FIELD TRIAL · 7.074 MHZ FT8

FT8 Decoder Shootout

Station **IU8LMC**
4 September 2026, 01:16–02:23 UTC
Decodium 1.0.611 vs JTDX 2.2.159 vs WSJT-X 3.2.0 vs MSHV 2.76.5

DECODIUM VS JTDX	DECODIUM VS WSJT-X	CYCLES LOGGED
+27–53%	**+31–66%**	**133** / 4 rounds
range across 4 rounds, not a settled figure	range across 4 rounds, not a settled figure	22 + 27 + 41 + 43, all four apps in parallel

Method

Four decoders ran simultaneously against the same antenna and audio feed, tuned to 7.074 MHz FT8. For every 15-second cycle, the decoded message text logged by each application was extracted from its own `ALL.TXT`, de-duplicated, and compared as a set — not by raw line count, since Decodium's log writes each decode twice (a known logging quirk, collapsed here). A message counts as unique per app per cycle regardless of which station repeats it.

Four rounds were run over roughly 70 minutes: a baseline round with each application's stock settings, then three rounds after raising JTDX, WSJT-X, and MSHV to the deepest search settings this trial could find in each one's configuration file — the last of those three taken 40 minutes after the first, specifically to see whether the margin would settle with time. No setting on Decodium was touched at any point.

Four rounds

Decodes per 15-second cycle, normalised because the four windows ran different lengths.

Round 1 Baseline settings

01:16–01:21 UTC · 22 cycles

APPLICATION	TOTAL DECODES	PER CYCLE	VS DECODIUM
Decodium	**896**	**40.7**	**—**
JTDX	616	28.0	**+45.5%**
WSJT-X	541	24.6	**+65.6%**
MSHV	46	2.1	**+1839%**

Round 2 Deep-search settings raised

01:41–01:47 UTC · 27 cycles

APPLICATION	TOTAL DECODES	PER CYCLE	VS DECODIUM
Decodium	**850**	**31.5**	**—**
JTDX	668	24.7	**+27.2%**
WSJT-X	650	24.1	**+30.8%**
MSHV	78	2.9	**+989%**

Round 3 Same settings, longer window

01:51–02:01 UTC · 41 cycles

APPLICATION	TOTAL DECODES	PER CYCLE	VS DECODIUM
Decodium	**1526**	**37.2**	**—**
JTDX	1042	25.4	**+46.4%**
WSJT-X	965	23.5	**+58.1%**
MSHV	139	3.4	**+998%**

Round 4 **Same settings, 40 minutes later** 02:13–02:23 UTC · 43 cycles

APPLICATION	TOTAL DECODES	PER CYCLE	VS DECODIUM
Decodium	**1872**	**43.5**	**—**
JTDX	1224	28.5	**+52.9%**
WSJT-X	1167	27.1	**+60.4%**
MSHV	184	4.3	**+917%**

Later check — 18.100 MHz, midday

A different band and a different time of day, run hours after the four rounds above — included specifically to answer whether MSHV has caught up, not to extend the controlled overnight trial. Not comparable in absolute terms to Rounds 1–4.

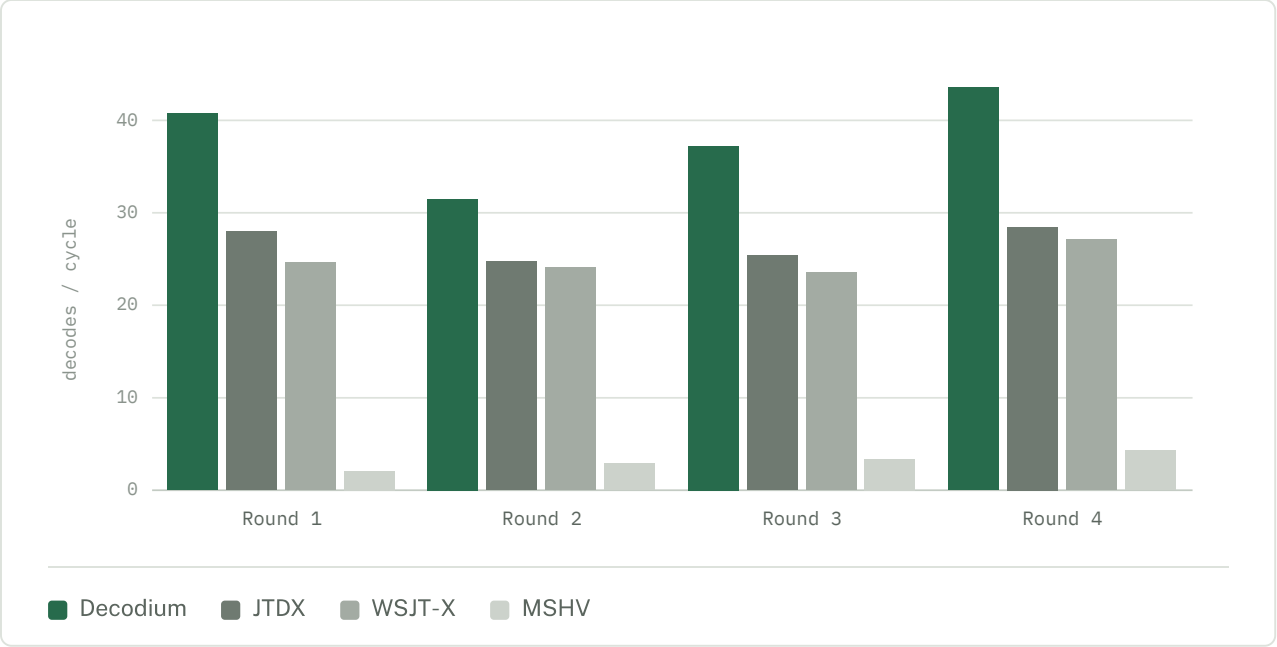
Later **All four on 18.100 MHz, JTDX back after a restart** 12:41–12:45 UTC · 18 cycles

APPLICATION	TOTAL DECODES	PER CYCLE	VS DECODIUM
Decodium	**955**	**53.1**	**—**
MSHV	605	33.6	**+57.9%**
WSJT-X	588	32.7	**+62.4%**
JTDX	559	31.1	**+70.8%**

Decodium's lead held over all three, same as every round tonight. The real change is further down the table: **MSHV is no longer the outlier**. It edged out both WSJT-X (+2.9%) and the just-restarted JTDX (+8.2%), sanity-checked by message overlap with Decodium (36 of 43 MSHV messages in a sample cycle matched exactly). Three apps now sit within 9% of each other; only Decodium stands apart, by more than 55% over all three.

An earlier attempt at this same check (12:23–12:33 UTC) had to be discarded: JTDX's own log had gone silent at 10:42 UTC and stayed at zero for almost two hours despite the process staying alive — a stall, not a reception result. It was restarted before the run above.

Decodes per cycle, by round



Settings raised between Round 1 and Round 2

Every other application's own configuration file, edited with each app closed and reopened to confirm the change survived. Decodium was left untouched throughout.

JTDX

`Aggressive`	`1` → **`5`**
`FT8Sensitivity`	`2` → **`3`**
`NFT8Cycles`	`1` → **`3`**

NDepth was already 3 (max). Aggressive and NFT8Cycles were raised to match WSJT-X's own values, the only evidence available for their ceiling.

WSJT-X

`MultithreadedFT8decoder` `false` → **`true`**

FT8AP, Aggressive (5), NDepth (3), FT8Sensitivity (3) and NFT8Cycles (3) were already at their apparent maximum once the app had written its live settings back to disk on a clean close.

MSHV

`deep_search_decode (FT8)` `0` → **`1`**

dec_depth and ap_decode were already at 3 and 1 for FT8. Deep search was the one relevant knob found off. MSHV runs elevated on this machine and had to be closed and relaunched by the operator.

Caveats

- **One shared feed, not four receivers.** All four decoders read the same soundcard input, so this measures decoding software on identical audio, not four independent radios.
- **The margin moved by band conditions, not just settings.** Decodium's own count swung from 40.7 to 31.5 to 37.2 to 43.5 decodes/cycle across the four rounds with nothing changed on its side — Round 2's narrower margin is best read as a quieter five minutes, not a settled effect of the settings change, and Round 4's wider one 40 minutes later confirms it never settled.
- **JTDX's Hint option was on** throughout, which lets it guess callsigns from history and should inflate its count if anything — working against, not for, Decodium's margin.
- **WSJT-X logged 0.000 MHz** after its restart (a CAT re-sync issue), confirmed by message-text overlap with Decodium to still be decoding live 7.074 MHz audio — a logging label, not a reception problem. Re-checked in Round 4 (27 of 31 messages in a sample cycle matched Decodium exactly).
- **MSHV did not climb steadily through the night** (2.1 → 2.9 → 3.4 → 4.3 → back to 2.7 decodes/cycle on a fifth, unlisted overnight check) — it oscillates like the others, just on a much lower scale, right up until the 18.100 MHz daytime check below where it jumped to 30.1.
- **JTDX stalled for almost two hours** before the 18.100 MHz check below — its process stayed alive but its own log wrote zero lines between 10:42 and 12:41 UTC. Restarted, it resumed decoding normally; the numbers below are from after that restart, not the stall.

Verdict

Decodium held a positive, repeatable lead over both JTDX and WSJT-X in all four rounds tonight, even after those two were raised to the deepest search settings this trial could find. The size of that lead did not settle: **+27% to +53%** against JTDX, **+31% to +66%** against WSJT-X, depending on which few minutes of band noise the window happened to catch. Round 4 — run 40 minutes after Round 2, specifically to test whether the narrower margin would hold — instead produced the widest JTDX margin of the night, which argues against a genuine settling effect from the settings change.

133 cycles across four rounds is enough to say the lead is real; it is not enough to quote a single number with confidence. A longer trial — thirty minutes to an hour in one continuous run, ideally spanning a full band opening rather than several separate slices of it — is the next step before treating any one figure as the answer.

A later, different-band check (18.100 MHz, midday, all four including a freshly-restarted JTDX) is the reason to revisit MSHV: it now sits within 9% of both WSJT-X and JTDX, a real change from the order-of-magnitude deficit seen all night on 7.074 MHz — but Decodium's own lead did not shrink, it stayed at +58% to +71% over all three. Whether MSHV's move is the band, the time of day, or a genuine improvement is not yet separated — the next useful test is the same band, same time, both settings states, MSHV only.