiAware or any other device that supports USB RTLSDR receivers, and is less expensive than any other RTLSDR USB receiver in the world. The Pro Stick Plus adds a built-in 1090 MHz bandpass filter for increased performance and range of reception in areas with moderate RF noise as is typically experienced in most urban areas.

Flightaware Prostick Plus **£29.99**
Flightaware Prostick **£25.00**
FlightAware ADSB 1090MHz Band-pass SMA Filter **£16.99**

COVID-19 NOTICE - STAY SAFE

WE ARE OPEN AND HERE TO HELP YOU IN THESE DIFFICULT AND UNCERTAIN TIMES. KEEP SMILING

AIRSPY

Redefining The Radio Experience.

Airspy is a line of super popular Software-Defined Radio (SDR) receivers developed to achieve high performance at an affordable price using innovative combinations of DSP and RF techniques. The goal is to satisfy the most demanding telecommunications professionals and radio enthusiasts while being a serious alternative to both cost sensitive and higher end receivers. Airspy Radios feature world class reception quality and ease of use thanks to the tight integration with the de facto standard free SDR# software for signal acquisition, analysis and demodulation.

HF+ Discovery 0.5kHz – 31MHz VHF 60-260MHz SDR receiver ... **£199.95**
R2 VHF/UHF 24-1800MHz SDR receiver ... **£209.95**
MINI VHF/UHF 24-1700MHz SDR dongle ... **£119.95**

TECSUN

Tecsun is a world famous manufacturer of AM,FM and shortwave radios. They offer a great range of portable options from just £44.95

Portable

PL-360 This pocket world band radio, with AM & FM reception, keeps you in with the action from Long Wave , Shortwave(2.3-21.95MHz), FM (87-108MHz) ... **£44.95**
PL-380 is a portable FM Stereo/LW/SW/MW DSP Receiver FM 87-108 MHz (Russia 64-108 MHz MW 531-1602KHz AM 522-1620 kHz SW 2300-21950 kHz LW153-513 kHz ... **£44.95**
PL-606 is a DSP-based portable LW/MW/FM/SW (2.3-21.95MHz) shortwave radio ... **44.95**
PL-310ET is a portable multi band radio covering FM 76-108 AM 522-1620 kHz SW 2300-21950 kHz LW 153-513 kHz ... **£49.99**
PL-680 is a fully featured world band portable radio with SSB covering FM 87–108 MHz MW 522-1620 kHz SW 1711-29999kHz LW 100-519 kHz AIR 118-137 MHz ... **£149.95**
PL-880 is the flagship portable radio fitted with analogue Hi-IF circuit, multi conversion , & DSP decoding technology, which greatly enhances the sensitivity, selectivity and reduces interference from close by stations. Covering FM 87-108 MHz, SW 1.711 – 29.999 MHz, MW 522 – 1620 kHz, LW 100 – 519 kHz ... **£189.95**

MFJ

MFJ Enterprises, founded in 1972 by Martin F. Jue, is a manufacturer of a broad range of products for the hobby radio market. They specialise in station accessories, such as antenna tuners and antenna accessories. MFJ manufactures more amateur radio products than any other company in the world.

Receiving Products

MFJ-1022 300 kHz – 200 MHz active antenna covers the HF to VHF bands. It easily plugs into your general coverage receiver or scanner ... **£94.95**
MFJ-1020C 300kHz to 30 MHz tuned indoor active antenna system performs as well if not better than a long wire ten metres long. Tuned circuitry minimises intermod, improves selectivity and reduces noise. You can also use it as a tuned preselector with an external antenna ... **£129.95**
MFJ-1024 50 kHz – 30 MHz active antenna complete with control unit, 15m coax and external antenna ... **£197.99**
MFJ-1025 1.5-30 MHz noise canceller (alternative to the MFJ-1026) without the built-in Active Antenna. Plug your station antenna into the MFJ-1025 and your antenna system turns into a directional receiving array! ... **£219.95**
MFJ-1026 This unit is designed to eliminate local electrical noise even before it reaches the antenna socket of the receiver – it covers 1.8-30MHz – great just to only here the wanted signal in the clear. ... **£279.95**

Bonito

The Bonito brand defines over 38 years of reliable software in the field of worldwide weather data reception on board and of course Ham radio. Bonito is one of the leading software manufacturers for receiving weather information via shortwave radio, such as WeatherFax, Navtex, RTTY, CW and Synop as well as Satellite Fax Images from NOAA, Goes, ESA / EUMETSAT Meteosat. As well in Ham radio Software, SDR-Receiver and active Antennas and many more ham radio and DXer products.

Boni-Whip 20 kHz-300 MHz portable (17cm length) active wideband antenna ... **£109.95**
MA305FT MegActiv 9 kHz -300 MHz portable (30cm length) active wideband antenna ... **£179.95**
POLORAN 200 9kHz – 200 MHz broadband passive loop antenna. ... **£179.95**
GA3005 GigActiv 9 kHz–3000 MHz portable (19cm length) active wideband antenna ... **£379.95**
MEGALOOP FX 9 kHz – 180 MHz indoor/outdoor flexible loop antenna ... **£349.95**
MD3000X Mega Dipole 9 kHz–180 MHz active wire antenna ... **£389.95**

ALINCO

Alinco is a Japanese manufacturer of radio equipment, established in 1938 in Osaka, Japan and has been a trusted source for radio scanners for years.

Handheld

DJ-X3ED 100 kHz – 1300 MHz AM/FM/WFM 700 channel analogue scanner ... **£109.95**
DJ-X11E 500 kHz – 1300 MHz All mode 1200 channel analogue scanner ... **£299.95**

Base

DX-R8E 150 kHz – 35 Hz all mode 600 channel receiver .. **£469.95**

Accessories

ERW8 USB Interface cable for DJ-X11scanner ... **£39.95**
ESC50 soft case for DJ-X11 scanner ... **£23.95**
EBP74 replacement 1800mAh battery for DJ-X11 ... **£34.95**
EDH36 spare dry cell case for DJ-x11 ... **£17.95**
EME26 curly cord earphone ... **£10.95**
EME6 straight cord earphone ... **£10.95**
EPB54N high power battery for DJ-x3 ... **£29.95**
EDC105 drop in charger for DJ-X3 ... **£14.95**
EDC43 DC power cable for DJ-X3 ... **£12.95**
EDC37 12v DC cable for Alinco scanners ... **£9.95**
EDS17 remote head fitting for DX-SR8 ... **£39.95**
ERW7 USB computer interface cable for DX-R8E ... **£39.95**

SDRplay

The people behind SDRplay are a small group of engineers based in the UK with strong connections to the UK Wireless Chip Industry. They have both software and hardware expertise and the RSP was designed by them here in the UK.

RSPDUO is a dual-tuner wideband full featured 14-bit SDR which covers the entire RF spectrum from 1kHz to 2GHz giving 10MHz of spectrum visibility ... **£239.99**
RSPDX covers all frequencies from 1kHz through VLF, LF, MW, HF, VHF, UHF and L-band to 2GHz, with no gaps ... **£194.95**
RSP-1A it is a powerful wideband full featured 14-bit SDR which covers the RF spectrum from 1kHz to 2GHz. All it needs is a PC and an antenna to provide excellent communications receiver functionality ... **£99.95**

AOR

AOR, LTD is a renowned Japanese communications equipment manufacturer established in 1978, headquartered in Tokyo, Japan, serves the monitoring enthusiasts, communication professionals, amateur radio operators and electronics industries throughout the world

Handheld

AR-8200MK3 super wide band 100 kHz-3000 MHz 1000 channels analogue scanner ... **£459.95**
AR-8200D same as AR-8200-MKIII with the following added features. * APCO25 Decoding * Voice Recording * MicroSD Card Slot * 4GB MicroSD card Included * USB Port * CTCSS built-in * Voice Inversion built-in ... **£669.95**
AR-DV10 100 kHz-1300 MHz Digital scanner with TETRA DMR. NXDN. dPMR. APCO25. D-STAR ... **£899.95**

Mobile/Base

AR-8600 MKII 100 kHz-3000 MHz all mode analogue scanner **£599.95**
AR-DV1 100 kHz -1300MHz Multi mode digital base scanner **£1199.00**
AR-5700D 9 kHz – 3700 MHz Advanced digital communications receiver ... **£4595.00**

Accessories

DA-3200 25-3000 MHz professional discone antenna ... **£169.95**
DA-5000 700-3000 MHz professional compact discone antenna... ... **£269.95**
LA-400 10kHz – 500 MHz Magnetic receiving loop ... **£399.95**

MOONRAKER

We were established in 1978 and are the largest manufacturer of Amateur, CB and Scanner antennas and accessories in the UK.

Scanner Antennas

SKYSCAN MOBILE is a great all-round scanning antenna, which should enhance the reception capability of any radio scanner. Each of the nest of four different length antenna that make up the Sky Scan are designed to pick up a specific frequency range, this method has proven to work extremely well and delivers great results over 25-2000 MHz ... **£24.95**

SKYSCAN DESKTOP This is the best all round wideband desktop scanner antenna on the current market. Keeping within the famous discone design but smaller for internal use has proved wonders for indoor reception. The antenna covers 25-2000 MHz and comes complete with a heavy 125mm base 4m RG58 coax and terminated in BNC ... **£59.95 NOW £49.95**
G.SCAN II 25-2000 MHz mobile scanner antenna with 90mm base 4m RG58 terminated in BNC ... **£24.95**
ROYAL DISCONE 2000 generally regarded as the best all round discone antenna. Not only does it cover 25-2000MHz on receive you can also transmit on 6/2/70 & 23cm ... **£59.95**
HF DISCONE Great antenna for all HF/VHF and UHF! Ideal for listeners wanting shortwave but do not have the space for a long wire. Centre radiator includes helical trapped wire encapsulated in fibreglass to receive all HF bands. Covers 0.05-2000MHz with 5 star reviews on our website ... **£69.95**

Join our new loyalty programme

and start earning WATTS now!

All registered retail customers can now earn and redeem free product credits known as **WATTS**.
It's simple the more you spend the more **WATTS** you receive. You will also receive bonus **WATTS** when you refer a 'New Customer', 'Write a Product Review', 'Share' a product' or 'Refer a Friend'

Don't miss out – Register now and start enjoying free WATTS

Experience, Innovation and Inspiration

Chrissy Brand
chrissyLB@hotmail.co.uk

In times of a pandemic, **Chrissy Brand** predicts a healthy future for radio, catches up with Hospital Radio and celebrates the colourful diversity captured in this year's World Radio Day.

To understand the present and anticipate the future, we need to be fully aware of the past. This applies to every profession, industry or field, be it geopolitics and international development, transport or radio and audio. I was reminded of the need to have a clear perspective and to learn from the past on a drizzly March evening in plush Hampstead in London.

I was at Burgh House and Hampstead Museum for one in a series of engaging presentations. Diverse topics are covered in an informative and intelligent way, from nature in the Philippines to poetry, but I was there to hear *The Story of Radio*. This high-energy talk was given by David Lloyd, a radio executive veteran with a jovial personality.

He is also a radio historian, blogger, archivist and producer of the award-nominated legacy audio podcast series *Conversations*.

Share of Ear

In his hour-long talk to a packed audience, in the wood-panelled surroundings of Burgh Hall (Figs. 1 and 2), David concentrated mostly on the UK history of radio. He took us from Nellie Melba giving the first scheduled entertainment broadcast, in the Marconi factory in Chelmsford, through the BBC formative years, to the influence and growth of Radio Luxembourg.

When Luxembourg was occupied in World War 2, the first reel-to-reel Magnetophone tape recorders were used to deliver long Nazi propaganda speeches, Before this, radio speeches and talks were recorded made on discs, which were limited in their duration.

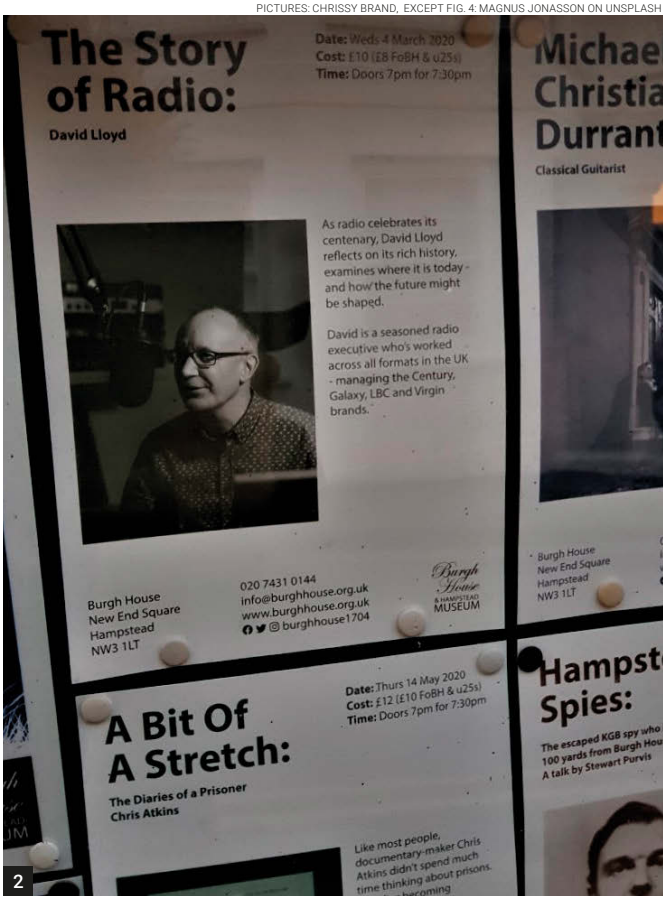
David went through the influence and evolution of transistor radios, pirates and commercial radio and concluded with some observations about the present and future.

The presentation got me thinking. Understanding the patterns and restrictions that the technology of the day enforces is key to planning the future. As David mentioned, BBC Radio in the 1920s was linear and live, and often local, because that was the only way there was to transmit. Likewise, the FM band is limited to a finite number of stations because of the number of frequencies available and the regionalised areas that FM broadcasts targets.

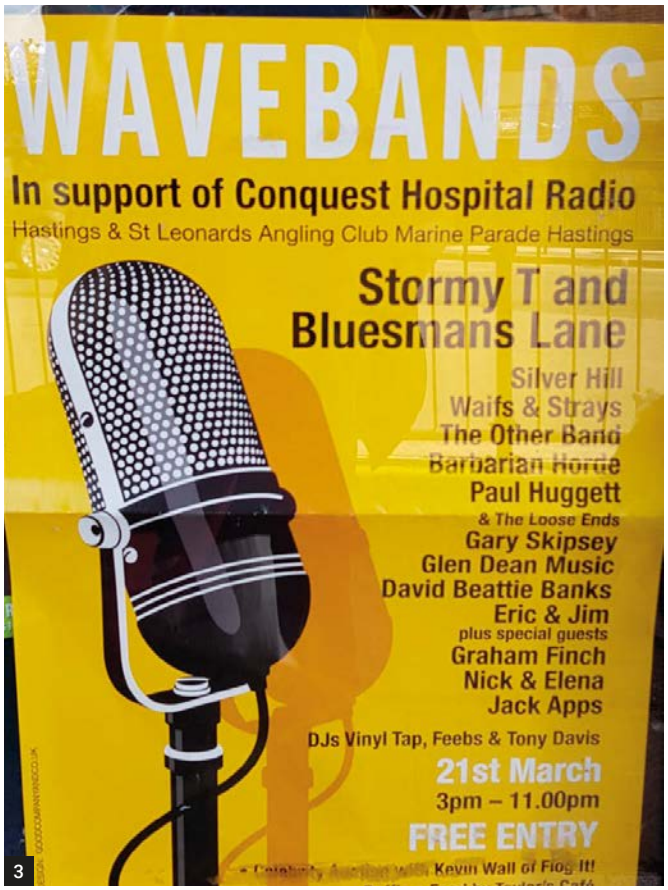
Radio has now progressed to digital multiplexes which give more space for additional stations, as of course, does the internet. A station not relying on linear delivery or a station schedule can, in

1

PICTURES: CHRISSY BRAND, EXCEPT FIG. 4: MAGNUS JONASSON ON UNSPLASH



2



3

Fig. 1: Burgh Hall was an impressive setting in which to hear the story of radio. Fig. 2: David Lloyd's was one of several in a series of talks. Fig. 3: Wavebands, a fundraiser for Conquest Hospital Radio.

theory, produce programmes that last for hours. However, although technology now gives us limitless listening options, it is in the hands (and voices) of broadcasters, podcasters, producers and also the listeners, to ensure that there is quality in the programme content.

A slide that neatly encapsulated where audiences are now, shows that live radio still accounts for 73% of the 'Share Of Ear' in the UK. This is followed, in order, by listening to on-demand music (music streaming services), podcasts, digital tracks (MP3 files), CDs, vinyl, and, lastly, audiobooks.

David predicts that when we analyse the picture in 2025, live radio will still dominate, although on-demand listening, podcasting and streaming services will all have grown hugely.

I am not alone in agreeing with that and also when he stated that, *"This is the most exciting time in radio and audio since the 1920s."*

Alexa in Bed

The idea of hospital radio began in Washington DC in 1919, while the first hospital radio station in the UK was at York County Hospital, in 1925. However, the format really took off in the 1950s and peaked in the 1960s, when there were over 300 stations in the UK.

Hospital Radio could be seen as the forerunner to many of today's successful community radio stations. Certainly, many a radio presenter started off in hospital radio and I know some who still manage to run shows on both. They are driven by a love of radio as entertainment and support. However, every radio station, no matter how small or local, requires support, both financially and through listeners tuning in and interacting.

Conquest Hospital Radio in Hastings staged a fundraiser in March, called *Wavebands* (Fig. 3). It consisted of live music and DJs, plus fund-raising through an art auction, to keep the station on the air. This was an unusual stance for the station, as Conquest Hospital Radio has spent most of 45 years raising funds for other charities.

Hospital Radio in Hastings began in the 1970s, when ***"four enthusiasts recorded programmes at home and then broadcast them using a tape player that was installed in a cupboard at The Royal East Sussex Hospital."***

Times change and to listen to Conquest Hospital Radio today, you don't have to be impatient or even an inpatient, The station uses many streaming platforms, including Tune In. Thanks to an Alexa skill, you can even ask your smart speaker to, *"Play CHR Conquest."* (Fig. 4).

Perhaps the most ambitious of the hospital radio stations in the UK is Carillon Wellbeing Radio in Leicestershire, which started life in 1976 as Loughborough Hospital Broadcasting. It transmits on a frequency of 1476kHz and in March started carrying evening transmissions from Dutch station Radio Seagull. The transmissions have been picked up well beyond the wards, even reaching the ears of Spanish DXer Jorge Garzón Gutiérrez in Cantabria, northern Spain (*BDXC Groups.io*, March 7th).

Carillon Broadcasting Ltd. also operates community radio station Heritage FM, the first hospital radio organisation to have completed this significant step. There is a cafe in Coalville for the public too, a 'community coffee lounge.'

This is all highly impressive for a volunteer-run organisation. Will others be able to

Radio Events

May 6th and 7th
Campaign Media 360 Conference, Brighton
May 18th
Radio Festival 2020, London
(Subject to Changes)
See: www.radioenthusiast.co.uk

follow this model?

The Hospital Broadcasting Authority is active in supporting this underrated form of radio. The National Hospital Radio annual conference and awards ceremony took place in Bolton at the end of March. Along with the more obvious categories of 'best station' and 'best male and female presenters', other awards were bestowed, in categories such as 'best special event', 'best station promotion', 'best specialist music programme', and 'best newcomer'.

In hospital radio's 1960s and 1970s' heyday, patients would have had little choice on the radio dial, only a handful of BBC and commercial stations. It also became popular due to providing a personal and highly localised service. It is good to know that there is still a demand for, and creativity within, hospital radio.

www.conquesthospitalradio.co.uk
https://tinyurl.com/vkszqq9
https://www.hbauk.com

World Radio Day Success

UNESCO World Radio Day on February 13th celebrated diversity and saw some great examples of community engagement and innovative broadcasts. These ranged from the small scale to the globally ambitious. Staff at the Enoch Pratt Library in Baltimore, USA, put on a public event where they played world music and explored podcasts.

[*see also our article on Farmers' Voice Radio, elsewhere in this issue – GW*].

UNESCO highlighted Radio Dodo in Montréal as a way radio can bring solace and better understanding. Backed by the Canadian Commission for UNESCO, three ten-year-olds, Alice, Rahaf and Francisca, broadcast in Arabic, English and French. *"For one hour every Sunday evening, they speak to children aged 4 to 10 who are living in warzones or are victims of violence. With a helping hand from colleagues and commentators, they bring their young audience a few moments of whimsy and reprieve through tales, education and music."*

https://radio-dodo.info/?lang=en
https://tinyurl.com/r5tjney

Beckfoot Thornton Radio is a school radio station in Bradford. They invited experts and guests from diverse backgrounds, with talk shows, vox-pop, interviews, a diverse music show, a segment in German and French to celebrate diversity in languages.

https://tinyurl.com/wgsy9ua

4

Fig. 4: Tune into hospital radio on a Sonos smart speaker.

Among the international broadcasters to mark the day was the Voice of Nigeria. Alongside on-air programmes, the station held a seminar where, "*communication scholars and professionals have been invited to speak on managing diversity, engendering development.*"

Radio Latina in Luxembourg broadcast from abroad in the city of Differdange, contacting with several Portuguese-speaking radio stations around the world.

www.wort.lu/pt/latina

Radio Dawn, an Islamic community station in Nottingham explored the station's contribution to diversity. Meanwhile, In Fife, K107 FM (Always Local, Always Vocal) aired a special all-female playlist Drivetime show to highlight some of the women at the radio station and how they got into broadcasting. This was to highlight the station's gender equality and support its current recruitment aims to attract more volunteers of any diverse background.

Soho Radio show *Women in Jazz*, hosted by Nina and Lou, celebrates and champions Women in Jazz from all backgrounds and Jazz genres. The World Radio Day broadcast was a special edition of their regular show, dedicated especially to the theme of *diversity*.

https://tinyurl.com/rctbog7

In the Republic of Ireland, Flirt FM hosted special programming which included a show swap with Radio X in Frankfurt.

African Podcasts

The podcast scene is thriving in the western world but what about elsewhere? I was pleased when I saw that an Africa Podcast Day was scheduled in March. It was set up to celebrate and commemorate African podcasts and the people who make them. The day was to be part of Africa's first podcast festival, *Africa Podfest*, in Nairobi, Kenya. However, it was postponed due to the mainstream media-induced panic over COVID-19. The Kenyan Ministry of Health banned all international conferences taking place in the country.

The keynote was to be given by Glynn Washington, long-time podcaster and host of *Snap Judgement*. His talk was titled *Your Best Friend You've Never Met / The Magic of Podcasting*. He asked, "*Why is podcasting an important medium of storytelling, and where does its power lie?*"

Another presentation that grabbed my attention was called *What Is Radio's Place in a Podcasting World?* The speaker claimed that, "*In Africa, radio is King, but this appears to be under threat by this new medium that is cheaper and more accessible. What is radio's place in a world where creators and audiences are rapidly moving towards digital media?*"

Speakers for this session were going to be Adelle Onyango (Legally Clueless), Kameel Stanley (USA Today), Shandukani Mulaudzi (CRF), and Eyder Peralta (NPR).

Hopefully, the event will be rescheduled later this year.

www.africapodcastfestival.com

Hope in Youth

I will end with a partial answer to a pertinent question in today's radio and audio world. The concerns that 'young people no longer listen to radio' are often voiced by industry experts. This is a sweeping statement, but many young people understand and are inspired by 'traditional' radio.

A case in point is the students at Wiley Radio, a campus radio station since 1953 at Purdue University in Indiana, USA. *Radio Ink* reported that in an article from *The Exponent*, one student commented, *"Radio connects communities in a way the internet doesn't. It's uniquely live, it's a very different experience than listening to podcasts on-demand or streaming music."*

Another student added that, *"Radio has a rich history of being a main form of communication. Now, radio is a way to still spread news … while also entertaining the masses with music."*

Reasoning Engines and Radio Officers

Robert Connolly
gi7ivx@btinternet.com

Robert Connolly looks at communications between manned and unmanned vessels, in the context of the rules for preventing collisions at sea, and he welcomes some reader feedback on radio officers.

In several previous columns, I have referred to the development of remotely controlled vessels; not just small craft used for research purposes or military training but also larger commercial cargo vessels.

Until now, there has been no available communication between manned and unmanned vessels; usually, the operator of the unmanned vessel will keep it clear of normal marine traffic using its onboard cameras and AIS returns for awareness of ships in the area.

Unmanned vessels may be controlled by operators located on a nearby safety vessel or in a warm, comfortable, environment many miles away, using satellite communications to control their vessel.

It seems now that the US Navy has a desire to connect VHF calls from their remotely operated vessels to manned vessels. The main reason is to provide unmanned vessels with the ability to talk to human mariners and make passing arrangements over VHF radio.

Such a development would not only aid naval vessels of countries that operate unmanned vessels but when you think about it logically, such an arrangement would greatly improve safety between conventional and unmanned commercial ships, once the development and deployment of this type of commercial vessel becomes commonplace.

COLREGS (1972) are the *International Regulations for Preventing Collisions at Sea*; basically, the maritime equivalent of the *Highway Code*. Their purpose is to ensure that mariners know what action to take when faced with a possible collision situation. This website provides more detailed information on COLREGS:
https://tinyurl.com/wf3jrl9

Although the regulations provide clear instructions for encounters between two vessels in sight of one another, and where a risk of collision exists, they do not specify what happens when three or more vessels are interacting at the same time. These regulations were laid out in 1972 and became operational by 1977.

More than Pipe Dreams

In those days they were fine for several reasons, less maritime traffic and unmanned vessels were nothing more than a pipe dream. Nowadays, mariners deal with traffic of all kinds, by communicating with other ships over VHF. No current unmanned surface vessel (USV) is equipped to conduct and act upon bridge-to-bridge voice communications.

Certainly, the information contained in the AIS return indicates that the vessel is unmanned. However, this is currently all the information a Master of a regular commercial vessel has available. They simply have to assume that the remotely operated vessel will keep clear.

However, as the development of larger unmanned vessels progresses, other factors will begin to come into play, for example, restricted manoeuvring of the unmanned vessel by size, speed or draught. This then results in the potential for increased risk of collision.

According to the US Navy, off-the-shelf technologies exist to convert voice signals into text and to convert text to machine-usable meaning. The US Navy's *Unmanned Maritime Systems Program Office* is looking for a complete solution that will enable an unmanned surface vessel (USV) to act much like a human mariner - that is, to understand voice radio transmissions, incorporate their meaning into its world model, develop appropriate manoeuvring plans, and respond, via voice, over bridge-to-bridge radio.

A Phased Plan

Their acquisition plan calls for three phases. The first phase is a *proof-of-concept phase* for a demonstrator system that can understand simple phrases used to make passing arrangements. At a minimum, the end product for the first phase would have to recognize common bridge-to-bridge calls as made by English speakers. Following this, phase two calls for an *integrated prototype* connected to a VHF radio. In the third phase, the selected contractor will *integrate the system with an autonomous navigation reasoning engine*.

The US Navy currently plans to use their autonomous vessel *Sea Hunter*, a 40-metre trimaran, as a testbed platform. I am sure that developers of commercial unmanned cargo vessels will also be looking to develop some form of bridge-to-bridge voice communications system for collision avoidance, as and when unmanned vessels begin commercial cargo operations.

Morse Code and Russian Single-Letter Beacons

For many years, the use of CW Morse Code in the HF bands was the main form of maritime communications – hence the requirement to have a Radio Operator onboard ships. Then, under GMDSS, the use of Morse code ended, and USB voice transmissions became the norm.

However, did the use of CW disappear completely from the HF marine bands? The maritime coastal stations of some countries still use CW to a limited extent. A couple of examples I recently came across were Istanbul Radio TAH in Turkey on 4216 and 8431kHz, and Olympia Radio SVO in Greece on 8424kHz.

Both of these stations will transmit their ID in CW on their operating frequencies when they are not being used for traffic to keep their frequency from being used by anyone else, and as an identification-aid for vessels preparing to receive their SITOR transmissions.

The CW transmission for Istanbul is simply 'TAH', while Olympia transmits 'DE SVO'. Another frequent user of CW is the Israeli

Navy 4XZ, which transmits regularly in CW on 4331 and 6607kHz. I also came across an unidentified station transmitting CW on 4199.75kHz, and listed as coast stations Channel 7, duplex with 4181.75 kHz; any help with the identity of this one would be appreciated, please.

The Russian Navy transmits single-letter CW identification as channel markers. Recently heard at my location are the following: Astrakhan transmitting A on 3594.1 and 7509.1kHz; Moscow transmitting C on 7509.0 and 8495.0kHz; Sevastopol transmitting D on 5153.7, 7508.7, 8494.7, 10871.7, and 13527.7kHz; Petropavlovsk transmitting K on 8495.3kHz, St Petersburg transmitting L on 5156.8kHz; Kaliningrad transmitting P on 5313.8, 7508.8, 8494.8, and 10871.8kHz, and Severomorsk transmitting S on 8494.9 and 16331.9kHz.

The purpose and use of these Russian single letter beacons are not certain. They may be 'propagation' beacons, allowing Russian Naval vessels to determine the best frequency for communications.

Sometimes they are referred to as 'cluster beacons', because the main frequencies may contain eight beacons located between XXXX.7 kHz to XXXY.4 kHz, and separated by 0.1 kHz.

For example, if you look at the beacons received here in the 7MHz band (see the last section), you can see Sevastopol (D) on 7508.7kHz, Kaliningrad (P) on 7508.8kHz, Moscow (C) on 7509.0kHz, and Astrakhan (A) on 7509.1kHz.

SDR Adventures and Interlopers

My venture into using an SDR receiver (the SDRPlay RSP1A) has invigorated my MF/HF listening recently. One advantage I found over my NRD 525 receiver was being able to quickly scan various sections of the bands and seeing active frequencies that can then be selected to listen to.

My interests are not just confined to marine-related frequencies but also signals in the HF air bands. It was while checking the 5MHz airband that I came across some maritime intruders into this band.

Several years ago, I reported in this column on trawlers intruding into the HF airband, causing problems for the legitimate users involved with the safety and control of civil aircraft crossing the North Atlantic.

I thought the problem had gone away.

It would seem that this is still ongoing. I recently came across several frequencies suffering intrusion by trawlers. I have heard trawlers operating ship-to-ship on 5550kHz, an aviation frequency used by New York Centre. I have also recently heard trawlers chatting on 5520kHz, a New York aviation frequency; 5525kHz (adjacent to 5526kHz, and used by aircraft in South America), 5560kHz (adjacent to the well-used Shanwick frequency 5559 kHz); 5575kHz (close to the Shanwick frequency of 5577kHz); 6543kHz (adjacent to 6544kHz used by Bodo ATC, Norway); and 6666kHz (adjacent to Shanwick's 6667kHz frequency).

As we know, HF transmissions can travel long distances, and even longer distances during darkness. I also happen to know that HF transceivers used on trawlers are quite 'deaf' at sea level. Therefore, while the trawler probably hears no traffic on these frequencies, their transmissions can (and have in the past) caused serious reception problems to the control and safety of aviation over the North Atlantic.

Why do trawlers want to use frequencies outside the official marine bands? The answer is simply to discuss catches or just have a chat with another vessel from their fleet, without every other fishing vessel overhearing where catches are good. If they use an HF frequency in the HF marine band, they feel there is a possibility that other fishing vessels would overhear and set course to that location.

Trawlers operating on HF frequencies outside the marine band are not being compliant with the terms of their radio license, and their use of frequencies in the HF airband endangers the safety of aircraft flying over the Ocean.

Radio Operators, Revisited

Further to my piece on Radio Operators in the February issue (*Radio User*, February 2020: 60-62), my thanks go to a couple of readers who kindly provided me with additional information. Richard Ware informed me that he was an R&EO back in the 70s and 80s and said, *"Happy memories of 'flogging the battery log' a week or so be-*

fore we were due to pay off and keeping a log in indelible pencil (that was on the old Royal Mail cruise ship ANDES/GQCV, back in 1969). We signed on and off duty using biro but the log itself was in pencil".

Richard also told me that during his time the watchkeeping hours for single-operator ships as 0800-1000, 1200-1400 etc. The old 'two-on-two-off' system. When he left the sea in 1988, he was doing 0800-1200 Ship's Time, then 2 hours in the afternoon to suit traffic requirements, and two consecutive hours between 1800 and 2200, again, this was Ship's time).

Reader, Ted Martin, advised me that Radio Officers only existed in the Merchant Navy. The Royal Navy had Electronics Officers (Commissioned Officers with a degree in electronics) and Wireless Telegraphers (other ranks). Post Office coast stations had Radio Operators who were highly skilled.

Before WW2, Merchant ships carried Radio Operators (other ranks) who used Morse code. However, on account of the sacrifices made by the Merchant Navy during the war, both Engineers & Radio Operators were granted Officer Status.

By 1970, it was clear that electronics were evolving exponentially, with newly-commissioned ships at the forefront of the evolution. The old PMG1 & PMG2 (Post Master General) Radio Officer's 'tickets' had been superseded by the new MRGC (Marine Radio General Certificate), which required much more in-depth knowledge of electronics and telecommunications theory; by 1972, it was a two-year, full-time, course. Besides, most shipping companies also required Radio Officers to have a *DTI Radar Engineers Certificate*.

Different Qualifications

Ted continues to say that, by 1972, two parallel streams of full-time training for Radio Officers were in play: the two-year course covering *MRGC (+) DTI Radar Engineers*, and a three-year full-time course covering *MRGC (+) DTI Radar Engineer (+) CGLI 292 Telecoms Technician Final (+) CGLI Marine Radio & Radar Technicians (Final cert)*.

By the mid-1970s, two groups of Radio Officers were emerging from colleges: the two-year course ROs and the (more technical), three-year, course ROs, who were often referred to as Radio/Electronics Officers.

Ted remembers, *"When I joined a newly commissioned Supertanker in 1976, as a solo RO, I was told that everything on-board with a transistor is yours. The RO was expected to maintain and repair any electronic equipment from the Bridge to the Engine Room, as well as watchkeeping".*

Ted continues, "*After six months of sea service, ROs were eligible to return to college for a further six months to complete the CGLI Advanced Certificate in Telecommunications, which gave them 'T-Eng' status. This was similar to 'C-Eng' but a lot more practical.*

"In 1975, Cardiff University introduced a Senior Status BSc. for Radio Officers with two years of sea experience, which took technical education and skills to the next level.

"Operating – whilst certainly necessary – was a very small element of the role. More important were the technical skills; the ability to fix a broken radar on a Supertanker in a Force 6 wind when sailing up the English Channel with just an AVO, Scope, book of circuit diagrams and box of bits. The job title may have changed but the work is the natural evolution from the days of the Titanic".

If you require more information on Radio Officers, Ted tells me there are several books about Radio Officers, for example, *The Long Silence Falls*, published by the Radio Officers Association (ROA).

My photograph this month is of Killeybegs fishing port in Co. Donegal.

Until next time, *Fair Winds.*

Off-Grid Networks, MANET Systems and Mesh Nets

Chris Rolinson looks at using Network Radios off-grid, crosses into Satellite territory and ends up investigating a brave new hybrid world of radio.

Chris Rolinson
g7ddn@g7ddn.com

Anyone who has been frequenting the various Network Radio channels cannot fail to have come across (either in person or in passing conversation) the friendly Scotsman known as 'Hairy Paul'. The latter is a veritable goldmine of information about Network issues and is frequently to be heard giving assistance one-to-one – he is a most polite and pleasant chap to come across. These days, HP (as he is known) is also spinning the dial on the amateur bands and using data modes like FT8. You might come across him under his distinctive Scottish callsign MM7WAB. Paul got in touch with me recently to flag up a couple of concepts he has been taking advantage of. First off was MANET (Mobile Ad-hoc NETworks) and Mesh Networking:

https://tinyurl.com/vt2vwyx

These terms might be new to many readers of this column. As the Wikipedia entry for MANET defines it, *"A mobile ad hoc network (MANET) is a continuously self-configuring, self-organizing, infrastructure-less network of mobile devices connected without wires. It is sometimes known as an "on-the-fly" network or "spontaneous network".*

Apps for Off-grid Use

HP has been playing with a few apps which provide various types of MANET and Mesh functionality for Network Radios. The main ones he's been using are the following three:

Serval Mesh
http://www.servalproject.org
Briar
https://briarproject.org, and
FireChat
https://www.opengarden.com/firechat

All three apps work on the basis that there is no internet available to your device, but they allow you to, in effect, create your own 'network-on-the-go', using the devices that you (or others nearby) have to hand. Inevitably, there are other apps and projects around (in varying stages of development) that provide differing levels of ad-hoc Mesh Networking between devices using both 2.4GHz and 5GHz Wi-Fi (and even 2.4GHz Bluetooth, when devices are close enough).

On that note, for 'off-grid' use, mesh networking devices that support BLE (Bluetooth Low Energy mode) are particularly useful – they can save *a lot* of battery power when close, just switching back to more power-hungry Wi-Fi whenever the Bluetooth range is exceeded.

Easy Wi-Fi Networking Setup

Paul has supplied some thoughts for us on how to set up, and play with, a simple Mesh-type system, if you fancy trying out free voice-communication between multiple NR devices off-grid. These are the steps to follow:

Install the 'Talkie' app *(free - there is also a Pro version for under £3)* on each device (Fig. 1).

Use one of the devices as a Wi-Fi hotspot

Connect the other devices to that hotspot
https://www.facebook.com/WiFiTalkie
https://tinyurl.com/wqsna6y

You should then be able to voice chat, message and send files between devices on your own off-grid network using Wi-Fi. Magic!

Suitable Equipment

Paul says he tends to use his Inrico T320s as Hotspots in such mesh networks, simply because they have such good range and decent battery life. That's a good suggestion. He has also experimented with adding 5V *external* power sources though, as these can both power *and* recharge the units that run the network, extending network life.

Using a mix of power supply arrangements and a bouquet of Inrico T320s, an Inrico TM7, an Inrico T199 and several other Android smartphones, Paul reports he can create

WWW.FACEBOOK.COM

MM7WAB

Fig. 1: The *Talkie* app. Fig. 2: A remote rural gathering of Scottish NRs in a Mesh network.

a network that covers nearly a 6-mile wide area for up to 36 hours in the mountains of Galloway - a remote Network indeed (Fig. 2).

Connect your Network to the Internet

Arguably, more excitingly still, Paul decided to place one of his T320s in a waterproof box and strap it to a tree on top of a hill where it could more easily capture a strong 4G signal. This radio then linked back to the mesh, providing Internet coverage to the network of devices that were initially off-grid.

For wider area coverage, it is interesting to note that Paul uses high-gain flat-panel antennas for blanket coverage and some multi-element Yagis for the longer-range links. He plans to use similar setups for comms at a few outdoor events he is involved with this summer.

All very interesting - definitely food for thought, as the better weather arrives and the experimentally-minded among us start to think of more things to do with our Network devices outdoors.

One gentle warning – just beware when playing that this may lie off the *edge* of what is permissible licensing-wise. If your experiments, particularly on transmit, interfere with other folk's mobile phone signals, that could constitute a real issue! In the wilder uncovered areas of the UK maybe less so, but it's a grey area nonetheless and one I may return to in a future column (Fig. 3).

Can you use Zello within a Mesh Network?

This is possibly the biggest question for many readers. There is some good news here; Paul tells me he uses Zello on his mesh networks a fair bit.

More specifically, he has set up a mesh network that runs 24-hours-a-day in his village, with a Network Bridge using a Ubiquiti AirFiber Dish situated atop a pole above his house (Fig. 4).

As a result, he can link this mesh into both his home Internet-connected network and the local village mesh net from 3 local summits – at distances of up to 3.5 miles. In these circumstances, Zello works fine.

There is one caveat though: One of the reasons Paul says he prefers Zello v4.20 is that more recent upgrades seem, anecdotally at least, to be less stable on the mesh - they appear to suffer from lag and dropouts. I suppose there is the possibility that this could even be related to the mesh network itself, but hey, that's just more things to play with and find out about – right?

The most important thing to remember in all this is that providing just *one* device on the mesh network can get a half-decent 3G/4G mobile data connection, Zello on the whole network appears to work as expected.

And remember - all is not lost when the mesh network is beyond 3G/4G network coverage, as users can just revert to using the *Talkie* app on the now 'internet-isolated' network.

My thanks to Paul for a fascinating introduction to this topic. I am sure we will be hearing more about our readers' experiments in this area in the future.

Satellite Radio

Staying with the off-grid theme, our esteemed editor Georg drew my attention to a rather nice device from our friends at Icom (UK) Ltd.. This is the IC-SAT100, which employs Satellite PTT on the Iridium® satellite network (Fig. 5). Obviously, as a Satellite device, it needs to 'see' the sky to work! But as a result, it can be used as a communication tool in really remote, isolated areas, even where there are no mobile phones or landline (or mesh!) network infrastructure.

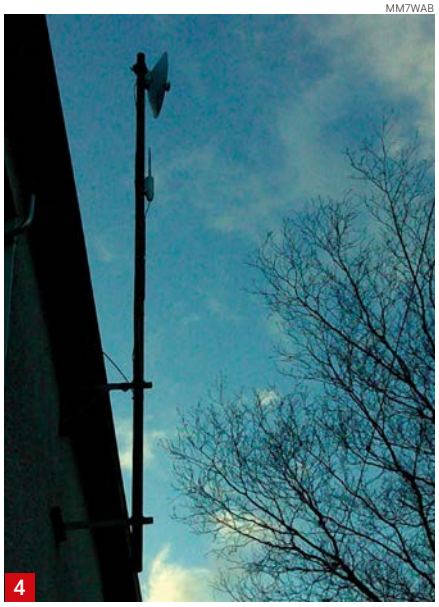
Furthermore, should terrestrial network infrastructure be rendered unusable for some reason, Satellite PTT can provide an independent, stable, back-up system.

Just as Network Radios differ from mobile phone units, IC-SAT100s differ from Satellite phones - users can press the PTT and immediately start talking to all the radios in a given talkgroup.

WIKIMEDIA COMMONS

3

MM7WAB



4

ICOM INC.

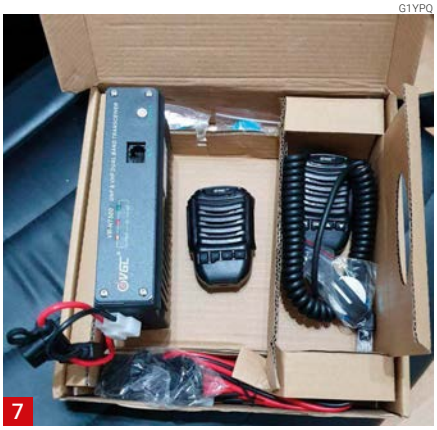
5

Fig. 3: Building a rural Mesh network in Africa. Fig. 4: HP's *Ubiquiti AirFiber* dish; for long-range meshing! Fig. 5: The Icom IC-SAT100 Satellite Radio. Fig. 6: The Samsung *Galaxy XCover FieldPro* – note the orange PTT. Fig. 7: Vero Telecom's *VR-N7500*, boxed as it comes.

SAMSUNG PRESS OFFICE

6

G1YPQ



7

The Iridium® Network

The Iridium® satellite network is here:
https://www.iridium.com

This is the network the Icom device utilises. It covers the entire earth, including both polar regions, and can provide wide-area global communications anywhere on the planet. This notwithstanding, countries own regulations – not all allow this kind of comms.

Iridium® employs 66 Low Earth Orbit (LEO) satellites, and the IC-SAT100 claims to provide *'low-latency communication, and broader, more reliable network coverage, compared to Geosynchronous Equatorial Orbit satellites.'*

Future Features

Perhaps most interestingly, there are more features planned for this device. The long-term plan is to connect the IC-SAT100 with RoIP gateways, IP phones, IP, 4G LTE, and compatible digital and analogue transceivers. Sounds like it could become quite the multi-radio device! There is plenty more to see on this at this website:
https://tinyurl.com/tgnqd9a

More New Devices

Following on from my coverage of Samsung's new XCover Pro phone (which was notable for sporting a PTT button) in last month's column (RadioUser, April 2020: 41-43), it transpires THAT Samsung has been busy yet again. This time, they have released the Galaxy XCover FieldPro (Fig. 6).

This is essentially an even more 'toughened-up' version of the XCover Pro.
https://tinyurl.com/y36jltpe

The FieldPro is purpose-built, equipped once again with PTT capability. The makers stress the fact that the device can keep data both compliant and secure. It is aimed at business and enterprise customers who work in demanding environments.

A Samsung America source commented *"We know from talking to our customers that durability, reliability, and power are necessities in the products they use. We designed Galaxy XCover FieldPro with that in mind, and take it a step further by offering the industry's only open, collaborative, and secure mobility platform."*

• The FieldPro's highlights include the following key features:
• The rugged build-quality to withstand the harshest conditions.
• MIL-STD-810G1 and IP682 certifications – that means it should be able to survive almost anything, from drops, shocks and vibrations to extreme temperatures, rain, blowing dust and even 30 minutes in water to a depth of 5 feet.
• It can be used while wearing gloves.
• It can be programmed to send GPS and data alerts to co-users.
• Most interestingly, it sports a user-replaceable 4500mAh battery - but here is the big plus... as shipped, XCover FieldPro comes with an extra battery in the box. Now that is foresight!

Currently available in the US, let's hope it's not too long before it makes its way over here – many NR enthusiasts (especially the outdoor-brigade) might like this as a phone/Network-Radio-hybrid.

The Vero VR-N7500

Speaking of hybrids, the Vero Telecom VR-N7500 (Fig. 7) has been making a splash in Ham Radio circles recently.
https://tinyurl.com/sqxzwh5

The VR-N7500 is a compact high-power 144/432MHz headless dual-band radio. It is a departure from typical amateur radios though, in that it relies on a Bluetooth-enabled device (smartphone, tablet, Network Radio or even 'Android Auto' in-car system) to act as the front panel of the radio. It is supplied with a Bluetooth PTT to fit on the steering wheel too.

More than that, however, it acts as a Network Radio of sorts on its own. Vero's specification sheets suggest that it is possible to create a network radio channel for the radio within the supplied Android app. Then you invite others to join your channel, using their connected smart device's cellular or Wi-Fi connection.

There appears also to be a 'Relay-Mode' function – this works so that when you receive an analogue signal on VHF or UHF, it can be simultaneously re-transmitted to the network channel and, perhaps more controversially, vice versa.

This raises yet more interesting licensing issues and will rely on radio amateurs following the regulations (which of course, they always do!) Once more, technology poses questions for us (and the licence regulators) to address. With a heavily software-defined radio like this, the only limit is what the app will or will not allow, as the case may be.

For example, I have already heard that some users are claiming that you can message by text, Morse code and SSTV among other modes; it will be very interesting to see how this radio, or maybe more to the point, its concomitant apps, continue to develop.

One correspondent noted that he had already seen two videos of Zello being used as a bridge to VHF/UHF on the radio, so it looks like it might also run third-party Android apps. You just know that some enterprising radio enthusiast somewhere will be trying to squeeze more out of *this* device!

Reviews and videos are appearing all the time – one of my favourites for thorough coverage is Lewis M3HHY - his introductory video is here:
https://tinyurl.com/yx5tady3

Of course, if you just can't wait and want to purchase, why not contact our friend of the column, Chris Taylor at Moonraker?
https://tinyurl.com/w4hu8z9

Network Radio's Popularity Continues

Finally, Karl Hobson G1YPQ/NR1000 informed me recently that the 'Network Radios' Zello channel suite which he began two years ago has now exceeded 20,000 subscribers!

That's an achievement by anyone's standards. Network Radio? It'll never catch on, you know...

Indispensable Stateside Air Show Information

Georg Wiessala
wiessala@hotmail.com

The editor looks at the US-focussed Teak Publishing International Air Show Guide E-book, by Larry van Horn.

Larry van Horn N5FPW is known to many in the global radio hobby community. Larry was involved with the former US hobby radio publication *Monitoring Times*, and he is now a columnist for its successor resource, *The Monitoring Times*, edited by Ken Reitz (TSM). Larry is also the author of several guide books and E-books covering the military airband and related topics, for example, *The Milcom Files*.

And, as many of you know, Gayle van Horn is behind the *Global Radio Guide* we reviewed in our March 2020 issue (*RadioUser*, March 2020: 20-22).

The publication that has now landed on my desk, (pardon the pun) is the 21st edition of the annual *Teak Publishing* International Air Show Guide E-book. It has been published to coincide with the beginning of the Air Show and Heritage Flight Season, much of which, alas, will fall victim to COVID-19 this year.

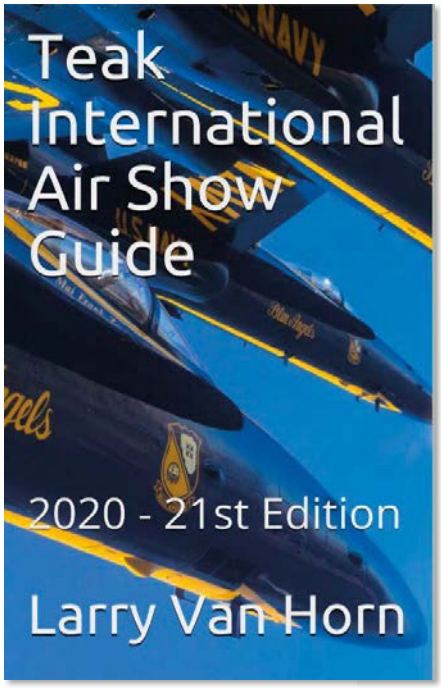
However, do not let this prevent you from acquiring this E-book, it is well worth it, for the informative content, frequency updates, correction and additions.

The author also posts on his *Milcom Monitoring Post blog*, which accompanies his books and is well worth a visit in its own right.

http://mt-milcom.blogspot.com

The title is tailored to the Air Show visiting experience in the USA, and it begins with a very useful introduction to the airbands (N.B.: mainly for US monitors), and to (generally-applicable) hints and tips for airband scanning and using the right equipment. There are some examples of the relevant jargon and communications protocols used in communications but nothing on aerials, amplifiers, software or accessories.

The list then works through the frequencies of major US flight teams, such as the *Blue Angels*, the *USAF Thunderbirds*, and many others. Next to frequencies, there is also some historical background, a full yearly schedule, show routines and how



2020 Teak International Air Show Guide
by Van Horn, Larry
Teak Publishing, P.O. Box 297
Brasstown, NC 28902, USA
https://tinyurl.com/weqkrzl

to listen to them, and some current news, something that is missing from many other Airband Guides these days. Its is for the in-depth historical background alone, and the fascinating technical detail, that you will want to add this guide to any VHF/ UHF library.

If you live in the USA, or are visiting, the month-by-month listing of where flight teams are each month, and on which frequencies they communicate at each show, is a very useful resource.

The section on *Foreign Military Aero Demo Teams*, beginning on page 81 (of 142) covers Canada, Brazil, Chile, and several other countries.

There are entries on Finland, France, Italy, Jordan, Poland, South Korea, Saudi Arabia, Spain, Switzerland, Turkey, the UAE, and, of course, the UK.

In terms of the latter, van Horn's guide includes basic information about the *Red Arrows,* the *UK Army Air Corps (historic),* the *Battle of Britain Memorial Flight,* the *Royal navy's Black Cats Helicopter Display Team,* the *UK Blue Eagles* (the helicopter aerobatic team of the British Army Air Corps), and the *UK Falcons Parachute Team*. For each of those, their base of operations is indicated, together with the relevant frequencies.

The listing does not extend to the same kind of detail as is the case of the American teams, for example, there are no show-specific frequencies. But this is to be expected and not a drawback.

The E-book closes with some civilian aerobatic display frequencies (mainly the US, and some foreign-based), and a *US 2020 Master Air Show Schedule* for the 'seasonal' period of March to November.

In conclusion, even though this publication is primarily aimed at military airband monitors in the USA, there is plenty of new information here, which is of interest to UK hobbyists. The content is thoroughly researched and competently arranged, for practical use during the Air Show season.

A little more content on technical topics and up-to-date receiver/ aerial recommendations, especially for the Air Show 'novice', would, in my opinion, have made this publication even more useful, especially as so many of us now take our various Software-Defined Receivers and tablets/ laptops away to Air Shows.

Moreover, there is no index and there are no suggestions for further reading or background information.

Notwithstanding this, the idea of 'show-specific' frequencies is an excellent one, which, I hope will inspire many other compilers of such lists, in print, online and as E-books.

If you are interested in the US Air Show season, then this E-book will save you hours of internet-trawling and set you on your path to enjoying the shows.

For UK readers, this is a great resource to be kept and consulted in the shack.

A World First and New RAF Frequencies

David Smith
dj.daviator@btinternet.com

David Smith reports on UHF frequency changes at RAF airfields, the UK's first digital ATC tower at a military location, and a rule change in UK airspace. He also outlines ATC operations at Gloucestershire Airport

An RAF base in Scotland could be set to have what is claimed to be the world's first military digital air traffic control capability. Defence contractor Saab UK Ltd. is building an experimental digital control tower at RAF Lossiemouth in Moray. The technology would be similar to that used for some civilian airports, to enable control from a remote location. Under the plan for digital capability, controllers would remain at Lossiemouth, but they would have access to a series of wide and zoom lens cameras.

These would give the controllers a 360-degree view of the airfield, allowing them to monitor the entire space through a series of communication links. The demonstration project could be working later this year. The first phase of its construction is due to start in April.

The UK's most northerly air station is to be the base for a new fleet of nine P-8A Poseidon maritime patrol aircraft. Typhoons at Lossiemouth are also used in a Quick Reaction Alert role with crews shadowing Russian military aircraft as they pass close to UK airspace.

Rule Change in UK Airspace

From 26 March 2020 the UK's exemption from the *Standardised European Rules of the Air (SERA)* – covering visibility and distances from the cloud in Class D airspace for pilots flying under Visual Flight Rules (VFR) – no longer applies. VFR flights in Class D airspace - usually Control Zones around airports - will need to comply with *SERA.5001*, meaning there will

be a requirement to be 1000ft vertically clear of cloud.

It will still be possible to ask ATC for a Special VFR clearance within a control zone if the weather conditions require this. The exemption has only applied to flights below 3000ft and slower than 140kts. In future, UK Class D rules will be consistent with SERA and the International Civil Aviation Organisation (ICAO) requirements that are applied around the rest of the world. ICAO introduced these rules to improve situational awareness for all pilots flying in Class D airspace.

https://www.icao.int/Pages/default.aspx

The exemption has been extended several times, but the UK has been informed by the European Commission that no further extensions would be possible. UK ATC providers have been notified so they can amend their procedures and the CAA will be publishing further guidance for pilots on how to comply with the new rules in advance of the change.

The CAA will monitor the impact of the change, including the number of aircraft that are declined clearances to cross controlled airspace.

https://tinyurl.com/qonbuln

Frequency Changes for RAF Airfields

There have been some important frequency changes for the UK's RAF Airfields. I am indebted to *RadioUser* reader Chistopher Lally for alerting me to this information.

The full list with the old and new frequencies can be accessed on the *Radio Enthusiast* website:

www.radioenthusiast.co.uk

I took the attached photo of a Soviet-registered Antonov An-2 at the Lithuanian Museum of Aviation (*Lietuvos Aviacijos Muziejus*) in Kaunas a few years ago.

https://tinyurl.com/tk2j3ba

ATC Profiles 22: Gloucestershire Airport

ICAO Code: EGBJ IATA Code: GLO

Frequencies	(MHz)	Hours of Operation
Gloster Approach	128.555	Mon-Fri 0830-1930 – Sat, Sun 0900-1800
Gloster Radar	120.980	When instructed by ATC
Gloster Tower	122.905	Mon-Fri 0830-1930 – Sat, Sun 0900-1800
ATIS		
Gloster Information	127.480	
Gloster Fire (non-ATC)	121.600	Fire vehicles attending aircraft on the ground
NAVAIDS	ILS CAT I Runway 27 NDB GST 331.000kHz	
RUNWAYS	09	1431m x
	27	1431m x 30m
	04	988m x 23m
	22	988m x 23m
	18	799m x 18m
	36	799m x 18m
	04 Grass	304m x 19m
	22 Grass	304m x 19m
HOLD	GST NDB	

Notes (A-Z)

Circuit Procedures

Fixed-wing circuit height Above Air Field Level (QFE): 1000ft Rotary circuit height not above 750ft Height QFE. Runway 04, 09 and 18 Left-Hand (LH) circuit, Runway 22, 27 and 36 Right-Hand (RH) circuit. Direction may be varied by ATC.

Ground Movement

Centre-line markings on taxi-lanes within Maintenance Area provide guidance only. Area shared by parked aircraft, uncontrolled authorised vehicles and pedestrians. Licensing and obstacle clearance criteria relating to taxiways not necessarily met. Marshalling assistance is available on request. Stands 1 and 2 Self-manoeuvring markings for aircraft with a wingspan up to 24m. Self-manoeuvring General Aviation (GA) parking is on the western side of Apron A for aircraft with a wingspan up to 1m. Marshalling assistance is available on request. Helicopter parking on the west side of Apron A and grass spots southwest of Control Tower. Stand 1 not available to helicopters unable to ground taxi. Fixed-wing aircraft should not taxi within three rotor diameters of rotors running helicopters.

Handling Agents

Handling services provided by Weston Aviation, Flight Partner and The Little Jet Company.

Helicopter Operations

Three grass Helicopter training areas; Heli Northeast, Northwest and Southwest are established. An additional aiming point is provided at Heli South, adjacent to Taxiway J. Helicopter Holding points 'Y' and 'X' established north and south of Runway 27 threshold. Helicopters capable of doing so should ground-taxi, rather than air-taxi when operating on aprons, and in areas where aircraft are parked or holding. Helicopters should ground-taxi onto manoeuvring area before lifting. When air-taxiing is unavoidable, helicopters should avoid taxiing within three rotor diameters of other aircraft. This distance should be considered as a minimum and should be increased for larger helicopters. Helicopter circuits operate parallel to and inside fixed-wing circuits, up to a maximum of 750 ft QFE. To reduce Radio Telephony (RT) loading and avoid conflict between rotary and fixed-wing circuits, standardised phraseology and procedures are established for helicopter operations. The standardised phrases are assigned the following meanings: *Standard Helicopter Departure* - Departure into the wind or as required, remaining clear of the fixed-wing runway in use, turning to depart circuit at right angles to the runway in use (i.e. beneath 'downwind' leg), not above 750 ft QFE, before departing Aerodrome Traffic Zone (ATZ) on required track. *Standard Helicopter Arrival* - Enter Aerodrome Traffic Zone (ATZ) not above 750 ft QFE, track inbound below downwind leg, approaching as required to designated helicopter training area or runway, remaining clear of fixed-wing final approach and climb out tracks. *Standard Helicopter Circuits* - Circuits to/from most upwind available spot, not above 750 ft QFE, negative RT, maintaining a listening watch on the Aerodrome Control (ADC, Tower) frequency. Larger helicopters and those types able to ground-taxi may be integrated into the fixed-wing circuit.

Low Visibility Operations

During Low Visibility Procedures, runway access/egress via A2 only. All other taxiways closed.

Noise Abatement

Jet departures Runway 09: Climb straight ahead through 1,400ft QNH before turning. Departures Runway 18: All departing aircraft are to execute a 20° left turn when passing the upwind end of the runway. Tracking 160° Magnetic, climb through 700ft QFE before turning right. Departures Runway 22 - No left turns permitted until passing Chosen Hill (1.2nm Distance-Measuring Equipment (DME)).Departures Runway 27 - All departing aircraft are to execute a 10° right turn when passing the upwind end of the runway. Tracking 280 MAG, climb through 600ft Height Above Air Field Level (QFE) before turning left. Avoid overflight of the village and church on the right. Jet aircraft are to climb through 1,400ft Altitude Above Mean Sea Level (QNH) before executing any turn. Aircraft unable to comply with 10° turn after take-off should advise ATC and climb straight ahead through 1,400ft QNH. Departures Runway 04 - No left turns before Staverton Village (1.1 DME).

Use of Runways

Crossing/multiple runway operations may take place. Pilots must follow ATC taxi instructions and vacate all runways as expeditiously as possible.

Warnings

Runway Incursion Hazard. Holding Point A2 has a wide mouth, Runway Guard lights are displayed whenever the runway is in use, irrespective of weather conditions. Pilots must exercise extreme caution when taxiing in this area. Turbulence may be encountered overflying industrial area on final approach Runway 22 and when crossing airfield perimeter on final Runway 27. Runway 04/22 prone to flooding after prolonged rain. Runway state available from ATC. The runway may not be available for turbine-engined departures. Glider and hang glider activity takes place along the Cotswold hills to the east and south of the aerodrome without notification to ATC. Certain flights may operate outside normal operating hours, making blind transmissions on 128.555MHz.

A Changing UK Digital Radio Scene and more DRM News

Kevin Ryan
kevin@kpr-web.co.uk

Kevin Ryan reports on a new UK review of the digital radio scene, surveys UK radio changes and covers a new DAB+ trial in South Africa, portable DRM receivers and worldwide DRM transmissions.

ALL PICTURES: KEVIN RYAN

1

Podcast Radio

Podcast Radio is a newly-arrived DAB station. It broadcasts on the Surrey and South London multiplex (10C), and on the London small-scale DAB multiplex (9A), which covers part of north London in DAB+ stereo.

Podcast Radio was supposed to be on the London 2 multiplex, and it looks like it had to compromise and ended up using other multiplexes to cover the city.

It took a few weeks for the website to publish a schedule (Fig. 2). At first glance, this only covered the week from Monday to Friday. However, clicking on the icon to get more information on a particular podcast also opens a sub-menu with limited data on weekend shows, news bulletins, and various other pieces of information. The station's information-display, on a typical DAB radio, has a static message and gives no clue as to what show is playing. I think the website needs an old-fashioned programme grid to tell you what is on because there is too much 'discovery' for my liking.

https://www.thepodcastradio.co.uk

The station has news bulletins on the hour, provided by a newsgroup called the *Radio News Hub*, which I had not heard of before. Radio News Hub broadcasts to commercial, DAB, community, Hospital and online radio stations in the UK. English speaking stations across Europe, Australia, Singapore, Hong Kong and Indonesia also take the service.

https://www.radionewshub.com

BBC Radio 4 Extra has a show called *Podcast Radio Hour* (Fig. 1) that recommends a few new podcasts once a month and speaks to the people who make them. On other weeks the presenters highlight podcasts on a particular theme, such as food, companion podcasts to TV shows and classical music, to name but a few.

https://tinyurl.com/r756bjj

2

Absolute Radio 20s

Bauer launched Absolute Radio 20s, the 9th strand of this family of stations, on the 24th of February 2020. It plays rock and alternative tracks from both established and emerging bands and artists. At the moment, it is only available online and via apps.

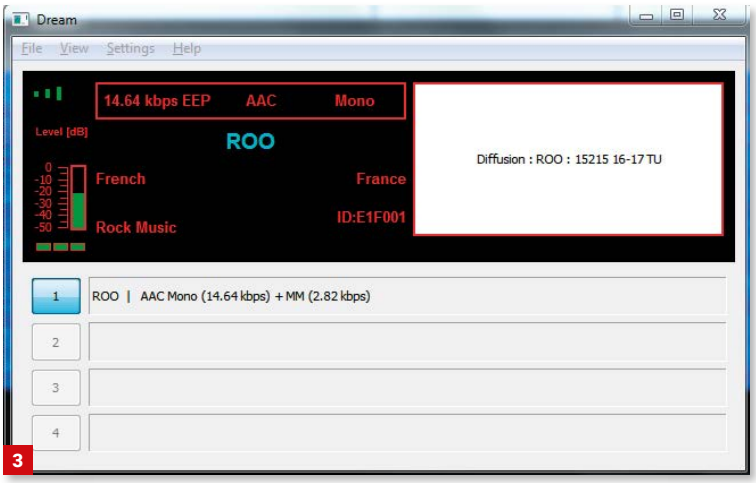
https://tinyurl.com/u9jnu5a

The End of Spectrum Radio

It seems that Spectrum Radio's days are numbered, following a High Court of Justice decision that ordered it to be wound up. Under Ofcom rules, this means they cannot own a broadcasting licence. Spectrum is one of London's oldest radio stations, having launched in 1989 to provide multi-ethnic, foreign language programmes originally on 558AM. Spectrum operated at least two DAB services in London, but it lost key customers like China Radio International over the past few years. The Spectrum Radio channel was unavailable when I checked at the beginning of March but Sout-al-Khaleej, previously brokered by Spectrum, was still broadcasting after moving to the London 3 multiplex.

DAB Checks

While I was checking on Spectrum Radio, I noticed that Virgin Radio had the *Chris Evans Breakfast Show* simulcasting on all four of its stations. The audio from loveSPORT on the SDL National multiplex was many seconds behind that on loveSPORT London. For a while, I thought they were carrying different programme streams. The



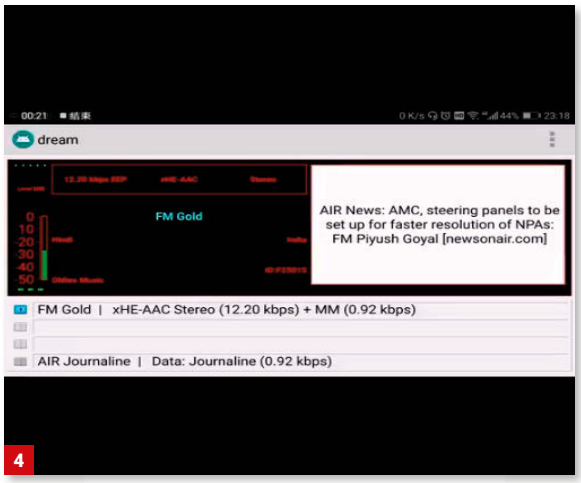


Fig. 1: A weekly show from BBC Radio 4 to get radio listeners interested in the world of podcasts. Fig. 2: A good idea and a new type of talk radio, which might catch on, if more people are aware of the station and can receive the DAB signal. Fig. 3: A DRM broadcast mainly in German, and a slideshow with four pictures, presumably of the island of Amrum. Fig. 4: An implementation of the DReaM DRM decoder for Android is welcome news but many of us might want a version that works on Windows.

London opt-out for talkSPORT has gone from the London 2 multiplex.

There are now five Absolute Radio stations on the Inverness local multiplex with the recent addition of the '80s' and '90s' strands. This is one of the twelve multiplexes owned and operated by Bauer.

The link below opens a portal using *OpenStreet Maps* and is currently the best map-based way to access the network of KiwiSDR remote receivers.

http://rx.linkfanel.net

Special DRM Broadcasts from Amrum

Unfortunately, I missed the DRM broadcasts from Encompass for World Radio Day on the 13th of February from the BBC WS relay sites in Singapore, Ascension Island and Woofferton directed to Europe.

I was more fortunate with the DRM broadcast from Radio Öömrang (West Frisian: 'Öömrang'; North Frisian: 'Oomram', regional dialect terms for the island of Amrum).

This only occurs once a year, in February, to celebrate the festival of *Biakendai / Biikebrennen* on the 21st of the month. I think this might have been the first one in DRM that broadcast two days later on the 23rd.

https://tinyurl.com/s46u7lu

The broadcasts, mainly in German, are aimed at descendants of this Frisian island who emigrated to the USA. I found the broadcast on 15215kHz using a remote receiver in the USA (Fig. 3) and made some audio and I/Q recordings for later use. The transmission included a slideshow along with the audio.

There is much more on the history of Amrum on the internet.

https://placeandsee.com/wiki/amrum
https://www.amrum.de

DRM Slideshows

Radio Marti on 7345kHz broadcasts this Spanish service to Cuba. This includes a slideshow, as does the emission of KTWR during its broadcasts to Asia. So far as I know, the *DReaM* software is the only way to extract and display these JPEG images and *DReaM 1.17/QT2* was the last version that correctly processed the MOT slideshow. Unfortunately, this version expects a 12kHz IF signal with the DRM data, whereas the KiwiSDR I/Q output is a baseband signal.

I thought I had found a solution with a piece of software called *Ratemonkey*, developed by the team that created the *Spark DRM Transmitter Project*. *Ratemonkey* shifts a baseband signal to an IF frequency of 12kHz, and it seemed ideal for my needs. However, it is an old app that just won't work with later versions of a library of programming routines called Java.

I think the problem would disappear if broadcasters used an image format other than jpeg.

Radio Marti

I tuned in to Radio Marti, which seems to have settled on using xHE-AAC audio and a low-speed multimedia feed with a few slides in it. The reception was poor at 2030 UTC in early March using a remote receiver in the Caribbean. I spotted All India Radio on 7550kHz with a massive signal on the same receiver, while reception in Europe was poor. It was a dual-channel broadcast in Hindi and French, but both channels carried the French programme. I wondered if this was a problem with the DRM extension or an error at All India Radio. At 2045 UTC, the broadcast configuration corrected itself to the usual GOS IV English service and the Vividh Bharati dual-channel service.

DRM Decoder for Android

AlgorKorea released two additional apps for the Android operating system to add to their DRM, DRM+ and DRM+ FM apps. DRM+ MSi is specifically for the MSI.SDR Panadapter and DRM+ SDR (Fig.4) links via an RTL 2832U driver to this SDR and the HackRF SDR. The app supports HE-AAC, OPUS and xHE-AAC audio as well as slideshows and the *Journaline* text service. I installed it on my Iconia B-A40 tablet, but it did not connect to the driver output, which is frustrating. The app may not be at fault here because the *welle.io DAB decoder* app, which worked previously on the tablet, also failed to find the receiver. I tried to get the DRM and the DRM+ apps to work previously on both my smartphone and tablet without success, although KTWR engineers got it working on their Samsung smartphone. Another enthusiast reported that a version of *DReaM for Android* (Fig. 4) was available upon request but I did not receive a reply to my e-mail requesting a copy. It makes me wonder whether some of these claims are real.

DRM Receivers

Gospell Radio from China displayed more DRM receiver prototypes at the BES Show in India.

The Gospell range now comprises


5a


5b

Fig. 5a: The Gospell battery-operated DRM-GR224 receiver was on the DRM stand at the BES show in India. Fig. 5b: The GR-226BP was also displayed, but no further information is out yet.

of models GR216 (also marketed as the Tecsun Q-3061 in Australia), new portables GR-224BP, GR-226BP, GR-228BP (Figs. 5a and 5b).

There are also the new car head-end units GR-501BCW and GR502BCW. The small portable, GR-22 wasn't in their line-up. There are videos of some of these receivers on their Facebook page.

https://www.facebook.com/drmreceiver

The GR-22 is detailed on their extensive products listing page. The firm is hoping for a large order to put this receiver into production. There is a detailed specification on its business website.

https://tinyurl.com/t2zfw4q

Raid on FreeDAB Ireland

The illegal digital broadcaster FreeDAB is off-air after broadcasting authorities (Comreg and the BAI) and members of the Garda executed a search warrant to stop the service. The 'raid' took place on Thursday (20th) morning at 11.30 in Dublin when all the equipment running the service was removed by Comreg. The mast and antennas have also been confiscated. All other FreeDAB multiplexes in Cork, Waterford, Dundalk and Sligo went off the air too, until further notice. FreeDAB hopes to restore the Dublin multiplex very soon, although I think that Comreg will keep up the pressure on them to close down their operation completely.

DAB+ in South Africa

A new DAB+ trail is on the air in Cape Town, but I have little information other than Magic 828 is one of the broadcasters. A DAB+ trial is also running in Johannesburg and Pretoria probably on block 13F but is due to finish soon.

https://magic828.co.za/what-is-dab-radio

There is a published band-plan for the whole country using pairs of channels (e.g. 11A and 12A, 11B and 12B, and so on). However, I think that the Cape Town trial is using one of the gaps left by the closedown of the band III TV channels. My best guess is that it is using 13A, but I could be miles out.

The Independent Communications Authority of South Africa (ICASA) is still considering the responses to its consultation on the use of DAB+ and DRM. The ICASA is in favour of using digital radio technologies because of the high transmission costs on AM and the shortage of FM frequencies. The draft regulations are expected this year but there is no expectation that analogue will be switched off for many years.

https://www.icasa.org.za

5G for Digital Radio

I've touched on whether 5G mobile technologies could replace the DAB network shortly. This is a key topic for the WorldDAB organization, which offers a detailed factsheet on whether or not this would be a viable solution for radio broadcasting. The document covers key terminology around 5G, as well as the functionality 5G needs for radio including access, service reliability, transmitter power, frequencies and signal distance.

https://tinyurl.com/yxx6d8t5

Digital Radio Review UK

In a similar vein, the UK *Digital Radio and Audio Review* brings together the government, the BBC and commercial radio groups such as Global and Bauer, multiplex operator Arqiva, techUK (representing the wider technical industry), and motor manufacturers to examine the issues facing radio in the next decade.

https://www.techuk.org
https://www.smmt.co.uk

Up to now, we have been waiting for an announcement on a date for digital switchover when the AM and FM networks would be largely switched off. The review will now include the effects of smart speakers and internet radio.

I think that this must also include the possible effect of 5G. Its terms of reference are to assess (predict) future listener trends and make recommendations to strengthen the UK radio audio industry and promote innovation. It looks like we are going back to square one and will have to wait a year to find out what this group thinks is the best way forward for radio.

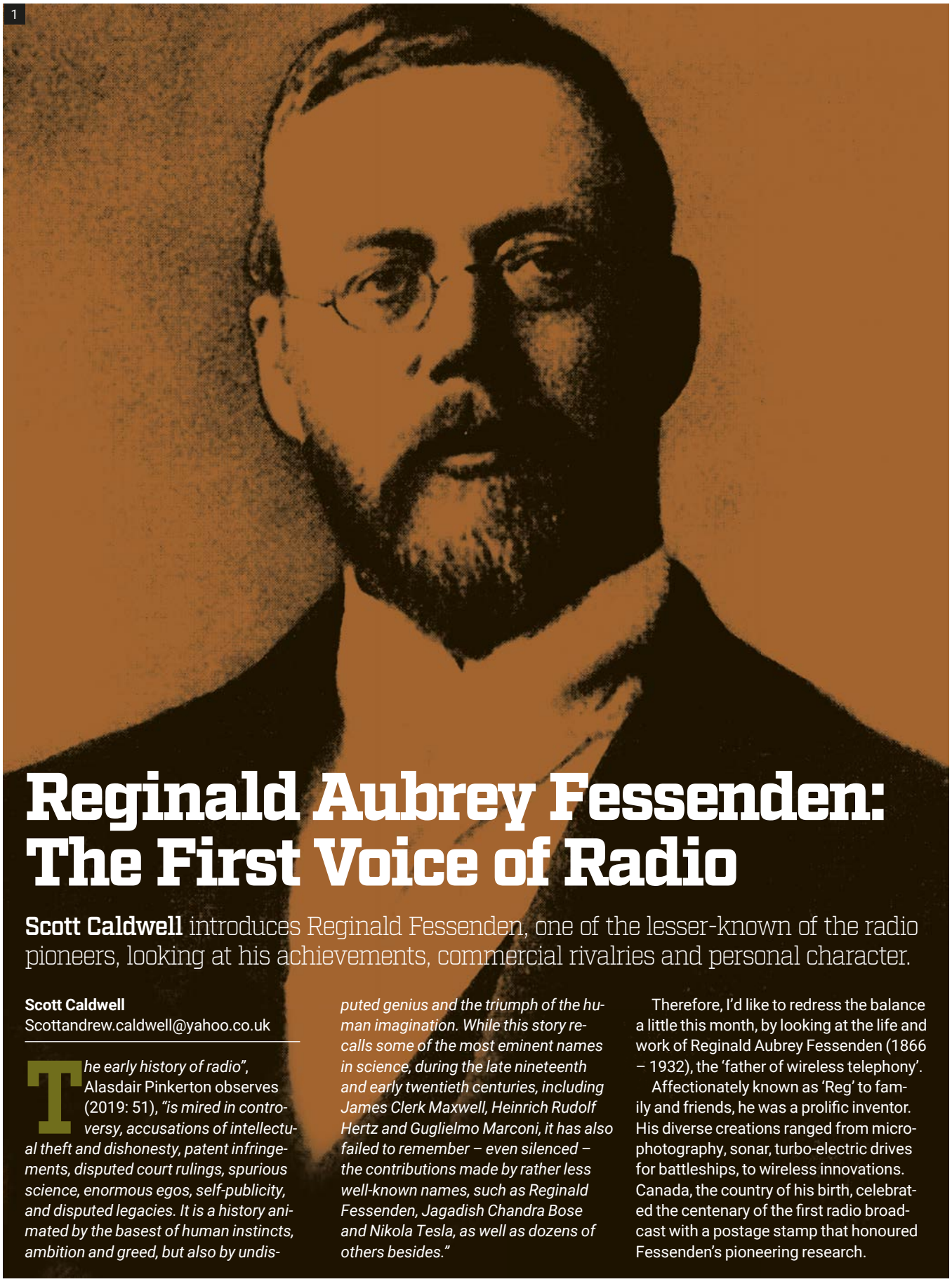
I guess that the commercial broadcasters will want a similar approach to the one they have with DAB, which allows them to switch to DAB+ when they judge it is commercially viable, provided they keep listeners well informed. AM, FM and DAB may co-exist for many years, and the BBC wants to hang onto FM even though the future of its own radio services is very precarious right now.

BBC Sounds

A new stream named *Radio 1 Dance* will launch on *BBC Sounds* this spring 24 hours a day. The new service will not be a regular radio station with live content but will repeat the existing dance programmes already aired on BBC Radio 1. They'll remain an important part of the Radio 1 schedule, of course, but the team will now also pull them into a dedicated stream that should be easier to find.

Apple (iOS) users of the Sounds app have a 'dark-mode' option, in which the entire interface of the app can either be dark text on a light background or light text on a dark background. The BBC has plans to reduce the number of clicks it takes to find what you want to listen to. I haven't used BBC Sounds for quite a while because it kept suggesting programmes that I wasn't interested in.

If BBC Sounds improved some aspects of their system, it might persuade listeners to use it more frequently.



1

Reginald Aubrey Fessenden: The First Voice of Radio

Scott Caldwell introduces Reginald Fessenden, one of the lesser-known of the radio pioneers, looking at his achievements, commercial rivalries and personal character.

Scott Caldwell
Scottandrew.caldwell@yahoo.co.uk

The early history of radio", Alasdair Pinkerton observes (2019: 51), "is mired in controversy, accusations of intellectual theft and dishonesty, patent infringements, disputed court rulings, spurious science, enormous egos, self-publicity, and disputed legacies. It is a history animated by the basest of human instincts, ambition and greed, but also by undisputed genius and the triumph of the human imagination. While this story recalls some of the most eminent names in science, during the late nineteenth and early twentieth centuries, including James Clerk Maxwell, Heinrich Rudolf Hertz and Guglielmo Marconi, it has also failed to remember – even silenced – the contributions made by rather less well-known names, such as Reginald Fessenden, Jagadish Chandra Bose and Nikola Tesla, as well as dozens of others besides."

Therefore, I'd like to redress the balance a little this month, by looking at the life and work of Reginald Aubrey Fessenden (1866 – 1932), the 'father of wireless telephony'.

Affectionately known as 'Reg' to family and friends, he was a prolific inventor. His diverse creations ranged from microphotography, sonar, turbo-electric drives for battleships, to wireless innovations. Canada, the country of his birth, celebrated the centenary of the first radio broadcast with a postage stamp that honoured Fessenden's pioneering research.

However, history has overshadowed his work, and Guglielmo Marconi (1874 – 1937) is now almost synonymous with wireless telegraphy. Reginald was most definitely a visionary engineer/scientist, but a poor businessman. He lacked Marconi's business acumen and marketing strategy. Pressure from financial backers was a significant problem for Reginald, resulting in numerous litigation cases.

Nevertheless, his passion for scientific research and invention was remarkable. He naturally followed the work and research methodology of the great pioneers of the age: Heinrich Hertz (1857–1894), Thomas Alva Edison (1847–1931), and Alexander Graham Bell (1847–1922) with great interest and enthusiasm. It is suggested that Reginald's admiration for Edison remained strong throughout his life.

However, their scientific methodology was quite different, as Reginald favoured the principle of *experimentation* based on established theoretical rigour, rather than the process of *trial and error*.

Family Life

Reginald Fessenden (Fig. 1) was born on 6th October 1866, in Knowlton, Quebec. His antecedents were colonists of English descent who settled in Cambridge, Massachusetts, in 1640. The family name was already distinguished in the society of the 'New World': William Pitt Fessenden served as a Senator and as Secretary of the Treasury for the Lincoln administration.

His mother, Clementina was a minister in the Church of England, and Reginald was expected to carry on the family tradition However, Reginald had other ideas about his destiny. He recalled a recurring dream: "*When I closed my eyes and dreamed, I saw an invention that could send voices around the world without wires or cables*". His mother repeatedly warned him that there was no future for such imaginative dreams. Her resistance to his dreams may be related to her memories of her father who invested in many failed inventions, leaving the family in a precarious financial position when he died. Despite this, Reginald found support from his uncle Cortez Fessenden who encouraged him to follow his dreams.

His early schooling provided a clear indication of his unique academic ability. He demonstrated a remarkable aptitude for advanced mathematics, languages, and music. Reginald studied at Trinity College School in Port Hope, Ontario. He later held at mixed lecturer/student position at Bishops College in Lennoxville, Quebec.

Employment with the Edison Company

Thomas Alva Edison (Fig. 2) and the *Edison Company* finally provided Reginald with the opportunity to demonstrate his remarkable work ethic and brilliance, and he was soon rewarded with a promotion to Head Chemist in 1886, based in New Jersey. This provided the perfect opportunity for Reginald to develop his scientific knowledge and his aptitude for the Sciences and Mathematics began to flourish. Unfortunately, Edison's company suffered many crippling financial crises in the 1890s, and Reginald was subsequently an economic casualty, resulting in a brief period of unemployment.

But the *Westinghouse Electric Company* in Newark, New Jersey, soon approached Reginald over a research position. His skills were in demand by the rich and famous, most noticeably the international financier John Pierpont Morgan (1837 – 1913). Reginald located a wiring fault in Morgan's vast mansion, and he recommended replacing installations with a new type of wiring that had rubber coating.

Morgan was subsequently pleased with Reginald's work and he offered him a liberal reward for his services. Employment with Westinghouse also enabled the opportunity to converse with the other great intellects of the period, such as Lord Kelvin (1824 – 1907) and George Westinghouse (1824 – 1914).

In 1900, Fessenden joined the US Weather Bureau, based in Maryland. The US Weather Bureau was leading research on the development of a system for transmitting weather forecasts. However, a strained working relationship with his research supervisor, Willis Moore, led to his resignation in August 1902. The disagreement was centred over issues of patents and intellectual copyrights. Reginald refused outright to negotiate with regards to the ownership of the patents, and the split became unbridgeable.

The Birth of 'Talk-Radio': A Christmas Miracle

On December 24th, 1906 at approximately 21:00 hrs (Eastern Standard Time), Reginald broke the silence of the atmosphere when he transmitted a human voice from 400 ft towers at Brant Rock Boston, Massachusetts (Fig. 3), directed at several ships at sea owned by the *United Fruit Company*.

Reginald both shocked and amazed his listeners by playing a recording of Handel's *Largo* on an *Ediphone*. Reginald also played a version of *Oh Holy Night*.

This showcased his remarkable talents as a violinist. The broadcast was scheduled to conclude with his wife, Helen May Trott Fessenden (1866–1941) and his secretary Miss Bent, who agreed to read some seasonal passages from the Bible. At the last moment, they suffered from fear and became virtually paralysed in front of the microphone, when confronted by his new technological marvel.

The selected passages included *Glory to God in the Highest – and on Earth Peace to Men of Good Will"*. Reginald concluded the broadcast by offering Christmas greetings and requested any correspondents confirming reception of his broadcast. Reginald had many technical problems to solve, and he pushed the available radio technology to the absolute limit.

Technical Challenges

The frequency of 60Hz (AC) was too near the low threshold of human hearing. Therefore, he needed a high-frequency carrier signal. Reginald overcame this problem by outsourcing and hiring a GE engineer to design a 76,000Hz generator (Fig. 3).

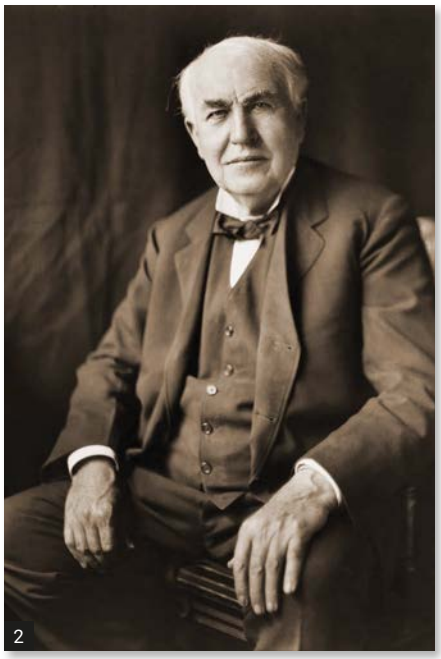
The broadcast was repeated on New Year's Eve to another astounded audience who could not believe their ears. Fessenden's key research was based on the fundamental principle that continuous-wave transmission was required for speech broadcasting. He also felt that Morse code was more suited to transmission by continuous waves rather than the method of utilising spark-generated apparatus advocated by Marconi.

Fessenden is thus credited with developing a system, during the 1890s, of generating reliable, continuous radio waves (a high-frequency, or 'HF' alternator), and by 1900, he experimented with methods of super-imposing the sound of a human voice onto a radio wave and transmit the resulting signal (Pinkerton, 2019: 71)

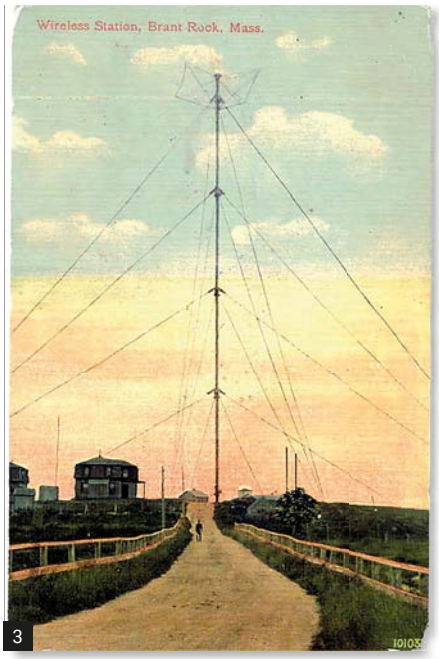
He later recalled his historic first broadcast of 1906: *"First, a short speech by me saying what we were going to do, then some phonograph music. Then came a violin solo by me, which I sang one verse of, in addition to playing the violin, though the singing, of course, was not very good. Then came the Bible text,* Glory to God in the Highest and On Earth Peace to Men of Good Will*, and we finally wound up by wishing them Merry Christmas and then saying that we proposed to broadcast again on New Year's Eve"*.

The tragic sinking of the *RMS Titanic* led

Fig.1: Reginald Fessenden: A Father of Radio? Fig. 2: Thomas Alva Edison: Arguably, America's Greatest Inventor. Fig. 3: The Brant Rock Wireless Station, Boston Massachusetts.
Fig. 4: Fessenden's Advertisement in *The Electrician* Magazine, 14th April 1905.
Fig. 5: This book by Ernest Freeberg offers a fascinating glimpse into Fessenden's era.

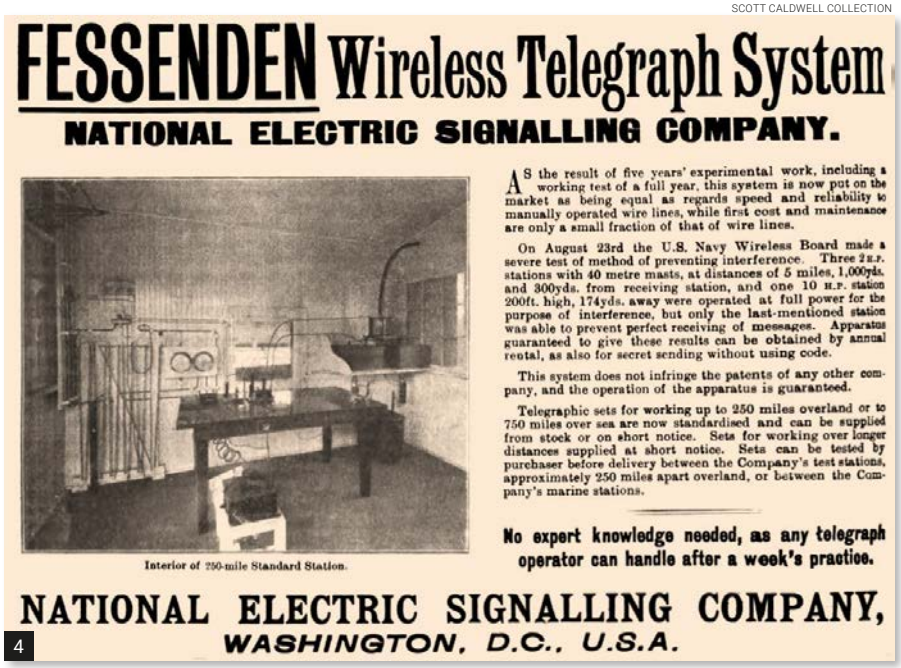


2



3

SCOTT CALDWELL COLLECTION



4

to Reginald conducting several successful experiments based on the measurement of the relative distance of ships from icebergs, by bouncing radio waves off them.

Many historians regard this innovation as the forerunner of modern-day Radar.

He also patented the invention of the Fathometer that was utilised to measure the depth of the world's oceans. The Fathometer was of vital importance during the First World War, enabling the accurate detection of enemy submarines. In 1929, Reginald was awarded the *Scientific American's Gold Medal* in recognition of the invention of the fathometer, which played a vital role in safe navigation during peace and wartime.

As an inventor, he was prolific with approximately 230 patents registered in his name. The diversity of his inventions is best emphasized by the following summary: Development of a chemical fire-retardant for electrical insulation, the microfilm slide, early designs of X-ray equipment, and mechanical systems for parking automobiles.

The National Electric Signalling Company (NESCO)

In 1902, Reginald founded the *National Electric Signalling Company (NESCO)*. Unfortunately, this business venture was destined for failure. It managed to acquire a transatlantic licence from the British government, yet it was rejected outright by the Canadian authorities. Legislation in Canada determined that only the *Marconi Wireless Telegraphy Company* was authorised to erect radio towers and install equipment.

This obstructive legislation prevented competitive wireless telegraphy in Canada for almost 20 years. The relationship with his Pittsburgh financial backers, Hay Walker, Jr. and Thomas H. Given had been long-standing, since September 1902. However, it was showing signs of pressure and mistrust. Walker, frequently admonished Reginald about the perceived time and money wasting that he allegedly witnessed.

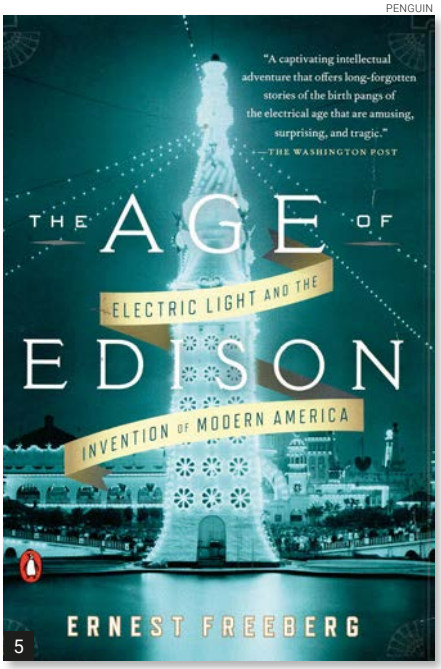
An excerpt from a letter dated April 27th, 1906 reveals their failing business relationship: *"You speak of losing a couple of weeks trying to receive messages and it being of no importance anyhow. Now that is the way it may look to you with your knowledge of science and maybe all right but when you come to illustrate in what you call a business way you are very, very far from happy and you are as far away from the question as I can possibly be in wireless.*

"To really get over is our aim and to be the first on record that is witnessed by people who are in every way disinterested would as you know be worth everything to us, the man or company first over publicity have a great start in a business way, and the part now is of importance to us. Art is long but time is fleeting". Hay Walker, Jnr."

Walker was well aware of the pressure that Reginald operated under, and of his tendency to multi-task and overextend his research projects. The financial outlay from Walker and Given was substantial. They had already financed the wireless station at Brant Rock, a wireless manufacturing operation in Washington DC (Fig. 3), several US experimental stations, and two very large spark transmitting/ receiving stations (one was operated in conjunction with the Brant Rock site, and the other one was located in Machrihanish, Scotland).

Their ultimate aim was to determine if

PENGUIN



5

reliable transatlantic communication could be established. This would, in turn, generate a return on investment by undercutting submarine telegraphy operators who networked Europe and North America (Fig. 4).

Legal Disputes

In May 1911, Reginald managed to win a court case brought against his former business partners. The judgement declared that he should receive $400,000, from what remained of NESCOs assets. Although, the struggling company went into receivership before he could collect his damages award. Reginald's wireless patents were eventually purchased by Westinghouse in 1920, and then by RCA in 1921.

This prompted Reginald to undertaken further legal action that would dominate his later life. Finally, on 31st March 1928, Reginald and RCA managed to agree on an out of court settlement figure that totalled $500,000. However, Reginald was still liable for his significant legal costs that amounted to approximately $200,000, it would be deducted from his out-of-court settlement.

Reginald Fessenden the Man

Reginald was a very demanding figure, who frequently lacked the attributes of patience and tact. One of his favourite indulgences was cigars, which were permanently stuck in his mouth. His critics often described him as choleric, demanding, vain, pompous, egotistic, arrogant, bombastic, irascible, combative, and domineering.

One example of his strong temperament concerns a prominent engineering society that awarded him a gold medal in recognition of his outstanding research contributions. On examining the medal, Reginald discovered that the medal only had a gold plating to a silver base. He concluded that all previous versions of this medal, including the one presented to Marconi had consisted of pure gold.

He promptly returned the medal and he was only willing to accept it when the society president and old friend, Greenleaf Whitter Pickard (1877–1956) assured him that all previous versions of the medal had the same quality and specification.

More generally, it seems that his mind was never at rest, and he rapidly focused on new concepts to apply his extraordinary intellect in pursuit of his research objectives.

George Elliott (Life member of IEEE and founder of the Amateur Radio Fessenden Society) in an essay provides us with the following description: *"Fessenden was a man distinctly different from his contemporaries, large in body and girth, well over six feet tall, with ginger coloured hair and beard, occasionally wearing a flowing black cape on his shoulders, topped with a seafarers cap on his head".*

Reginald did have some endearing qualities. Dr Alexanderson, the developer of General Electric's RF alternator, described him as a charming and kind person who earned the respect and loyalty of his associates and employees.

Conclusion

Reginald Fessenden died on 22nd July 1932. On his vault, the following words are inscribed: "*By his genius, distant lands converse and men sail unafraid upon the deep.*"

A fitting tribute to a genius that history has all but forgotten. American history books regularly refer to Reginald as the '*American Marconi*', maybe it is just as well he would never have the opportunity to read this statement for himself. There are no direct descendants of Reginald, yet the name Fessenden is maintained by other branches of the family tree. His only son, Reginald Kennelly Fessenden, tragically died in 1944, after a boating accident. His middle name was selected in honour of Arthur Edwin Kennelly (1861–1939).

In 1902, Kennelly and Oliver Heaviside (1850–1925) first proposed the existence of an ionised layer (The *Kennelly-Heaviside-Layer*), which contained free electrons in the upper atmosphere.

It is now known as the Ionosphere.

Table 1 shows the lifetime of Reginald Fessenden in the context of other radio pioneers.

- Petrus van Musschenbroek (1692-1761) Capacitator ('Leyden Jar')
- Jean-Antoine Nollet (Abbé Nollet (1700-1770) Osmosis
- Benjamin Franklin (1706-1790) Positive and Negative Electric Charge
- Charles Augustus Coulomb (1736-1806) Electrostatic force of attraction and repulsion.
- Luigi Galvani (1737-1798) Animal Electricity, Medical Electricity
- Alessandro Volta (1745-1827) Electric Battery (Voltaic Pile)
- Hans Christian Ørsted (1777-1851) Electromagnetism
- Michael Faraday (1791-1867) Mutual Induction, Electric Motor, Magnetic Field
- Joseph Henry (1797-1878) Induction, Electro-Magnets
- Heinrich Rühmkorff (1803-1877) Induction Coils (The Rühmkorff-Coil)
- Heinrich Geissler (1814-1879) Gas Discharge Tube
- Mahlon Loomis (1826-1886) Aerial Telegraph (Radio Transmission)
- James Clerk Maxwell (1831-1879) Theory of Radio Waves
- Édouart Branly (1844-1940) Radio Conductor/ Coherer
- Oliver Lodge (1851-1940) Electromagnetic Waves
- Joseph John Thomson (1856-1940) Electron
- Nikola Tesla (1856-1943) AC Motor, Tesla Coil, Radio Transmission
- Heinrich Hertz (1857-1894) Radio Transmission
- Jagadish Chandra Bose (1858-1937) Microwave Radiation, Semiconductors, Crystal Detector
- Alexander Popov (1859-1906) Radio Transmission
- **Reginald Fessenden (1866-1932)** Radio, voice transmission, sonar
- Guglielmo Marconi (1874-1937) Radio Transmission
- Ernst Alexanderson (1878-1975) Alexanderson Alternator/ VLF Transmitter.

Table 1: Other Radio Pioneers.

In conclusion, it seems fair to say that Reginald Fessenden's research, based in the age of Edison (Fig. 5) helped usher in the age of radio communication, a medium still uniquely important to global diversity and culture.

1

The Joy of Radio and the Gender Agenda

Chrissy Brand presents her monthly global trip around the world of radio, visiting Peru, before a lively sea breeze blows her to Japan and beyond.

Chrissy Brand
chrissyLB@hotmail.co.uk

The choice of radio listening on offer for most of us has never been greater. Older methods for delivering programme content, such as short wave and medium wave, are fading, but, still with us is a strong FM presence in almost every country, digital radio showcasing stations not available on analogue and, of course, tens of thousands of stations to choose from online.

Peru Perusal

RadioUser reader, John Gleeson, took up my challenge to try the Shazam music app. This was after I had used it successfully to identify some Czech and Slovak music, (*RadioUser,* February 2020: 30). He tested it out on BBC Radio 3 and it found the piece of music they were playing.

John wrote, *"I'm determined to try to test* Shazam *by looking for something more extraordinary. BBC Radio 3 on Saturdays around 1600 has a World Music programme, Music Planet, that I usually download to listen later. Did you know that the app can identify the music even if listening via headphones?"*

Taking it to the next level, John then successfully used Shazam to identify a piece of music on Peru Folk Radio (Fig. 1). This station certainly plays some beautiful music.

https://perufolkradio.com

There are many Peruvian radio stations to be heard online, with several portals to choose from. I tried the aptly named *Radios del Peru*, which has links to around 300 radio stations. Between them, a fair range of musical genres is covered, from salsa to romance, pop to folk, electronic to reggae, jazz, chill-out and more.

Amongst my favourites were folk music on Radio Inca en Vivo and music from the Andes on Radio Inca. The website gives links to the station websites and social media pages, along with frequency details.

Radio Nacional del Perú is the oldest radio station in the country, first taking to the airwaves in 1925. The station slogan is *La radio que nace cada día* ('Radio that is born each day'). Today, it broadcasts news, features and cultural programmes and is owned by the National Institute of Radio and Television of Peru (IRTP).

www.radiosdelperu.pe
www.radioinca.com.pe

Fig. 1: Listen to the sounds of Peru Folk Radio online. Fig. 2: Radio Tirana has a daily podcast. Fig. 3: *Furosato no Kaze* is one of the world's more unusual radio stations. Fig. 4: *Radio Öömrang* broadcasts annually but issues QSL cards.

www.radionacional.com.pe

Many online resources cover Peruvian radio, past and present. For example, there is audio of a 1982 broadcast from Radio Atlantida on 4790kHz, from Iquitos, recorded by Paul Harner, at the Shortwave Archive website.

https://tinyurl.com/uwe4dp8

As far as I know, Peru didn't possess a state-run external short wave service, even back in the day when hundreds of countries were represented in that way. However, back in 1993, Richard A. D'Angelo wrote an article entitled *A Look At Six Peruvian Broadcasters,* for the journal of the North American Shortwave Association. The six stations, all on short wave, were Radio Estacion Tarapoto, Ondas del Mayo and Radio Nuevo Cajamarca, all of which were based in San Martin. Plus Radio Cusco, Radio Naylamp and Radio Tarma.

https://tinyurl.com/s78mmzl

Don Moore, who runs the Patepluma Radio website, wrote about a wonderful visit that he made to Radio Tarma last year. It can still be heard on the Tropical Bands. Last year, DXer Manuel Méndez from Spain received an email confirmation letter for a reception report he sent by email, having logged the station on 4774.9kHz.

gerenciageneral@grupomonteverde.com
https://tinyurl.com/y69vmymu

Short Wave

I was talking with two friends over coffee the other day. They both discovered the joy of radio listening when they were young girls, tuning to Radio Caroline and Radio Luxembourg, late at night, under the bedclothes. Ulrika, who grew up in Germany, told us she was given a lovely little radio from her father when she was five years old and enjoyed listening to the German service of Radio Tirana. She was delighted when I told her Radio Tirana is still around.

The Shortwave Service in Germany relays it and Albanian, English and German services of Radio Tirana are also available as podcasts, just search for them in your preferred podcast app (Fig. 2). How far Radio Tirana has come, from a mysterious country with talk of beetroot harvests in the 1960s to a voice on your smartphone giving book reviews and travel tips.

http://rti.rtsh.al

www.mixcloud.com/radiotirana

The annual Radio Öömrang broadcast from the North German Frisian Islands took place on February 21st at 1600 UTC, on 15215kHz. Two days later, it broadcast in DRM mode on the same frequency but with photos from the *Friesian folk* festival. The station does verify reception reports sent in by email with a QSL card (Fig. 4, see also our *Digital Radio* column; *qsl-shortwave@media-broadcast.com).*

Lionel Clyne caught a midday broadcast of IRRS (Italian Radio Relay Service) on 9510kHz broadcasting in English. He stated, "*This is a rather peculiar station: the programme consisted of Christian fundamentalist propaganda, yet, at other times I have heard quite enlightened news broadcasts with no apparent political agenda.*"

Let me explain. IRRS is a relay station, also known as NEXUS-IBA (*International Broadcasting Association*). I reported from the 2019 European DX Conference that present *broadcasters who relay content via NEXUS-IBA include European Gospel Radio, International Public Access Radio, DX programme Wavescan and United Nations News.* (*RadioUser*, November 2019:44-45).

Relay services, such as IRRS, are dependent on hiring air time. Alfredo Cotroneo *of NEXUS-IBA stated in his presentation to the EDXC that the organisation would never accept any programme content that contains hate speech. That proviso aside, IRRS is open to any broadcaster that wishes to purchase airtime on the network, including religious stations of any faith.*

Lionel is also fascinated by two Japanese stations targeting North Korea: Furosato no Kaze, which translates as Wind from Japan, or Wind from the homeland and Shiokaze, Sea Breeze (Fig. 3).

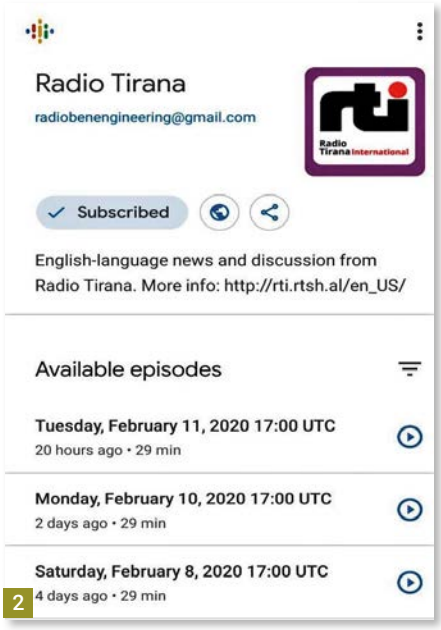
He explained, "*These are directed to Japanese nationals interned in North Korea. Unfortunately, I have not had much success in getting anything like good reception on any of the frequencies I have tried. It is possible that this station is being jammed by North Korea due to its political influence but there is no indication of this on short-wave.info*".

Furosato no Kaze ('Wind of Hometown') was logged at 1623 UTC on 9445 and 9690kHz broadcasting in Japanese from Paochung. The reception was poor but Lionel was able to able to recognise some speech.

He welcomes readers' comments.

A very good overview of these stations can be found in an article written by Hans Johnson called *Sea Breeze & Wind from Japan*, in the current World Radio and TV Handbook (WRTH 2020: 26 to 28). The stations started online but Sea Breeze first took to short wave in 2005, using a transmitter at Danshui in Taiwan. The body behind these, COMJAN (Commission on Japanese Probably Related to North Korea) started programmes in English in 2006.

CHRISSY BRAND



COMJAN Vice Representative, Tatsuru Murao, stated that the short wave broadcasts will continue until all of the abductees are rescued.

Medium Wave

Graham Smith was listening for Vesti FM on 1413kHz. This is a relay of a Russian news channel for listeners in the Russian-speaking area of Pridnestrovia (or Transnistria), which is officially part of Moldova. The station started in 2008 in Moscow but now broadcasts to 29 regions.

However, Graham was unable to hear Vesti FM, because of other stations on the same frequency. These include at least one Spanish station and Premier Christian Radio. He wrote, " *I am trying to listen around sunset because the Russian-language station should fade in before the Spanish ones.*"

https://radiovesti.ru

Graham adds that he has, "*also been listening for Moldovan radio on 1494kHz. I think this station signs on at 0400 UTC, but the signal is weak. I can also hear Coast FM Tenerife on this frequency, but that must be an unofficial relay.*"

With the closure of many BBC local radio medium wave stations, Graham is hopeful he will hear Romanian station Radio Timișoara on 630kHz, once BBC Three Counties Radio drops that outlet.

In a blog post, Kieran Clifton, Director, BBC

3


SHORTWAVE RADIO BROADCAST
to the Japanese abductees in North
FURUSATO NO KAZE
ふるさとの風
拉致被害者の一日も早い帰国に向けて
内閣官房
拉致問題対策本部
事務局
The abductions of Japanese citizens by North Korea is a serious crime that has torn apart lives and families. The Government of Japan is dedicated to bringing all of the abductees back home.

Short Wave Logs

UTC	kHz	Station and Location	Language	SINPO	Initials
0900	12085	Voice of Mongolia	English	24222	OR
1005	6005	Radio Ukraine International	German	35544	GS
1030	9700	Radio New Zealand International	English	44444	NT
1107	15745	China National Radio 1	Chinese	45544	GS
1150	15640	Radio Azidi (Radio Free Afghanistan) Kuwait	Pashto	35222	LC
1200	9510	Italian Radio Relay Service	English	44444	NT
1300	12035	TRT Voice of Turkey	English	45444	NT
1430	15580	Voice of America, Botswana	English	44444	NT
1453	13275	NHK World Radio Japan, Issoudun	Persian	45343	LC
1532	7515	Living Water Ministry, Agana	Korean	35333	LC
1600	9730	Voice of Vietnam, Hanoi-Sontay	English	45233	LC, OR
1617	7590	Trans World Radio India	Urdu	45333	LC
1700	11770	Voice of Nigeria	English	24322	OR
1703	5950	Voice of the Tigray Revolution, Addis Ababa Gedja	Tigrinya/Afar	35333	LC
1730	6085	Radio Mi Amigo, Kall	English	34333	NT
1800	5915	Zambia NBC Radio 1	English	23232	OR
1830	5995	Radio Mali	English	32322	OR
1938	7485	Voice of America, Lampertheim	Kurdish	35333	LC
2000	6050	TRT Voice of Turkey, Emirler	English	45444	LC, NT
2009	7280	Voice of Vietnam, Hanoi-Sontay	French	45444	LC
2015	6010	Vatican Radio, Santa Maria Galeria	English	55454	LC, NT
2023	5920	Radio Romania International, Ţigăneşti-Saftica	Spanish	45444	LC
2031	5890	Radio Free Asia, Kuwait	Chinese	45334	LC
2031	7375	Radio Romania International, Galbeni	Romanian	55555	LC
2053	7475	Radio Thailand, Udon-Thani	Thai	45333	LC
2300	9420	Voice of Greece	Greek	55555	OR

LOG CONTRIBUTORS: GS = Graham Smith, Bury St. Edmunds, Suffolk. Sony ICF-SW600 and a telescopic antenna. LC = Lionel Clyne, Faversham, Kent. Lowe HF-150, random wire or home-

Distribution & Business Development, explained the rationale behind the changes to BBC medium wave coverage.
https://tinyurl.com/wyx5sxs

Radio Gender Agenda

Last summer, I bemoaned the fact that Radio Mi Amigo International was devoid of female presenters (*RadioUser*, August 2019: 51). In response, Stuart Dobson, himself a veteran radio presenter, contacted me. He wrote, "*The main requirement for working on Radio Mi Amigo International is to have a history of working on offshore radio. This is why there is a lack of female presenters on Mi Amigo. If you know of any female DJs who meet this requirement they might be considered.*"

My first thoughts were that an approach like that will inevitably become a self-fulfilling prophecy. On further reflection, I also reasoned that, when offshore radio ships existed, back in the 1960s, society was still in the Stone Age, when it came to equal rights of any sort. The closest most women would have got to a radio microphone would have been in a secretarial role.

I am sure that otherwise, there would be a legion of women who would have become pirate radio DJs. Furthermore, they might still be rocking the airwaves to this day, just like Johnnie Walker on BBC Radio Two, Keith Skues on several BBC local radio stations, and many other male DJs from that era still do, on less high-profile stations.

Today, the number of people who experienced life as a presenter on an offshore station and are still alive is dwindling. Sadly, but inevitably, they will mostly be gone within another generation, so it seems a little short-sighted to only allow people with that specific experience to be part of a station.

Stuart confirmed that Mi Amigo is not currently an offshore broadcaster, perhaps inadvertently adding more power to my argument. Surely all radio stations should be offering a platform to young people. Wouldn't it be nice to hear more diversity on radio stations? Women, people of colour, people from LGBT communities, and so on.

Agnès Bardon (French editor, UNESCO Sector for External Relations and Public Information) encapsulated the wider issue of under-representation in radio when she wrote, in *The UNESCO Courier*, January to March 2020, *"The theme of World Radio Day 2020 is diversity. This remains a burning issue because the representation of women, minorities and people with disabilities on the airwaves is still unsatisfactory. We have come a long way since female reporters had to make way for men to read their reports on air because male voices were considered more credible. But the challenge is real."*

"The lack of statistics in many countries makes it impossible to draw a global map of diversity in radio. But the data that does exist, speaks for itself. In France in 2018, women accounted for 37% (Conseil supérieur de l'audiovisuel (CSA), 2019) of radio broadcasters. They constituted 23% of political guests and 37% of experts on the radio. In the UK, while 51% of radio staff were women, only 36% held positions of responsibility (Ofcom, 2019). Another example: in the US, in 2017, only 11% of radio newsroom staff were from minority backgrounds (The Radio and Television Digital News Association (RTDNA) and Hofstra University Newsroom Survey, 2018)."

" It is important that radio reflects the audiences it serves more accurately because diversity in radio is the key to fair and independent information. It is also a means of giving a voice to a variety of cultures and opinions that form the basis for critical thinking".

Stuart Dobson was the last person to be airlifted off the Ross Revenge in 1991 He recollects the adventure in an article at the Soundscapes Info website, in *Three Men on a Radio Ship, the wet and wild history of Radio Caroline.*

Georg Wiessala
wiessala@hotmail.com

EVP, Ghost-Hunting and Brainwaves

The editor offers a – somewhat tongue-in-cheek – survey of some more atypical areas of radio, looking at radio waves as weapons, electronic voice phenomena, mind-altering waves, and weaponized weather.

As an editor of the world's best radio magazine, I naturally receive many suggestions for articles, comments on all matters radio and correspondence on any number of our regular columns and features.

All of which I am extremely grateful for; your feedback is what makes this magazine come alive and what inspires me. As I look into a wide range of radio-related topics, I sometimes come across what one might, perhaps, term 'borderline', or 'fringe' areas; subjects which fuel debates on Facebook Groups and online fora, but which might just be touching on some more, well, 'non-mainstream' topics in the wonderful world of radio.

As I write this, however, I have just been sent a radio, which may connect me to more than I bargained for.

Making Contact?

The *SBox Ghost Box Scanner with Spirit Box and EVP Recorder* offers AM and FM modes, but has the 'scan-stop' function disabled. It selects speeds and sweep direction and scans the bands for otherworldly voices. It can record them – if it finds any, and it retails for £89.99 (Fig. 1).

https://tinyurl.com/yx6h7483

For a little more, the *P-SB11 Dual Sweep Frequency ITC Research Device*, with a built-in thermometer, can be yours; this is, according to the promotions, the top-selling device for paranormal investigators (Fig. 2).

https://tinyurl.com/tyv4742

Some more modern versions come with touch-screens, of course, like the *Para4ce Ghost Box*.

https://tinyurl.com/vw37cw9

An alternative approach is embodied (or

should that be 'dis-embodied') in devices like the *Ovilus 5 Rev B* device, for just under US$ 400.

Instead of scanning radio frequencies, it *"generates words in response to environmental fluctuations or EMF anomalies, supposedly translating the spirit's communications into English terms."*

https://tinyurl.com/yx8dboy4

The concepts of Ghost-Hunting by radio, Electronic Voice Phenomenon (EVP) or Instrumental Trans-Communication (ITC) were important enough for the BBC to make several programmes about.

This (slightly older) one is a good example:

https://tinyurl.com/tsdu2yn

There are also – you won't be surprised to hear – successful TV shows on these phenomena. Shady science? Guff for the gullible? Or ethereal emanations of a different reality?

Your radio, it appears, can help you find out.

Spirit Boxes, Bug Detectors and ELF Meters

As I spend more time on various websites, my astonishment grows at the number of such devices available. There appears to be some overlap with magnetic field detectors (Gauss-Meters) and, well, what we used to quaintly call 'Dictaphones', more general digital voice recorders and Anti-Spy ('Bug') detectors.

Hidden messages, or just clever marketing?

'Ghost-Boxes' can tune around in the 'ether' (white noise) between stations; other devices measure the electromagnetic field, expressly for the purpose of 'ghost-hunting' or hearing spirit-voices.

To be frank, the effect is actually quite weird.

EVP, or Electronic Voice Phenomena, it seems is a science in itself. Or is it? For the beginner, there are a few books to choose from, the best-seller is Mike Edwards's *Speaking to the Dead with Radios: Radio Sweep Electronic Voice Phenomena*. No, not our brilliant *RadioUser* designer, this is, I hasten to add, another Mike Edwards (Fig. 3).

A quick bookstore 'sweep' (pardon the pun) reveals many other such titles – you can see the covers of a few selected ones on these pages. In 2017, for example, Anabela Cardoso published *Electronic Contact with the Dead: What do the Voices Tell Us?* (Fig. 4). And 2015 saw the publication of *Paracoustics – Sound and the Paranormal*, by Steven T. Parsons, somewhat of the same ilk.

Fig.1: The SBox Ghost Box Scanner, with Spirit Box and EVP Recorder.
Fig. 2: P-SB11 Dual Sweep Frequency 'ITC Research Device', with a built-in thermometer.

Back in the 1950s, Friedrich Jürgenson wrote the seminal text, it appears. *Radio Contact with the Dead*.

In fact, radios seem to play a major role in all these books and more.

Sceptics say that hearing anything in between stations is due to our brains' tendency to search for meaning and make up what makes the most sense to us. It is called *Auditory Pareidolia*; a situation created when the brain incorrectly interprets random examples as familiar patterns. Like when my cat speaks to me.

Interdimensional Radio and Popular Culture

However, popular culture, in terms of electricity, radio or TV, has tapped into these phenomena with a vengeance through films such as *Pulse (1988)*, *Frequency (*2000, Fig. 5*)* or, above all, *White Noise* (2005, Fig. 6). To be frank, *White Noise* is actually a good movie – if you can suspend your disbelief.

As is *Contact (*1997*)*, based on the novel by Carl Sagan (1985, Fig. 7), and based on the premise that aliens have sent a radio signal back to Earth, embedded in a TV broadcast of – of all people – Adolf Hitler.

For Fast Radio Bursts (FRB) from the Centre of our Galaxy, see below and the following URL:

https://tinyurl.com/vomjp7u

And I am not even starting to describe what is *out there*, in terms of the role of radio in the search for extra-terrestrial life (SETI). As in all areas radio, there are some excellent resources among the cosmic noise.

The same applies to many of the numbers stations, which we featured in *RadioUser* before (*RadioUser, A Riddle Wrapped in a Mystery (Number Stations)*, May 2018: 47; June 2018: 46, and July 2018: 12). The recordings of the *Conet Project*, at least for me, do not reveal any Cold-War paranormal activity.

https://www.irdial.com/conet.htm

The same goes for the station with callsign MDZHB, the 'ghostly station' no-one seemed to run.

https://tinyurl.com/uhyatpu

Hooked on Radio Conspiracy

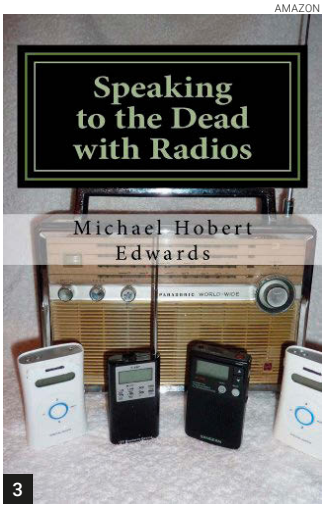
OK, I am hooked now, and I am beginning to look for other areas of radio touching on the improbable, sinister, funny or conspiratorial. One of my favourite books I used to recommend to my Politics students was Jon Ronson's *The Men Who Stare At Goats* (Picador, 2004, Fig. 8), with its intriguing chapter on the broadcasting of 'weaponized subliminal sounds'.

This kind of topic helped many learners to identify 'fake news' – However, I am not so sure now.

The internet has, of course, helped to multiply the number of 'radio-related' topics which have been used to see things that are not there – or to bring to light the hidden powers of the Universe, depending on your point of view.

I was dumbfounded, for example, at the number of revelations/ conspiracy-theories are still surrounding the life and

AMAZON

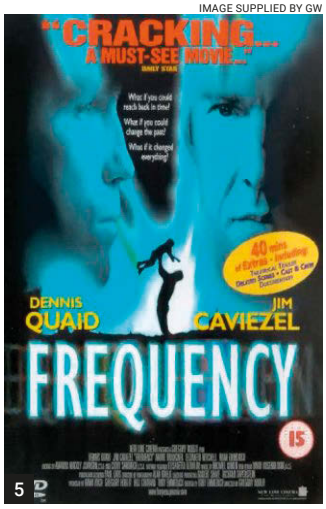


3

AMAZON

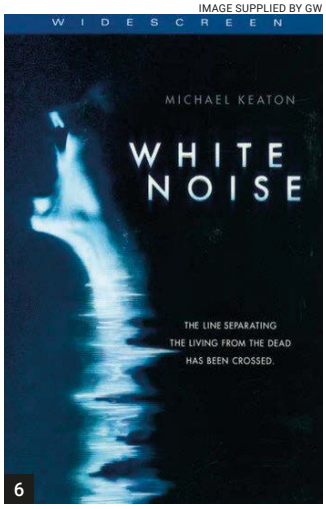
4

IMAGE SUPPLIED BY GW



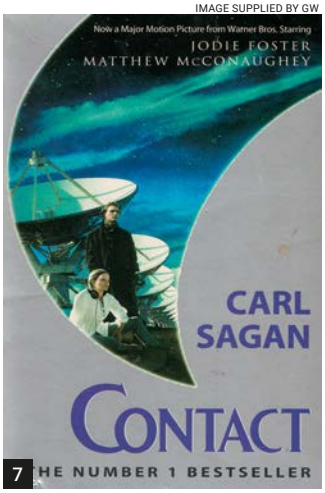
5

IMAGE SUPPLIED BY GW



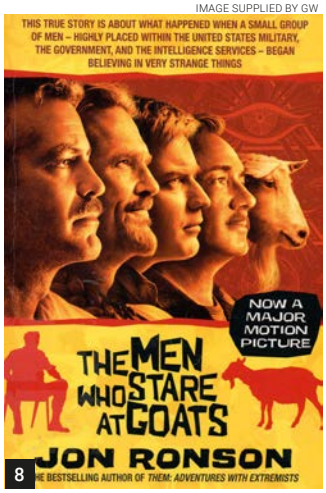
6

IMAGE SUPPLIED BY GW



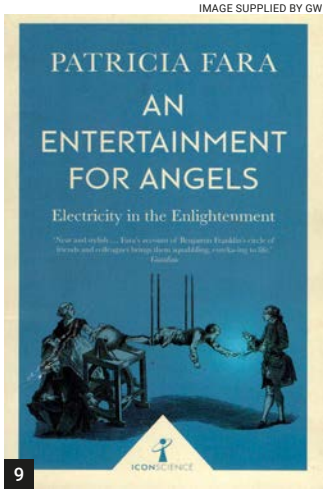
7

IMAGE SUPPLIED BY GW



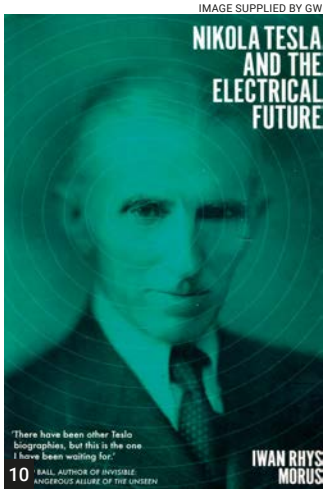
8

IMAGE SUPPLIED BY GW



9

IMAGE SUPPLIED BY GW



10

Resources

- BBC Radio 4: Analysis: Conspiracy Politics (17th February 2019)
- BBC Radio 4: The Infinite Monkey Cage: Conspiracy Theories (20th January 2020)
- BBC Radio 4: Thinking Allowed: Conspiracy Theories (13th May 2019)
- Cardoso, A. (2017): Electronic Contact with the Dead: What do the Voices Tell Us?
- Edwards, M. (2012) Speaking to the Dead with Radios: Radio Sweep Electronic Voice Phenomena
- HAARP Weather Control
  https://tinyurl.com/wabfseg
  https://tinyurl.com/y47yv9bz
  https://tinyurl.com/ubf4gwz
  https://tinyurl.com/ufs4o8h
- Parsons, S. T. (2015) Paracoustics: Sound and the Paranormal
- Popular Mechanics Article:
  https://tinyurl.com/yx576bhf
- The Ghostly Radio Station that No one Claims to Run
  https://tinyurl.com/uhyatpu

work of Guglielmo Marconi (1874-1937). When I prepared an article on him for this magazine, some time ago, I found it quite a challenge to sort the wheat from the chaff/dig out the truth.

Try *'Free Energy'*, *'Wireless Electricity'*, *'Anti-Gravity'*, *'Invention of Radio'*, or *'Alien Contact'* as your search-terms, for instance, and many hours of infotainment are sure to follow. Similar webs of intangibility surround the biographies of other radio-pioneers, such as Nikola Tesla (1856-1943) and many others.

How Low Can You Go?

Many other fields of research could be mentioned here, where radio-reality and radio-fantasy can bleed into one another. Those of us interested in (man-made) radio signals and (natural) sounds will have come across natural phenomena such as the Schumann-Resonance. The Schumann Resonance (SR) is a set of spectrum peaks in the extremely low frequency (ELF) portion of the Earth's electromagnetic field spectrum. It is at 7.83Hz, along with progressively weaker harmonics at 14.3, 20.8, 27.3 and 33.8Hz.

Fig. 3: Mike Edwards's *Speaking to the Dead with Radios: Radio Sweep Electronic Voice Phenomena*. Fig. 4: Anabela Cardoso's *Electronic Contact with the Dead: What do the Voices Tell Us?* (2017). Fig. 5: They're Out There: The Movie *Frequency* (2000). Fig. 6: A more thought-provoking film: *White Noise* (2005). Fig. 7: Carl Sagan's famous novel *Contact* (1985). Fig. 8: Radio Wars: Jon Ronson's *The Men Who Stare At Goats* (2004). Fig. 9: Patricia Fara's *An Entertainment for Angels* (2017). Nikola Tesla's work (Fig. 10) still gives rise to very varied interpretations.

Discussions about this resonance of the magnetosphere surround anything from Government interference with our brainwaves to jewelry with perceived healing properties on our breathing and blood pressure.

Caveat emptor, I think is the phrase that comes to mind.

Across the Pond, the HAARP (*High-Frequency Active Auroral Research Program*), a (former) US Military Defence

Project has been claimed to have the purpose of allowing the Government to control the weather. Well, at least it is not the European Union this time.

Here is just one example of these beliefs (First URL).

The second URL is of the University of Alaska, and it takes you to what, for many, is the 'real' science.

https://tinyurl.com/w2jyaxe
https://www.gi.alaska.edu/facilities/haarp

Staying on the Serious Side

I could go on looking at how radio has been appropriated for a range of real and ethereal purposes.

Many of these tropes come back at regular intervals, insanely regurgitated by the media. Examples for those are sonic weapons, weather-control, and alien transmitters at the centre of our Galaxy (*The Telegraph*, 14th February 2020). The latter issue refers, perhaps, to the current *Breakthrough Listen Project*:

https://tinyurl.com/y5t8fhoj
https://tinyurl.com/wg2xuuw

Much debate – serious-minded and otherwise – still reverberates about the idea of hidden sources of purportedly free energy, block-socks, mobile phones, mind-control and your brain, low-frequency and electromagnetic radio weapons (think: *Ocean's Eleven*, another great film).

There is, of course, a more serious side here too. I am sure that not everything we might dismiss as 'conspiracy theory' really belongs to the 'lunatic fringe'; there are kernels of truth in many areas of 'extreme' radio science: *There are more things in heaven and Earth, Horatio, / Than are dreamt of in your philosophy* you get my frequency-drift [...].

Moreover, it is fascinating to be mindful of the many historical precedents of an earlier age, where radio was still in its infancy and electricity was little understood.

Think of medical electricity, 'Mesmerism', Galvani's frogs, Shelley's *Frankenstein*, the *Spiritualist* Movement and Arthur Conan Doyle, and the many other literary and scientific gems.

Patricia Fara (*An Entertainment for Angels*, 2017, Fig. 9) and Iwan Rhys Morus (e.g. *Shocking Bodies*, 2011; *Michael Faraday and the Electrical Century, 2017; Nikola Tesla and the Electrical Future, 2019, RadioUser, November 2019: 48, Fig. 10*) will provide you with some excellent, spirited, guidance to the serious side of the electrical imagination.

Radio Round-up

TAFF FURLOUGHS AND THE RADIO INDUSTRY: The Coronavirus Job Retention Scheme has been put in place for many staff at various radio groups in the UK. Nation Broadcasting, CCUK (Communicorp) and Bauer Media are just some of the companies who have told staff this week not to work for the foreseeable future. Nation Broadcasting said: "With a significant decline in short term revenues we have introduced several measures to protect our people and the business during this ongoing emergency while recognising the important role our radio stations play in their respective communities at this difficult time." Around 25 staff at Nation have been furloughed, as the business makes a few changes, including creating a single but longer news bulletin for all of its stations to air in Wales, a new programme schedule and resource sharing across UK stations, and the relaying of Nation Radio Scotland on the Your Radio frequencies for the time being.

Jason Bryant at Nation adds: "We will continue to review our provisions in line with Government advice, forward revenues and booking rates and any relevant funding available at UK, nations or industry level." CCUK has responded to the coronavirus crisis by placing some of its staff on furlough for the next two months. Around 50 employees, mostly from non-programming areas of the business, will no longer be required to travel to one of its nine locations in England, Scotland and Wales, or work from home.

Communicorp UK runs Smooth, Capital and Heart brands on licence from Global, along with XS Manchester. Meanwhile, in Ireland, Communicorp Media has decided to keep staff working but cut all pay by up to 25% for the next three months. Besides, Bauer Media is planning to furlough some staff but has not yet announced any specific decisions. Dee Ford CBE, Group Managing Director, Bauer Radio stated: "The COVID-19 virus has had a major impact on our lives, and our business. The Government has acknowledged this and is offering businesses, such as ours, some support. We are seeking support from the government through the Job Retention Scheme to protect jobs during what is the most challenging time of our lives."

Elsewhere, Bauer Media in New Zealand yesterday announced plans to close its entire operation – which is centered on publishing magazines – as a result of the virus. At Global, there are currently no plans to use the Coronavirus Job Retention Scheme, and most of the staff are working from home to keep all of its services operating. At the time of publishing, News UK has not responded to our request for information. The Coronavirus Job Retention Scheme is a temporary scheme open to all UK employers for at least three months starting from 1 March 2020. It is designed to support employers whose operations have been severely affected by Coronavirus (COVID-19). Employers can use a portal to claim for 80% of furloughed employees' (employees on a leave of absence) usual monthly wage costs, up to £2,500 a month, plus the associated Employer National Insurance contributions and minimum automatic enrolment employer pension contributions on that wage. Employers can use this scheme anytime during this period.

(Source: RadioToday, National Press)

https://tinyurl.com/uuq9ggv

MAPPING LIGHTNING STRIKES FROM SPACE: If lightning strikes anywhere in the Western Hemisphere, odds are it has already been detected and mapped by satellite-bound cameras orbiting some 35,000 km above Earth. Lightning flashes are more typically mapped from ground-based networks using radio frequencies to generate precise data on the order of meters. However, ground-based systems have a limited line of sight. The view from a satellite does not, for example, need to "account for things like tree lines or city skylines or even just general dissipation over distance," said Michael Peterson, an atmospheric scientist at Los Alamos National Laboratory in New Mexico. "It's not only a matter of being able to see more, but being able to see things completely."

The idea of using a satellite to detect lightning has been around since at least the 1980s, but with the launch of the National Oceanic and Atmospheric Administration's (NOAA) Geostationary Operational Environmental Satellite–R Series (GOES-R) weather satellites starting in 2016, researchers and forecasters have attained unprecedented levels of lightning data from the Geostationary Lightning Mapper (GLM) instruments attached to the satellites. An interdisciplinary team of researchers now has developed a technique that can map out the lightning flashes GLM detects across the entire Western Hemisphere in real-time.

(Source: Journal of Geophysical Research)

https://tinyurl.com/sqd9lvu

SRA MENTAL HEALTH CAMPAIGN: The Student Radio Association has launched a Mental Health Campaign with help from talkRADIO host Iain Lee. Iain is the first guest to talk to the SRA about the issue, with more to follow. "We've reached out to people across the industry, at various stages in their career to share their stories with us, and with you," the SRA said. "Mental Health awareness isn't a day, week or month. It's constant. As such, we'll be sharing one story a week, every week, until we run out of voices that want to be heard." The SRA has enough interviews to release a new one each Friday and would like to hear from anyone in radio who would be willing to talk to them about mental health.

(Source: Jordan.scudder@studentradio.org.uk)

Devon

Scotland

South Yorkshire

DealerGuide

For Sale

MICROPHONES & ACCESSORIES. Replacement microphones for a wide range of transceivers. Cables for Heil and studio microphones, headsets and mixers, PC headset adapters, microphone extension cables, PTT switches and replacement curly cords. DTMF microphones for echolink. For these and more great items go to **www.technofix.co.uk** or **technofix.uk**

Wanted

VINTAGE FIREWORK COLLECTOR
Do not light the blue touch paper and burn British heritage. Private collector will pay cash and collect from anywhere. Licensed explosive storage. **Call Tony on 07956 506300**

TradingPost

FOR SALE

YUPITERU MVT-7100 SCANNER. Excellent condition. Includes antenna, belt clip, strap, car lead and manual. No mains charger but AA charger and spare set of batteries. £110 inc post.
Email teegeecee@btinternet.com

WANTED

SCHOOL MATHS PROJECT "SIMPOL" Definition of "SIMPOL" computer language. Or, student's SMP textbook that describes it.
Godfrey G4GLM
(020) 8958 5113
cgmm2@btinternet.com

Trading Post adverts cost £5.00 per advert

(subscribers free) and will also be published in Practical Wireless unless requested otherwise.

BY EMAIL Firstly email your advert's wording to **kristina.green@warnersgroup.co.uk** and then call **01778 392096** to make your payment. **BY POST** Your order form can be downloaded from **bit.ly/tradingpostform**
Send your advert to: **Trading Post, Radio User, Warners Group Publications plc, West Street, Bourne, Lincs. PE10 9PH** Please write your advert clearly in BLOCK CAPITALS up to a maximum of 30 words, plus 12 words for your contact details on the form provided and send it together with your payment of £5 (subscribers can place their advert free of charge as long as they provide their subs number or mailing label). Cheques should be made payable to **Warners Group Publications plc**, credit card payments also accepted.

Please help us to help you by preparing your advert carefully. Any advert which contains ?? marks indicates that the advertising dept. could not read/interpret the wording.

Advertisements from traders or for equipment that it is illegal to possess, use or which cannot be licensed in the UK, will not be accepted. No responsibility will be taken for errors and no correspondence will be entered into on any decision taken by the Editor on any of these conditions.

You should state clearly in your advert whether equipment is professionally built, home-brewed or modified. The Publishers of Radio User also wish to point out that it is the responsibility of the buyer to ascertain the suitability of goods offered for purchase.

Rallies & Events

N.B.: Due to the Coronavirus situation, the Rallies calendar is dynamic and changeable at the moment, and there will be more cancellations and postponements. The information given here reflects the situation up to and including 15th April 2020. Readers are advised to check carefully with the organisers of any rally or event, before setting out. The Radio Enthusiast website will have updates, please check here regularly: www.radioenthusiast.co.uk

POSTPONED RALLIES

- **7th June**
  LOUGH ERNE RALLY
  www.learc.eu

CANCELLED RALLIES

- **26th April**
  ANDOVER RADIO CLUB RADIO & COMPUTER BOOT SALE
  arac@arac.org.uk
  www.arac.org.uk

- **2nd May**
  CDXC CONVENTION & AGM
  Chris Duckling G3SVL
  Chris@G3SVL.com
  www.cdxc.org.uk

- **8th May**
  DARTMOOR RADIO CLUB RALLY
  Roger, 2E0RPH
  07854 088 882
  2e0rph@gmail.com

- **15th to 17th May**
  DAYTON HAMVENTION 2020
  https://hamvention.org

- **28th June**
  33rd NEWBURY RADIO RALLY
  www.nadars.org.uk/rally.asp
  NewburyRally@nadars.org.uk
  www.nadars.org.uk

April 26th (Sunday)
CAMBRIDGE REPEATER GROUP RALLY: The event takes place at Foxton Village Hall, Hardman Road, Foxton, Cambridge CB22 6RN. Car parking is free. Doors open 9.30 am for public entry and 7.30 am for traders. Entry is £3. There will be a talk-in station. You will see traders a Bring-and-Buy and an RSGB bookstall. There will be a car boot sale area. Catering is available on site (burger van has been booked).
Lawrence M0LCM

April 26th (Sunday)
NARSA – NORTHERN AMATEUR RADIO SOCIETIES ASSOCIATION EXHIBITION (BLACKPOOL RALLY): The NARSA (Blackpool) Rally will take place at its usual venue, The Norbreck Castle Exhibition Centre, Queens Promenade, Blackpool FY2 9AA. Doors open 10:30 am (10:15 for disabled visitors). Free on-site parking. Admission £5 (under 14's free). Food and beverages available all day. Usual traders, club- and special-interest groups, and an RSGB book stand. There is also a construction-competition and a club stand competition.
01270 761 608
dwilson@btinternet.com
www.narsa.org.uk

May 3rd (Sunday)
THORPE CAMP HAMFEST: The Hamfest is at the Thorpe Camp Visitor Centre, Tattershall Thorpe, LN4 4PL. Open for traders from 6.30 am and to the public from 9 am. Entry is £4, with children under 12 going free. Hot and cold refreshments are available on site. Car parking is available within the grounds.
Sylvia or Anthony
0795 665 4481

May 16th (Saturday)
READING DX MEETING: The Reading International Radio Group meets from 2.30 to 5 pm in Room 3 at Reading International Solidarity Centre (RISC), 35-39 London Street, Reading RG1 4PS. Meetings are an opportunity to get together for anyone interested in listening to broadcast stations from around the world on the short wave, medium wave and FM bands. All meetings include a well-researched talk and tea break.
barraclough.mike@gmail.com
www.bdxc.org.uk/diary.html

May 17th (Sunday)
DUNSTABLE DOWNS NATIONAL AMATEUR RADIO CAR BOOT SALE: Stockwood Park, Luton LU1 4BQ: Due to the Coronavirus issue, this year's event is contingent on the ongoing approval of the local council and Government guidance. Please keep up to date on this here:
www.ddrcbootsale.org

May 31st (Sunday)
DURHAM AND DISTRICT ARS RADIO RALLY: The show is at the Bowburn Community Association, Durham Road, Bowburn, Co. Durham DH6 5AT Doors open 10.10 am to 2.30 am with disabled visitors gaining access at 10 am. Admittance is £2. There will be traders, a Bring-and-Buy, as well as an RSGB bookstall and Special Interest Groups. Catering and a licensed bar are on site.
Michael Wright, G7TWX
07826 924 1192
dadars@gmx.com

June 6th (Saturday)
ROCHDALE & DISTRICT ARS SUMMER RALLY: The rally is at St Vincent de Paul's, Caldershaw Road, off Edenfield Road, Norden, Rochdale, OL12 7QR. Doors open to the public at 10.15 am, with disabled visitors gaining access 15 minutes earlier. Admission is £2.50, under 12s go free. Pitches are £5 if you have your own table or £10 with a table provided. Refreshments are available, including bacon and sausage butties.
Robert. M0NVQ
0777 811 3333
m0nvq@outlook.com

June 7th (Sunday)
SPALDING DARS ANNUAL RALLY: The rally will take place at the Holbeach Community Sports Academy, Pennyhill Lane, Holbeach PE12 7PR. Doors are open at 9.30 am, and admittance is £3. The venue offers easy access from the A17, large area for boot traders, and a modern hall for indoor traders. Please note this is the same venue as last year. There will be a Car Boot Sale, RSGB Book Stall, Special Interest Groups and trade stands. Catering is available on site and there will be a prize draw/raffle.
Graham Boor, G8NWC
07754 619 701
rallysecretary@sdars.org.uk

June 14th (Sunday)
ASRA SCOTTISH RADIO AND ELECTRONICS CONVENTION: The convention is at GTG Glasgow, 1330 South Street, Glasgow G14 0BJ. Doors open from 10 am to 4 pm. There will be traders, an RSGB bookstall and talks on the day. Catering is available on site. Bookings via the website:
www.asrarally.com

June 14th (Sunday)
EAST SUFFOLK WIRELESS RALLY (IPSWICH RADIO RALLY): The 2020 FDARS rally is at the Kirton Recreation Ground, Back Road, Kirton IP10 0PW (just off the A14). Doors open at 9.30 am, and the entry fee for visitors is £2. The venue has free car parking. Trade tables cost from £10. There will be trade stands, a car boot sale, a bring-and-buy, special-interest groups, GB4SWR HF station, and an RSGB bookstall. Catering is available on site.
Kevin G8MXV
07710 046 846
www.eswr.org.uk

June 14th (Sunday)
JUNCTION 28 RADIO RALLY: The event is at the Alfreton Leisure Centre Bowls Hall, Church Street, Alfreton DE55 7BD. Promoted by South Normanton Alfreton and District Amateur Radio Club. NB: This is not at club QTH. Doors are open 10.15 am (Traders 8 am). Tables are £12.00. Admission is £3.00. There will be around 100 tables, all indoors. Bar/ refreshments in hall and full café in the main sports centre. Dealers & private traders, RSGB stall, local and national clubs. New and used rigs, vintage, antennas, components, spares, books and magazines. Full disabled access, free parking and a meeting area. More information and booking form:
Alan, M0OLT
snadarcsec@gmail.com
www.snadarc.com

20 JUNE 2020
BANGOR & DISTRICT ARS RALLY: The rally is at the Ballygilbert Presbyterian Church Hall, Ballyrobert, Co Down BT19 1UM. The doors are open from 11 am to 3.30 pm. Entrance fee is £3. More from Norman Newell by email to:
normannewellgi3ymy@hotmail.com

June 21st (Sunday)
17TH WEST OF ENGLAND RADIO RALLY: The 17th West of England Rally will take place at the Cheese & Grain venue, Market Yard, Bridge Street, Frome, Somerset BA11 1BE. Doors open from 10 am to 2 pm. Adult admission £3, accompanied children under 14 are free. There will be inside and outside trade stalls and an RSGB bookstall. A café serving hot & cold food will be available.
Shaun. G8VPG
01225 873 098
rallymanager@westrally.org.uk
www.westrally.org.uk].

June 26th to 28th (Friday to Sunday)
HAMRADIO FRIEDRICHSHAFEN: Neue Messe 1, 88046 Friedrichshafen, Germany.
Open Fri/Sat 09:00 to 18:00; Sun 09:00 to 15:00. Day ticket €14.00, 3-day ticket €30.00/Kids free. Youth camp. Mobile home parking. Tent rental. Accommodation info. Flea market.
0049 7541 708-405
Fax 0049 7541 708-110
besucher@messe-fn.de
www.hamradio-friedrichshafen.com

June 27th (Saturday)
HOUGHTON RADIO CLUB FREE RALLY: The event takes place at the Dubmire Royal British Legion Club, Britannia Terrace, Fencehouses, DH4 6LJ. Doors open at 10.15 am (10 am for disabled) and close at 3 pm. The rally is open to trade, clubs and private sellers/exhibitors.
Table space is limited so it will be allocated on a first-come-first-served basis. There is no charge for tables, and it is also free entry. Donations to the British Legion Club would be welcome. Hot drinks will be available, and a licenced bar will be open from 11am. Anyone wishing to book tables please contact:
Amanda Weston M6LXK
Tel. 07787 155 745.
info@cannycomponents

July 4th (Saturday)
STOCKPORT RS RALLY: New Venue: Bridgehall Community Centre, Siddington Avenue, Stockport SK3 8LX. The new venue is ground floor only. Doors open 9.30 am (traders from 7 am).Admittance is £2.50 with under 16s free. There will be trade stands (tables cost £10 each), special interest groups and an RSGB Bookstall.Catering is available on site and locally. The venue is accessible by bus from Stockport town centre and mainline rail.
07506 904 422
info@g8srs.co.uk
www.g8rs.co.uk

July 5th (Sunday)
BARFORD NORFOLK RALLY: Barford Village Hall & Green, Barford, Norwich, NR9 4AB. Open 9 am (traders from 8 am). Entry £2/kids free. Trade. Car boot sales. Talk-In on S22. B&B. Raffle. Repeater groups. Catering. Free parking. Pitches £8.
radio@dcpmicro.com
http://www.norfolkamateurradio.org

July 5th (Sunday)
CORNISH RADIO AMATEUR CLUB RALLY: The meeting is at Penair School, St Clements, Truro TR1 1TN. Doors are open at 10.30 am. There will be trade stands, club/special interest groups, and a bring-and-buy stall. Catering is available on site.
Ken, G0FIC
01209 821 073.
http://gx4crc.com

July 12th (Sunday)
MCMICHAEL RADIO RALLY AND BOOT SALE: Reading Rugby Football Club, Sonning Lane, Sonning on Thames, Reading RG4 6ST. Talk-in station on 145.550MHz. Doors open 9.30 am (traders can set up from 7.30 am), admission £3 with under 16s free. Car boot sale pitches £10 (with two passes). There will be trade stands and exhibition displays. Catering is available on site as well as a bar.
https://mcmichaelrally.radarc.org

July 18th (Saturday)
READING DX MEETING: The Reading International Radio Group meets from 2.30 to 5 pm in Room 3 at Reading International Solidarity Centre (RISC), 35-39 London Street, Reading RG1 4PS. Meetings are an opportunity to get together for anyone interested in listening to broadcast stations from around the world on the short wave, medium wave and FM bands. All meetings include a well-researched talk and tea break.
barraclough.mike@gmail.com
www.bdxc.org.uk/diary.html

July 19th (Sunday)
FINNINGLEY AMATEUR RADIO SOCIETY RALLY: The FARS rally is at the Hurst Communications Centre, Belton Road, Sandtoft, Doncaster DN8 5SX. Doors are open at 9.30 am. Free off-road parking. Massive indoor and outdoor trader's area. Hot food and drinks all day. Major traders and club stalls, from microwave components to QRP kits. All on one level. Admission £3.
Kevin, G3AAF
07831 614 640
E-mail Kevin.Avery@tunstall.com
Martin, M0HOM
07966 479 195
martin.m0hom@gmail.com

July 26th (Sunday)
WILTSHIRE RADIO RALLY AND CAR BOOT SALE: (formerly: Chippenham & District Amateur Radio Club Rally, CADARC) The rally takes place at Kington Langley Village Hall & Fields, Church Road, Kington Langley, Chippenham, Wiltshire SN15 5NJ. Details to follow.
http://G3VRE.org.uk

August 2nd (Sunday)
31ST KING'S LYNN ARC GREAT EASTERN RADIO RALLY: The rally is at the Gaywood Community Centre, Gayton Road, King's Lynn, Norfolk PE30 4EL. The National Grid Reference is TF638203. Doors open at 9 am, traders have access from 7 am. Admission is £2.50 with free car parking. There will be trade stands and a bring-and-buy. There are amateur radio pitches outside, as well as tables in the hall. Onsite catering.
Ted, G4OZG
01553 768 701 / 07946 838 656
rally.klarc@gmail.com
www.klarc.org.uk

August 2nd (Sunday)
RED ROSE SUMMER RALLY: At St Joseph's Hall, Mather Lane, Leigh, WN7 2PR. Free car parking. Doors open 10.30 am (for traders at 8 am). Bring-and-buy, refreshments and bar.
www.wmrc.co.uk

August 3rd (Monday)
RUGBY AMATEUR TRANSMITTING SOCIETY ANNUAL RADIO RALLY: At Princethorpe College, Princethorpe, Rugby, Warwickshire. CV23 9PY. National Grid Reference is SP395710 Lat/Long: 52.336N 01.421W. Open 10 am to 4 pm (8.30 am for sellers). Car boot sale. Catering.
Steve, G8LYB 07956 855 816
rally@rugbyats.co.uk
www.rugbyats.co.uk

August 9th (Sunday)
FLIGHT REFUELLING ARS HAMFEST: The Hamfest is at the Cobham Sports and Social Club Ground, Merley, nr Wimborne, Dorset BH21 3DA. A talk-in station will be on S22. There is car parking on-site, and doors are open from 10 am to 4.30 pm. Admission is £4, which includes parking. There will be trade stands with indoor and field pitches and a car boot area. Lectures will take place during the day. No dogs are allowed, except guide dogs.
Tony, G3PFM 07743 475 018
tbaker@tiscali.co.uk
www.frars.co.uk

August 9th (Sunday)
YORK RADIO CLUB RALLY: The York Radio Club is relaunching their rally next year. Details are as follows: The York Radio Rally is organised by the York Radio Club. Location: Riley Smith Hall, 28 Westgate, Tadcaster, North Yorkshire. LS24 9AB. Doors open to the public at 10:15 am. Free public car parking nearby.
Ian, G4CTZ 07803 936 031
Alan, G1VIZ 07513 752919

August 14h (Friday)
27TH COCKENZIE & PORT SETON MINI RALLY: At the Community Centre, Main Hall, Port Seton. Bring along your surplus second-hand equipment and sell it yourself. Tables will be allocated on a first-come-first-served basis. Entry fee £2. Doors open from 6 to 9 pm.
www.cpsarc.com

In next month's RadioUser

- Spies, Number Stations and Radio (Part I).
- Standard Frequency and Time Signal Stations (Part II).
- A New-Look International Radio Scene.
- William Joyce: The Voice of 'Lord Haw-Haw'.

Plus all your favourite regular features and columns
The June issue is on sale on the 28th May 2020

Martin Lynch & Sons Ltd.
ML&S
www.HamRadio.co.uk
SAFE ONLINE SHOPPING. E&OE
0345 2300 599
Wessex House, Drake Avenue, Staines, Middlesex TW18 2AP
E-mail: sales@hamradio.co.uk
Opening Hours: Mon - Fri: 8.30am to 5pm. Sat: 9am to 4.30pm.
International Tel: +44 1932 567 333

ML&S IS STILL OPEN FOR BUSINESS
Our showroom, workshop & Training Academy are temporarily closed until restrictions are lifted but we can still deliver to your home. Call 0345 2300 599 or order from our website for rapid delivery.

ICOM IC-R8600

100kHz-3GHz Receiver with SDR Technology from IC-7300.

The IC-R8600 replaces the IC-R8500 wideband receiver and features technology incorporated into Icom's best selling IC-7300. The IC-R8600 receives a wide frequency range from 0.01-3000MHz frequency in analogue and various digital modes (D-STAR, P25, NXDN and dPMR). The IC-R8600 also features a larger 4.3 inch touch screen display which displays a fast moving spectrum scope and waterfall display.

ML&S: £2499.95 Includes an Icom AD-55 PSU worth £49.95!

NOW AVAILABLE FROM STOCK

AR-7400 RECEIVER

Capable of four-wave simultaneous reception.

AR-5700D
ADVANCED DIGITAL COMMUNICATIONS RECEIVER

Frequency range 9kHz-3.7GHz
Tuning steps 1Hz-999.999kHz.

£4595.95

KEEP CHECKING WEBSITE FOR FURTHER DETAILS

SDRplay RSPdx £194.95

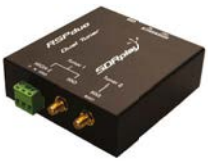
NEW

New Mid-range SDRplay Radio. *Complete redesign of the popular mid-range RSP2pro 1kHz–2GHz receiver. Multiple antenna selection, Improved pre-selection filters, Even more software, Selectable attenuation steps, Special HDR (High Dynamic Range) mode for reception at frequencies below 2MHz.* ***Designed and made in Britain.***

SDRplay RSP1a £94.95

Brand new design, the RSP1a is a major upgrade to the popular RSP1 offering a powerful wideband full featured SDR covering 1kHz to 2GHz & up to 10MHz visible bandwidth. Better still, it's "Built & Designed in Britain"!!

RSPduo DUAL TUNER 14-BIT SDR £239.95



Dual-Tuner wideband full feature 14-bit SDR, 1kHz to 2GHz, 10MHz of spectrum visibility. Simultaneously monitor 2 separate 2MHz bands of spectrum between 1kHz and 2GHz. 3 software selectable antenna inputs, & clocking features ideally suited to industrial, scientific, Ham & educational applications. Windows 10.

ELAD FDM-DUOr

A Receive-only Version of the famous FDM-DUO!

10kHz-54MHz Direct Conversion SDR Receiver.

ML&S: £729.95

ANTENNAS AND ACCESSORIES

BONITO RANGE AT ML&S

www.HamRadio.co.uk/bonito

The Antenna Jet AAS300

A USB powered antenna splitter designed to work between 9kHz and 300MHz. Now you can use your one antenna with up to 3 receivers simultaneously. Finally, you can listen to marine band traffic, The Archers on Radio 4 and the air band at the same time (provided your antenna will cover it all!) **Only £234.95**

Antenna Jet ASM-300 Only £189.95

A USB controlled antenna switch and mixer. It can be used as a simple switch, or can be used to switch in more than one antenna, to aid receiving to an optimum performance.

Boni-Whip *The active antenna that is raved about. Covering 20kHz to 300MHz and ideal for times when you can't erect a wire antenna. For home, for travelling and for DX camps. And despite the whip being only 4 inches long, it actually works!*
Only £109.95

GigActiv GA3005
A portable active antenna capable of covering 9kHz to 3GHz. Perfect if you are say on holiday and want to have a listen to the bands. You'll need to provide it with 5V via a USB cable (included) and some coax but it is just ready to go.
Only £386.95

WHISTLER TRX-1 DIGITAL SCANNER

The Whistler TRX-1 Handheld Scanner is a multi-system adaptive digital trunking scanner with Motorola P25 Phase I, X2-TDMA, Phase II and DMR making it capable of monitoring unencrypted channels/systems.

WHISTLER

£419.95

AR-DV10

The ULTIMATE all mode all band scanner.

100kHz-1300MHz Analogue & Digital Modes.

ML&S: £939.95

ICOM IC-R30 SCANNER

The Icom IC-R30 has extremely wide coverage and supports all of the usual analogue modes (FM, AM, SSB, CW) as well a a few digital modes including NXDN, P25, DPMR and DSTAR. A worthy upgrade over the older IC-R20.

ML&S: £569.95

AOR AR-DV1
Communications Receiver

ML&S: £1199.95

Covers 100kHz to 1300MHz in traditional analogue modes (SSB, CW, AM, FM, S-FM, W-FM) as well as various digital modes. In fact, we know of no other radio in this category that can decode Icom's D-STAR mode, Yaesu's new C4FM mode, Alinco's digital mode, NXDN (note: 6.25kHz only), P25 Phase 1, etc. Plus lots of interesting features! www.HamRadio.co.uk/ardv1

DIGITAL AND ANALOGUE RECEIVERS

The Uniden UBCD3600XLT

New digital TruckTracker V Professional Scanner Receiver, covers 25-1300MHz wideband frequencies.

The TruckTracker V operation allows this scanner to scan APCO 25 Phase 1 and Phase 2, DMR, Motorola, EDACS, LTR Trucked Systems as well as conventional analog and P25 digital channels.

ML&S: £424.99

Icom IC-R6E

The 100 Ch/Sec Wideband Signal "Search Machine"

Communications handheld receiver. While retaining basic features of its popular predecessor the IC-R5, the IC-R6 contains many improvements including 100 channel per second scanning speed, 1,300 memory channels, 15 hours of continuous receive capability, optional drop-in charger stand and voice control squelch.

ML&S: £199.95

FUNCUBE DONGLE PRO+

Wideband SDR Receiver.
150kHz-1.9GHz incl SAW Filters.

www.HamRadio.co.uk/funcube **ML&S: £149.95**

EXPERT ELECTRONICS COLIBRI DDC

Small-size receiver covering the HF frequency band 0.09MHz to 55MHz, and also (with the help of external filters) to receive frequencies up to 800MHz whilst working together with a PC.

ONLY £339.95

EXPERT ELECTRONICS COLIBRI NANO

14-bit ADC, up to 3 MHz sample rate. A 0.5ppm local oscillator. The ColibriNANO is compatible with every popular HAM software such as HDSDR, SDRSharp and ExpertSDR2.

ONLY £249.95

You can order from ML&S for delivery on a Saturday or Sunday! Order before 2.00pm as late as Friday.

EXPRESS DELIVERY NOW AVAILABLE VIA OUR WEBSITE

FAST DELIVERY

Web purchases: Just select Saturday or Sunday at the check-out or call to place your order for Saturday or Sunday delivery on **0345 2300 599**

ML&S can deliver your new purchase to your local "Access Point" whether it is a small corner store, petrol station or other location suitable for you. If you are at work all day and want to collect at a time suitable for you, just check "UPS Access Point" on check-out on our website.

ups DPD