FIVE AND NINE PLUS

THE OFFICIAL NEWSLETTER OF THE APPLEDORE AND DISTRICT AMATEUR RADIO CLUB

Club Callsigns: G2FKO and GX2KKO
Website: www.adarc.co.uk

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EDITORIAL

This month's meeting is a social evening with a "Bring and Buy." It's time for a clear-out of the shack to make room for those shiny new rigs that will appear courtesy of Father Christmas.

The October meeting was a great success, with Tim Kirby, GW4VXE, as our online speaker. We did encounter a few problems initially in getting the online meeting and streaming technology to work together. In advance, I reviewed suitable streaming platforms. The majority of free software options have a 40- to 50-minute time limit, which is of limited use for online meetings. During Covid, when there were restrictions on in-person meetings, we subscribed to Zoom. If we are to continue with online meetings, the committee has considered renewing our Zoom subscription or alternatives. This will come at a cost of £155 per annum (approximately 10 membership fees per year). Our next online meeting is planned for January. If members hold any particular views, please let John or me know at the next meeting.

At this evening's committee meeting, we discussed the format for December's Christmas meeting. We didn't really think there was much of a take-up with the nibbles and bites at last year's Christmas party. For this December's meeting, we propose to have an informal party. The club will provide mince pies and a free raffle, combined with some music, tea, and coffee. There will be no need for members to bring their own food.

For this month's technical input, I have prepared an article on FreeDV HF digital voice mode. I hope it will inspire some members to give it a try; the results are quite stunning.

73 Mike (G4KXQ)

DATES FOR THE DIARY

The last remaining rally for 2025 is coming up:
Mid Devon Amateur Radio & Electronics Fair 2025 - Winkleigh on Dec 7th 2025

Meeting Report 20 October – Online Presentation: Simple Satellite Operating – Tim Kirby GW4VXE

This was a very entertaining evening with Tim starting with his history of operating satellites from the 1980's up to modern times using both FM satellites along with SSB/CW linear transponders with arrow portable aerials using manual satellite tracking.

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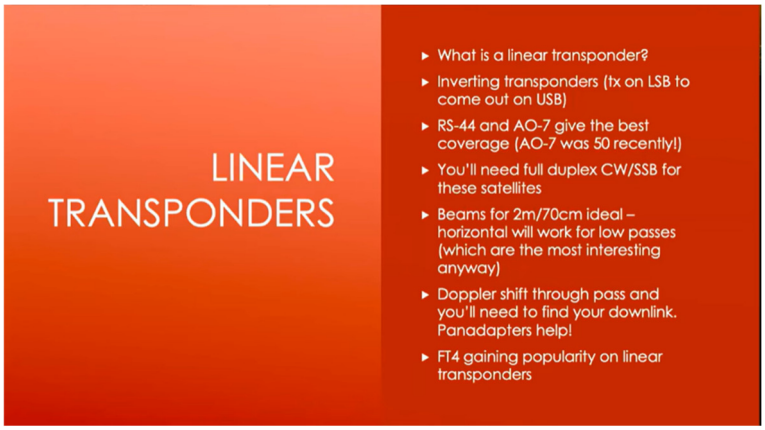
He then moved onto some of the feature rigs that are available to own from simple dual band handy talkies to dual band/dual radio mobiles like the FT-8800 and the FT-8900 right up to shack rigs such as the venerable 'Shack in as Box' FT-847 or the more modern IC-9700 both with full duplex facilities. A short description of the effects of doppler on both VHF and UHF transmissions from the satellites and the trick for channelised rigs of setting up 5 channels per satellite each with a different receive offset (+10, +5, 0,-5 and -10 Khz) for each channel.

The first satellite discussed was SO-50(Saudisat) describing its operational frequencies (uplink and downlink) along with the need for a CTCSS tone.

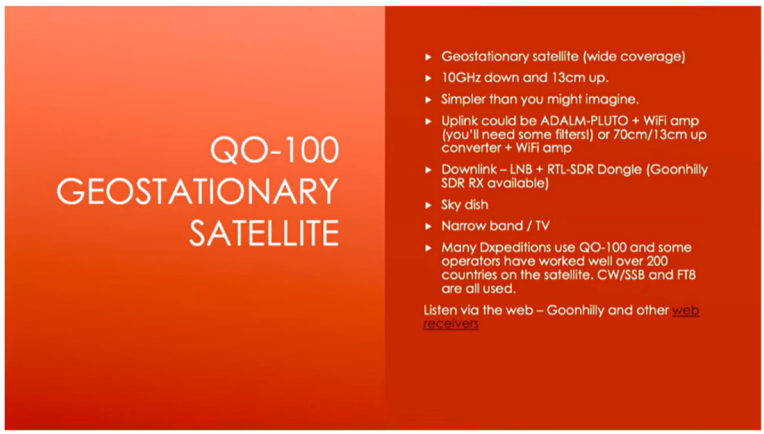
Tim then went on to present the various software packages available that can supply orbit predictions for the satellites . Some of the packages will automatically steer your antenna in azimuth and elevation with the necessary controller and hardware.

A brief presentation on Amateur operation from the ISS and the various transmissions that can be heard or even worked through such as the digipeater, SSTV operation or even the voice repeater.

Tim continued and spoke about Linear Transponders explaining the need for more accurate doppler tracking and full duplex rigs or even two rigs .



Tim concluded by briefly discussing the QO-100 Geostationary satellite with its requirement for more complex transmit and receive setup with 10Ghz down and 13cm up requiring the use of transverter or up-converters but without the need for real time antenna tracking.



CLUB PROGRAM

Nov 17th 2025	Bring & Buy	
Dec 7th 2025	Mid Devon Amateur Radio & Electronics Fair 2025 - Winkleigh	
Dec 15th 2025	Christmas Party	
Jan 19th 2026	External Speaker - Basic Fault Finding	Martin Butler M1MRB
Feb 16th 2026	Antenna Build - Practical	Mike G4KXQ, Mark G6BNB
March 16th 2026	Annual General Meeting	

LOCAL NETS

2m Elevenses FM Net: Mon/Wed/Fri :
11 - 12.00 noon via GB3DN Net Control ; Mike (G3PGA)

Friday Night 2m Net: Friday : 145.450 FM, 8 -9pm

Sunday Top Band Net: Sunday 1.860 MHz
9.30 - 10.15am
(LSB - 32W pep max)

2m SSB Nets: Wed: 8 - 9pm 144.260MHz USB SSB (Vertical polarised)
Sun: approx 10.30am (follows Top Band Net) 144.260MHz USB SSB (Vertical polarised)

Sunday FM Net: Sunday: 11 to noon via GB3DN
Net Control : Chris (G0FJY)

Note :- FM Nets which use GB3DN as shown above will continue despite the recent changes. GB3DN is disconnected from the Wires-X/ Southern Fusion Room just before the listed start and end of each FM Net

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CONTEST CALENDAR

Lots of contests this month as we move into the winter . The highlight is CQ Worldwide DX CW Contest. An alternative to the SSB version that occurred at the end of October.

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Contest Name	Start Time (GMT)	End Time (GMT)	Date (UK)
--- November Contests ---			
Ham Spirit Contest	07:00	06:59	Nov 15 - 16
All Austrian 160-Meter Contest	16:00	23:59	Nov 15
REF 160-Meter Contest	17:00	24:00	Nov 15
South American Integration Contest CW	18:00	21:00	Nov 15 - 16
Feld Hell Sprint	19:00	20:59	Nov 15
RSGB 1.8 MHz Contest	20:00	23:00	Nov 15
ARRL Sweepstakes Contest, SSB	21:00	03:00	Nov 15 - 17
FISTS Sunday Sprint	00:00	23:59	Nov 16
Homebrew and Oldtime Equipment Party (40m)	13:00	15:00	Nov 16
Homebrew and Oldtime Equipment Party (80m)	15:00	17:00	Nov 16
Run for the Bacon QRP Contest	23:00	01:00	Nov 16 - 17
NAQCC CW Sprint	01:30	03:30	Nov 20
LZ DX Contest	12:00	12:00	Nov 22 - 23
CQ Worldwide DX Contest, CW	00:00	24:00	Nov 29 - 30
--- December Contests ---			
ARRL 160-Meter Contest	22:00	16:00	Dec 5 - 7
Kalbar Contest	00:00	23:59	Dec 6 - 7
PRO CW Contest	12:00	11:59	Dec 6 - 7
INORC Contest	14:00	13:59	Dec 6 - 7
FT Challenge	18:00	23:59	Dec 6 - 7

Data Thanks to WA7BNM Contest Calendar

DX NEWS

DXCC Entity	Callsign	Start – End Date	Key Info
Burundi	9U1RU	31 Oct – 20 Nov 2025	160-6m, CW, SSB, FT8.
Br Virgin Is	VP2V/K6TOP	01 – 07 Nov 2025	40-10m, mainly CW.
Falkland Is	VP8THW	01 -22 Nov 2025	20, 17, 15, 12, 10m, SSB, FT8.
Central African Rep	TL8GD	01 – 30 Nov 2025	HF, SSB, CW.
Chatham I	ZL7/LZ1GC	03 - 20 Nov 2025	160-6m, CW, SSB, FT8, FT4. From IOTA OC-038
Lesotho	7P8EA	03 -27 Nov 2025	15m (SSB/CW), perhaps 17, 12, 10m.
Togo	5V7RU	05 – 19 Nov 2025	HF (focus 160/80m), CW, SSB, FT8.
Uganda	5X7W	14 Nov -08 Dec 2025	80-10m, CW, FT8, FT4. QRV for CQWW DX CW.
Tuvalu	T2JK	15 -21 Nov 2025	80-6m, FT8.
St Kitts & Nevis	V47JA	17 -23 Nov 2025	160-6m, SSB, FT8.
San Andres I	5J0EA	20 -30 Nov 2025	160-10m, CW, SSB + digital. From IOTA NA-003.
Bonaire	PJ4KV	20 Nov – 03 Dec 2025	HF, CW.
Namibia	V51WH	20 Nov – 31 Dec Nov 2025	160-6m (incl 60m). QRV for CQWW DX RTTY (using V55Y).
Chatham I	ZL7/LZ1GC	23 Nov – 05 Dec 2025	Second ZL7 operation by LZ1GC. 160-6m, CW, SSB, FT8, FT4.
Bermuda	VP9/WE9G	24 Nov – 04 Dec 2025	160-6m, FT8, CW, SSB.
Cambodia	XU7RRC	25 Nov -03 Dec 2025	80-10m, CW, SSB, FT8. From Ta Kiev I (AS-133)
Bhutan	A52AA	25 Nov -05 Dec 2025	40-10m (perhaps 160/80m), SSB. Dates tentative.
St Martin	TO9W	30 Nov – 12 Dec 2025	160-10m, CW, SSB, FT8, FT4.
Maldives	8Q7HT	01 - 10 Dec 2025	40-6m, mainly FT8. Holiday style.
Guatemala	TG9/AF4CZ	07 Dec - 05 Jan 2026	40-10m, FT8, FT4, perhaps SSB. Spare time.
Palau	T88AC	10 – 17 Dec 2025	HF. QRV for ARRL 10m Contest.

LOCAL REPEATERS/GATEWAYS

A couple of new repeaters to be added to the list this month. Thanks to Phil G6DLJ

GB7MX – VHF FM Tiverton *(QRP, Solar powered)*
TX 145.075, RX 145.575, TX 430.8625 RX 438.4625, Tone 77Hz – *Keeper Steve M0ZZT*

GB7MZ UHF DMR Repeater - Tiverton, *(daylight hours solar powered)*
TX 439.5625 MHz RX 430.5625
Colour code 1, Slot 1 Talkgroup 9 local and direct dial, Slot 2 South West Cluster.
Keepers Phil G6DLJ and Cliff G4PZK

Frequencies are those transmitted and received by the Repeater

GB3ND UHF DMR Repeater - Holsworthy Beacon TX 439.7375 RX 430.7375 Colour code 1
Slot 1 local RF, Slot 2 SW Cluster Keeper G1BHM

GB3DN VHF FM/C4FM Repeater - Stibb Cross
Tone 77Hz (for analogue FM) TX 145.6375 RX 145.0375, Default Digital Connection : Wires-X Southern Fusion http://www.g0rql.co.uk/gb3dn.htm. Keeper Tony G1BHM

GB7FB UHF DMR Repeater - Bideford TX 439.475 RX 430.4750 Colour code 5 Slot 1 Local RF/DoD Slot 2 SW Cluster . Keeper Drew M0MFS

GB3LZ VHF FM/C4FM Repeater - Winkleigh
Tone 77Hz (for analogue FM) TX 145.6625 RX 145.0625, Digital Connection :
Wires-X SOUTHERN ENGLAND. Keeper Simon G4MQQ

GB7LZ UHF DMR Repeater - Winkleigh
TX 430.9125 RX 438.5125 Colour code 1, Slot 1 Talkgroup 9 local and direct dial, Slot 2 South West Cluster.
Keeper G4MQQ

MB6DT VHF Fusion Gateway - Barnstaple
Frequency 144.8125 MHz. Gateway. Keeper Darren (2E0LVC)

GB7TG - UHF DMR Repeater - Wembworthy
TX 430.9750 RX 438.5750 Colour Code 7, Default Connection : Slot 1 Local/DoD Slot 2 SW Cluster Keeper G7SOJ

GB3NX VHF FM Allstar Holsworthy Beacon TX 145.7375 RX 144.1375. CTCSS tone 77hz Connection SW AllStar network (SWAN). Wires-X default room: Southern-Fusion, Keeper G1BHM

GB3BU - UHF DMR Repeater - Bude
TX 430.9625 RX 438.5625 Colour Code 1
Default Connection: Slot 1 Local/DoD Slot 2 SW Cluster Keeper G1BHM

GB3JH – UHF Analogue Repeater – Tiverton
TX 430.8625 RX 438.4625, Tone 77Hz – Keeper G6ASK

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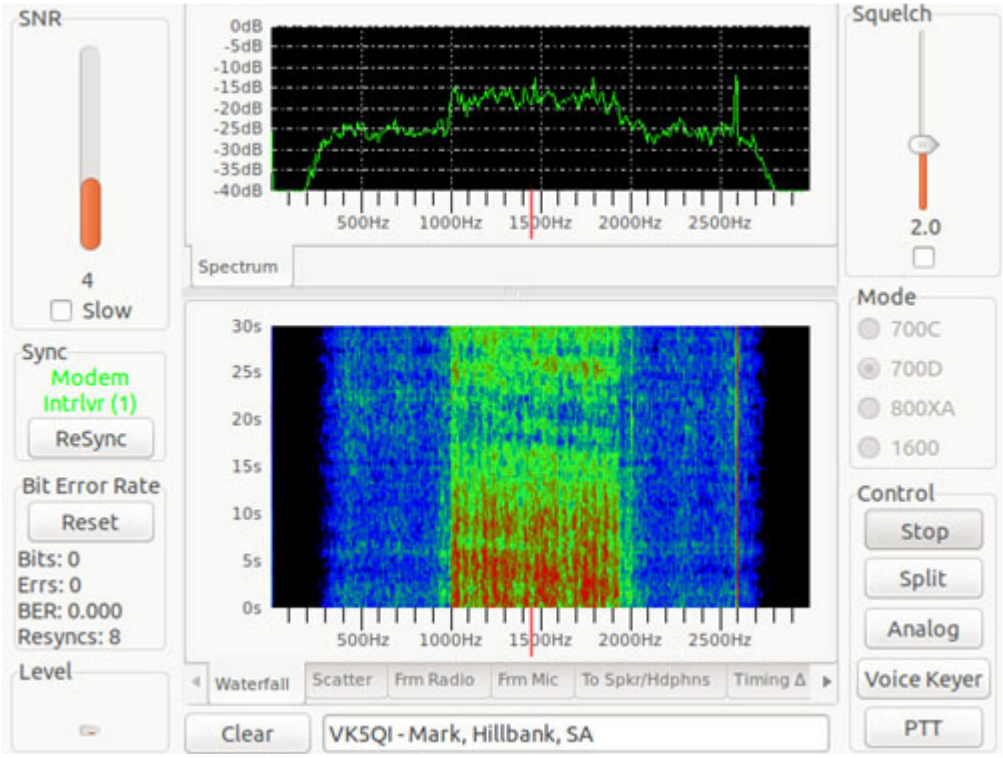
FreeDV & RADE: The Open-Source Future of HF Digital Voice



I think we are all aware of Digital Voice Modes that exist on VHF/UHF such as DMR, YSF and DSTAR, now the HF world has its own, completely open-source, and rapidly evolving solution:

FreeDV is not just another digital voice mode; it's a suite of modes built by hams for hams, around the open-source Codec 2 voice coder. It allows for clear, robust voice communication over Single Sideband (SSB) transceivers using the standard audio connections—if you operate FT4/8, RTTY or even PSK31 on HF then you already have the setup to operate FreeDV.

The Core Advantage: Efficiency and Clarity

Traditional analog SSB on HF is susceptible to band noise, fading, and interference (QRM). FreeDV transforms the voice signal into a low-bit-rate digital stream (typically using approx 1.5 kHz bandwidth). This means using less spectrum and the ability to punch through noisy channels where SSB would be unintelligible. The digital nature means that if the signal is above the decoding threshold, the audio is delivered with surprising clarity, free of the hiss and crackle of a marginal SSB contact.

Introducing RADE: Machine Learning Revolutionizes HF

The latest development in the FreeDV project is the introduction of a new mode called **RADE** (Radio Autoencoder) mode and is the newest flagship mode of FreeDV. RADE, which is integrated into the latest FreeDV software (Version 2.0 and above), it represents a leap forward by incorporating **Machine Learning (ML)** and neural networks into the heart of the digital voice process.

What makes RADE a game-changer?

- **Weak-Signal Performance:** RADE is specifically designed to perform under the toughest HF conditions. Testing shows RADE can achieve intelligible voice transmission at Signal-to-Noise Ratios (SNR) as low as **-2 dB**, significantly outperforming traditional analog SSB and even earlier FreeDV modes.

- **Superior Audio Quality:** Unlike some legacy digital voice modes, RADE leverages its autoencoder architecture to deliver impressively natural-sounding speech quality, approaching 8 kHz audio bandwidth, all while occupying a narrow 1.5 kHz RF channel.
- **Integrated Design:** The ML-based autoencoder effectively integrates the voice compression, modulation, and error correction into a single, highly optimized system, resulting in a more robust and cleaner signal.
- **Open Source:** True to the FreeDV ethos, RADE remains 100% open source, giving radio amateurs the freedom to experiment and innovate without proprietary restrictions.

Feature	Analog SSB	FreeDV RADE V1
Bandwidth	2.4 - 3.0 kHz	x 1.5 kHz
Intelligibility SNR	approx +4 to +10 dB	Down to -2 dB
Audio Quality	Excellent, but degraded by noise/fading	Clear, digital, high fidelity (8 kHz)
Technology	Standard RF/Audio	Open-Source ML/DSP

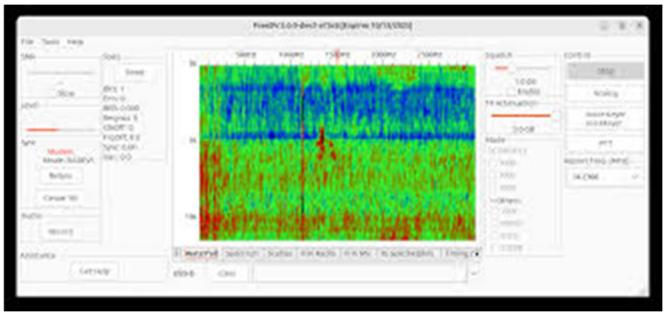
Getting on the Air

The FreeDV software is available for Windows, macOS, and Linux, and is continually updated by the international team of volunteer developers.

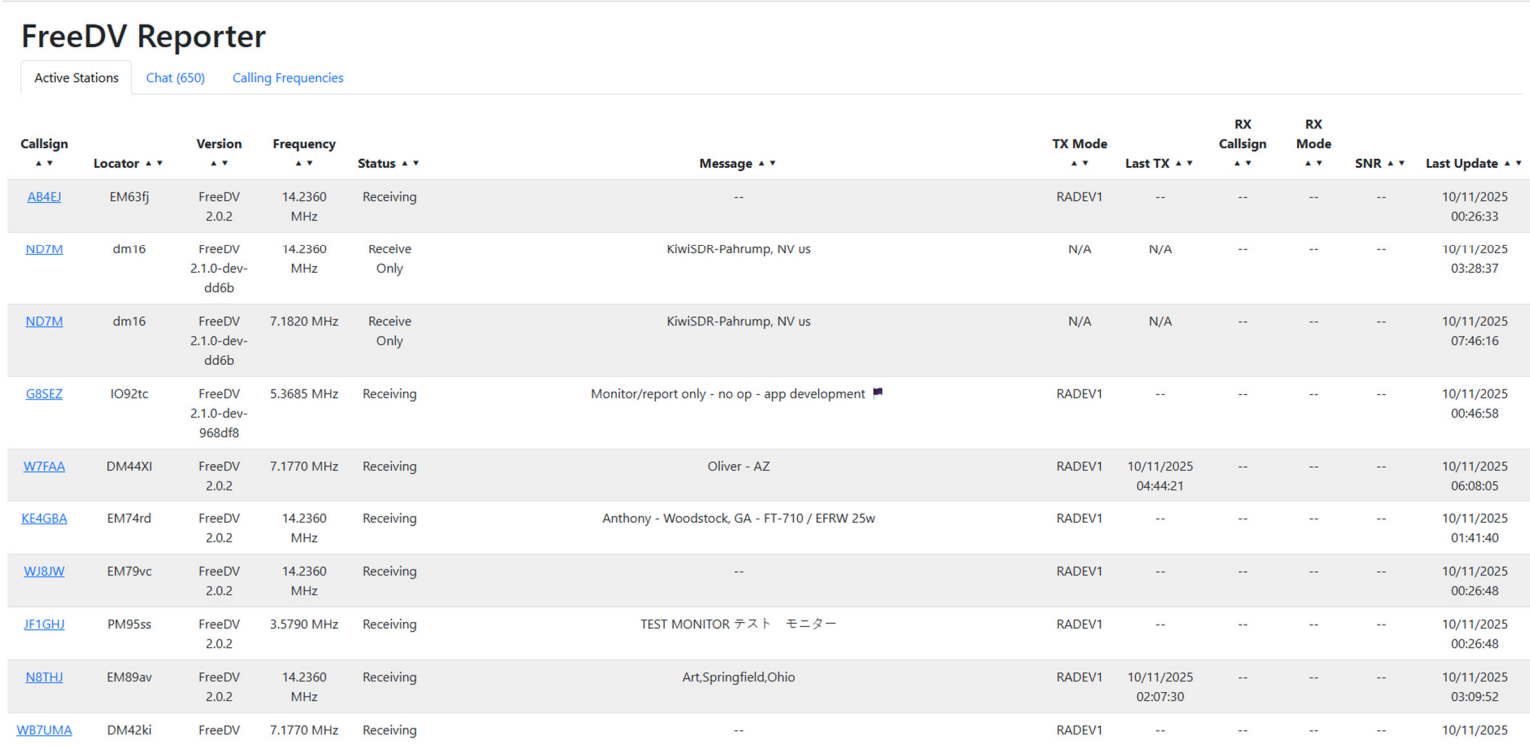
Getting stated on FreeDV RADE is easy

Download: Get the latest FreeDV GUI application (Version 2.0+) from the official FreeDV website. **https://freedv.org/**

- **Connect:** Use a sound card interface to connect your computer's audio in/out to your radio's accessory/digital port. A USB headset can serve as the second sound interface for the microphone and speaker.
- **Computer Interface:** The software interface will have familiarities with other modes that use soundcards for reception and decoding with an audio bandscope, waterfall display and mode selection. During QSO's it's very easy to flip between FreeDV and Analogue SSB mode with one button to compare the modes. The use of the FreeDV Reporter website ensures, similar to PSK Reporter, you can always find where the action is.



- **Find Activity:** Check out the **FreeDV Reporter** website to see who is currently active and on what frequency. Popular activity days and nets are also organized worldwide. **https:/qso.freedv.org/**



FreeDV Reporter

Active Stations | Chat (650) | Calling Frequencies

Callsign	Locator	Version	Frequency	Status	Message	TX Mode	Last TX	RX Callsign	RX Mode	SNR	Last Update
AB4EJ	EM63fj	FreeDV 2.0.2	14.2360 MHz	Receiving	--	RADEV1	--	--	--	--	10/11/2025 00:26:33
ND7M	dm16	FreeDV 2.1.0-dev-dd6b	14.2360 MHz	Receive Only	KiwiSDR-Pahrump, NV us	N/A	N/A	--	--	--	10/11/2025 03:28:37
ND7M	dm16	FreeDV 2.1.0-dev-dd6b	7.1820 MHz	Receive Only	KiwiSDR-Pahrump, NV us	N/A	N/A	--	--	--	10/11/2025 07:46:16
G8SEZ	IO92tc	FreeDV 2.1.0-dev-968df8	5.3685 MHz	Receiving	Monitor/report only - no op - app development	RADEV1	--	--	--	--	10/11/2025 00:46:58
W7FAA	DM44XI	FreeDV 2.0.2	7.1770 MHz	Receiving	Oliver - AZ	RADEV1	10/11/2025 04:44:21	--	--	--	10/11/2025 06:08:05
KE4GBA	EM74rd	FreeDV 2.0.2	14.2360 MHz	Receiving	Anthony - Woodstock, GA - FT-710 / EFRW 25w	RADEV1	--	--	--	--	10/11/2025 01:41:40
WJ8JW	EM79vc	FreeDV 2.0.2	14.2360 MHz	Receiving	--	RADEV1	--	--	--	--	10/11/2025 00:26:48
JF1GHJ	PM95ss	FreeDV 2.0.2	3.5790 MHz	Receiving	TEST MONITOR テスト　モニター	RADEV1	--	--	--	--	10/11/2025 00:26:48
N8THJ	EM89av	FreeDV 2.0.2	14.2360 MHz	Receiving	Art,Springfield,Ohio	RADEV1	10/11/2025 02:07:30	--	--	--	10/11/2025 03:09:52
WB7UMA	DM42ki	FreeDV	7.1770 MHz	Receiving	--	RADEV1	--	--	--	--	10/11/2025

This live map/list shows callsigns, the frequency they were last heard on, and the mode they are using (look for modes like **RADEV1 or 700D**). This is the best way to see who is currently on the air.

Activity Days:

- The FreeDV community promotes a dedicated Activity Day on the third weekend of every month to boost on-air presence and encourage new users.

Sideband Conventions:

- Below 10 MHz (80m, 40m, 60m): Use LSB (Lower Sideband) or the radio's "DIGL" mode.
- Above 10 MHz (20m, 17m, 15m, 10m): Use USB (Upper Sideband) or the radio's "DIGU" mode.

Based on general activity and established practice, here are the most commonly used FreeDV "**center of activity**" frequencies (dial frequencies in USB/DIGU unless noted):

Band	**Primary FreeDV Frequency (Dial)**	**Notes**
80 meters	3.625 MHz (LSB)	Popular for regional and evening contacts.
40 meters	7.177 MHz (LSB)	High activity, especially during daytime/evening.
20 meters	14.236 MHz (USB)	**The most common worldwide calling frequency.**
17 meters	18.118 MHz (USB)	Good for DX when the band is open.
15 meters	21.313 MHz (USB)	Common for DX and contests.
10 meters	28.330 MHz (USB)	Very popular when the 10m band is open.

What Next for FreeDV RADE?

- The FreeDV RADE software is continuously under development. The following are in the pipeline:

- The RADE algorithm will likely be optimized and ported to a pure C library, reducing system requirements and enabling deployment on lower-power hardware. freedv.org
- Wider adoption in rigs: Currently FreeDV uses a PC and sound interface; future integration into transceivers or SDRs would be a big step. You can already load it natively into the modern FLEX SDR Transceivers.
- Real-world propagation tests: How RADE handles real HF channel dynamics (fading, QSB, multipath) over time and compared to SSB and legacy digital modes.
- Regulatory/operational practice: Since RADE uses narrow bandwidth and has strong performance, coordinate with local amateurs to ensure interoperability and appropriate use of frequencies.

For any amateur interested in digital voice on HF, FreeDV and RADE represent a compelling blend of open-innovation, modern signal processing, and practical HF communication benefit. While analog SSB remains ubiquitous, RADE offers a glimpse of what the future might hold: clearer voice under tougher conditions, more efficient bandwidth use, all within the spirit of experimentation that defines our hobby

I encourage all members to give it a try, it really does work. Perhaps similar to Mike G3PGA SSTV activity slots on the repeater we might want to try to use FreeDV in a similar manner. Most VHF/UHF rigs have a Packet Modem interface that could be used to get audio in and out for FreeDV or even a Packet Sound Modem.