The FM Band From 30,000 Feet in the Air

Sampling stations via their RDS on a flight to Las Vegas

By Nick Langan ·

Published: April 14, 2025

Nick's Signal Spot is a new feature in which Nick Langan explores RF signals, propagation, new equipment or related endeavors.

I made the trek by air from Philadelphia to Las Vegas for the 2025 NAB Show.

Someday, I'd love to take the same route by car — but it's hard to beat the efficiency of covering approximately 2,300 miles in five hours and 32 minutes.

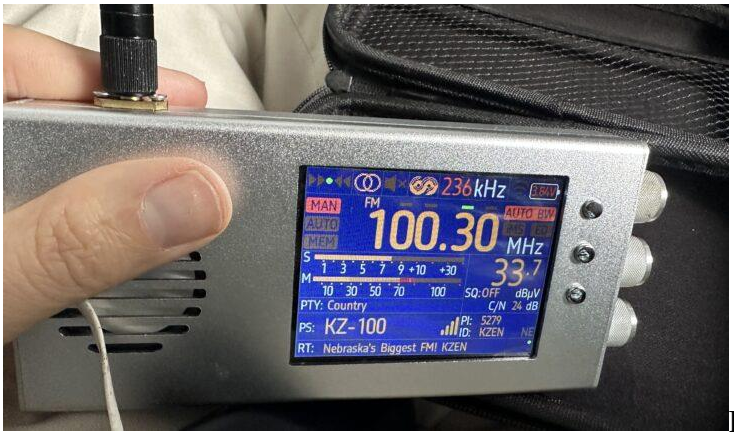
I brought my TEF6686 portable radio along and took it for a spin mid-flight. I'll have more to say about this receiver in a future column — it's truly impressive.

A quick note before diving in: Using a portable radio on an airplane can be a lot of fun but always check with your airline to make sure it's permitted. The local oscillator of an FM receiver could potentially interfere with aircraft navigation frequencies. As a rule of thumb, I never use mine during takeoff or landing.

Once we were a couple of hours into the flight, I pulled out the TEF and started scanning the FM band.

Cruising at 30,000 feet, some channels sounded like the FM equivalent of the AM "graveyard" band — full of overlapping signals and hard-to-identify broadcasts.

But thanks to RDS, I was able to positively identify plenty of stations.



RDS from 100.3 KZEN(FM) Central City, Neb., heard on my airborne TEF6686.

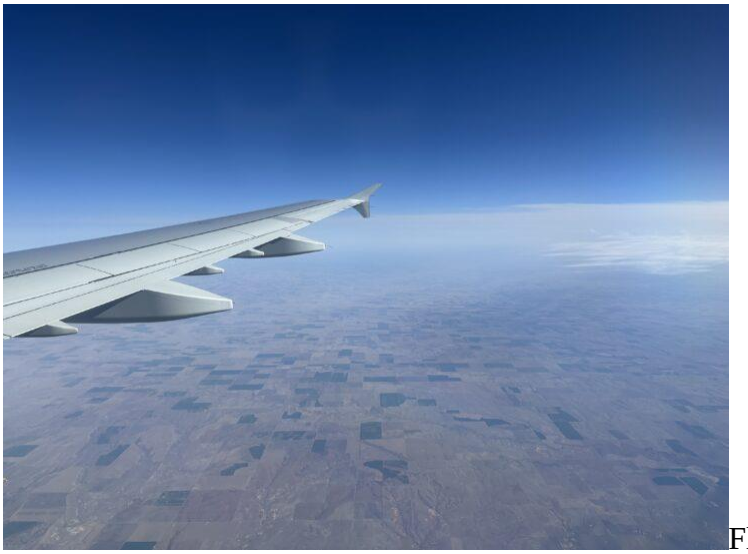
Using FlightAware's flight log, RDS snapshots and some Python code with the Folium mapping library (and a little help from our AI overlords), I mapped out when and where each reception took place.

Click on each on any of the red markers on the map above to see the station I heard and a photo of their RDS I snapped. You can also view the map here.

The average distance of my RDS receptions was around 142 miles — significantly farther than typical FM coverage at ground level.

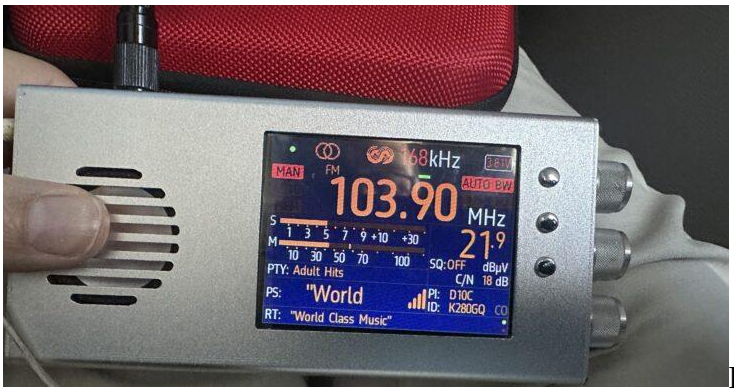
The farthest was 93.1 KRVN(FM) in Lexington, Neb., received when we were near Emporia, Kan., at a distance of approximately 240 miles.

Interestingly, the vast majority of my RDS receptions came from the north side of the aircraft — which makes sense, as I had a window seat on the right.


Flying over the plains.

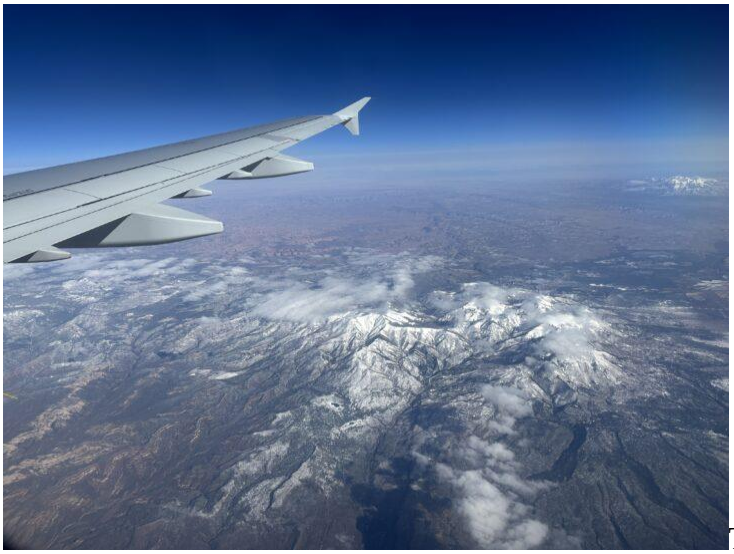
Over southern Colorado, I noted four separate translators:

- 93.5 K228EV(FM) Montrose
- 97.1 K246CC(FM) Delta
- 101.9 K270AY(FM) Grand Junction
- 103.9 K280GQ(FM) Grand Junction



RDS from translator 103.9 K280GQ(FM) aboard my flight to Las Vegas.

It was a fun way to sample exactly where we were flying over — and I was equally amazed by the scenery as we soared over the Rockies.


The Rocky Mountains from my flight window.

Most of all, this flight was a great ode to RDS. As Radio World has covered in the past, each station has its own unique program identification (PI) code that decodes to its four-character callsign, based on an algorithm. A separate algorithm was developed for translators — hence, why the translators I received in Colorado all had their PI codes begin with a "D" prefix.

The TEF6686 captures RDS PI codes quickly while using firmware for the radio developed by Sjef Verhoeven and maintained at fmdx.org. It maps the PI code received directly to a database of U.S. stations built into the firmware.

[Related: "Best Practices for RDS Subcarrier Injection"]

A few stations didn't seem to be running RDS, but the vast majority did — even in more sparsely populated regions — at suitable injection levels, which as a DX'er, I greatly appreciate. That's a wonderful thing for identifying stations quickly and accurately.

My first NAB Show in the books

I had a fantastic time at the NAB Show itself. It was my first time there covering for Radio World. I was at the show in 2016 as a visitor but it was very much a cameo appearance.

The days in Las Vegas were a whirlwind — working the show floor and filing columns for both Radio World and our sister publication, NAB Show Daily.

Celebrating 50 years of Orban processors, with Bob Orban and myself, at their NAB Show booth.

It was great to meet some of you in person. I'm looking forward to continuing to share new stories and features with our amazing Radio World team — and chatting with you all again at next year's NAB!

Comment on this or any article. Email radioworld@futurenet.com.

Nick Langan

The author is a content producer and staff writer for Radio World, having joined the editorial team in 2024. He has a lifelong passion for long-distance FM radio propagation and is a faculty advisor for 89.1 WXVU(FM). He is also the creator of RadioLand, an FM radio location mobile app, which he completed for his Villanova University graduate thesis.