

Reprinted from...

June 2003
Volume XXXIII
Number 6

The
consumer
resource for
pilots and
aircraft
owners

The Aviation Consumer®



Garmin's competition...4



Sunglasses revealed...14



Diamond Katana...23

4 UPSAT Gets Serious

Its new CNX80 color mapcomm brings bizjet FMS features to the light aircraft cockpit

10 Lycoming Diary...

One owner's experience with a months-long grounding. In short, money talks

11 ...Reader Survey

Not all owners are happy with Lycoming's performance

14 Sunglasses Reviewed

We try out some of the popular brands pitched to the pilot market

20 Datalink Update

A flight trial of Avidyne's new narrowcast datalink. For ease of use and convenience, it looks like a winner

23 Used Aircraft Guide

Diamond Katana

Datalink Update

Avidyne's satellite datalink goes online while WSI and XMRadio announce their own space-based systems.

Whoever authored the phrase about hope springing eternal must have been in the aircraft datalink business. Hardly a month goes by that we don't hear of some new product or service aimed at getting weather information into the cockpit, despite the fact that it's unclear if anyone can really make a buck at this game. (That's important if you want your datalink guys to be around for at least a week after you've bought the box and paid for the service.)

Has anyone really figured it out yet? Judging by a recent flight trial we participated in, Avidyne, the company that pioneered serious color multi-function displays, may be closest to a wart-free system that's both affordable and practical. But stay tuned. At the recent Sun 'n

Fun fly-in, we saw a new offering based on XMRadio that, presumably, could deliver both weather and entertainment to the cockpit. But alas, no hardware exists; that one's on the horizon.

But Avidyne is good to go with its new EX500 display with datalink as standard equipment. The EX500 is Avidyne's latest color multi-function display designed to operate as both a sophisticated moving map and a replacement display for aging radar systems that still have good front ends. It measures 5.4 inches diagonally with 616X350 pixel dimensions and accommodates 17 radar systems from Collins and Bendix/King, along with numerous other external sensors.

The EX500 includes a datalink

receiver built into the display unit as part of its \$8995 price. If you don't want the datalink, simply don't bother wiring in the antenna, which is a specialized, roof-mounted whip-type VHF design. If you do want the datalink—we can't imagine why you wouldn't—you pay a one-time, \$99 sign-up fee, plus a per-use fee for downloaded weather based on message units.

The Avidyne system is a request/reply design based on the same Orbcomm low-earth-orbit satellite system that Garmin uses for its Echoflight/GDL49 datalink. However, there's quite a difference in the way the two systems operate.

As the name implies, request/reply requires the airborne receiver to send a message to the satellite requesting specific weather information. This message is relayed to a ground station, which then gathers up the requested data and relays it back to the airplane through the satellite. If it sounds like this takes awhile, it does.

The good thing about request/reply datalink is also the bad thing. You have to ask specifically for the data you want, make the request and wait to receive it. Always-on broadcast systems, such as Bendix/King's Wingman service, continuously broadcast everything you need. You simply retrieve it from the continuously refreshed database when you need it.

With broadcast, the weather is there whether you want it or not



Avidyne's datalink NEXRAD found weather on our proposed trip from Florida to Chicago.

Checklist



- Avidyne's request/reply system is automated, thus it mimics a broadcast system.

- It's highly configurable to retrieve only the weather you need for that day and is thus the most economical system available.



- If you don't want to buy an Avidyne EX500, you're outta luck.

and you pay for it whether you need it or not. Request/reply permits the option of sipping from the weather datastream as needed and paying only for what you use. But you have to ask for what you want and wait for it to be delivered.

Avidyne's system splits the difference with a scheme called "narrowcasting." Through the miracle of modern software, the datalink receiver can be programmed to automatically request specific weather along an intended route. And if you don't want any weather because it's clear-blue-and-twenty two, you can switch it off entirely and save a few bucks.

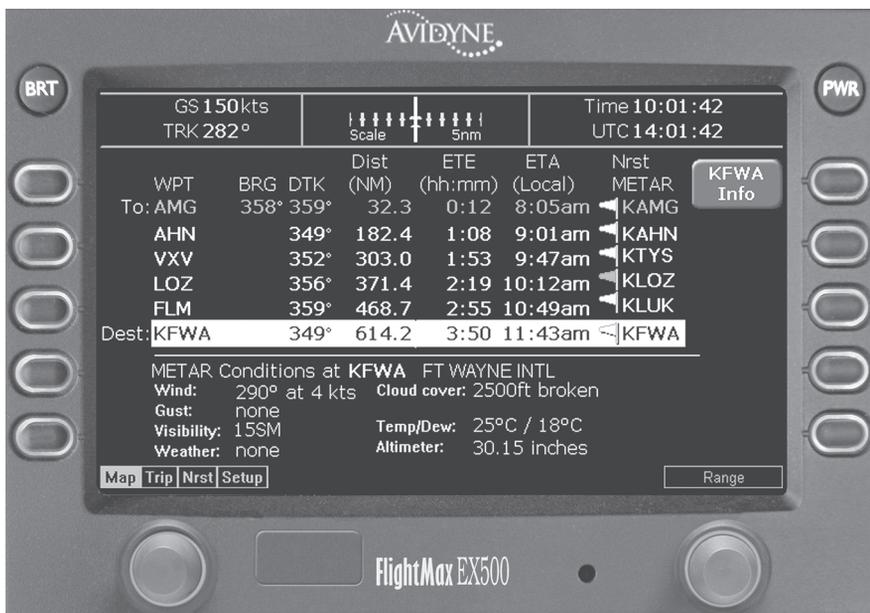
Avidyne CEO Dan Schwinn recently gave us a flight demo of the narrowcasting system installed in his Lake Amphibian. Actually, we didn't budge an inch from the ramp in Venice, Florida; it's quieter and we saved gas. In any case, the true measure of datalink is how well it works on the ground, since go/no-go decisions are often made based on the most recent weather, especially NEXRAD.

Tell It What You Want

Schwinn showed us how the narrowcast system can be configured to request the weather appropriate for the trip at hand. Because Avidyne has launched its own weather data processing network, the basic set-up can be done online through Avidyne's dedicated Web site or right in the cockpit, on a set-up screen.

You can request specific products—NEXRAD, METARS/TAFs, AIRMETs/SIGMETs and, still in the works, graphical TFRs. You can specify a corridor around the flight planned route or a radius around the current location. You can also specify how often the system requests the data you want.

On a convective day, for example, you might wish to specify NEXRAD imagery every 10 minutes. But on a foggy northeastern day, who cares about NEXRAD? You'd want METARs and visibility/ceiling trends. Actually, what the system needs but doesn't have is pIREPs, which could help with icing and low-IMC assessments. It



Textual and graphical METARs along the route are displayed on a separate screen.

does offer graphical METARs—color-coded flags which indicate VMC/IMC for the reporting station but we would gladly ditch those in favor of pIREPs and/or winds aloft.

Since there wasn't a speck of weather in Florida worth worrying about, we asked the system to fetch the weather on a route from Venice to Chicago. Schwinn cautioned that this might take a while but in under five minutes, it returned the data we requested.

As shown on page 21, the display revealed that our course would take us directly through a line of thunderstorms along the Kentucky/Indiana border. That's nice-to-know information. We would still launch the trip, of course, but we would configure the system to grab another NEXRAD image in an hour. There's also a "request refresh" button that allows on-the-fly instant updates, within the built-in delay in the NEXRAD cycle. (That's a minimum of six minutes and a typical maximum of 10 to 12 minutes.)

What does all this cost? It depends on how much weather you ask for. Schwinn told us pricing is based entirely on message units related to data volume. A good gouge, he says, is about \$3 to \$5 per flight hour if the system is set to max

retrieval rate and if you grab every available high-res NEXRAD image. The more weather, the more it will cost.

What we like most about this system is that in dormant mode, it doesn't cost a cent. But when you need it badly—as you might a half-dozen times a year—turning the weather faucet to full blast for a few hours won't break the bank.

The largest downside to Avidyne's system is that you have to buy the EX500 to get it. We think it's a terrific MFD but if you already have an MX20 or a Garmin 530, you might not want to tear up the panel to put in something new. Avidyne had considered a standalone version of this datalink system but that project is on the backburner, if not canceled entirely.

XMRadio, WSI

Meanwhile, waiting in the wings with yet more datalink are WXWorx and WSI. At Sun 'n Fun, WXWorx announced plans to deliver weather to the cockpit using the established XMRadio satellite broadcast system.

WXWorx says it will provide NEXRAD and other weather products for display on PDAs, laptops, tablets and, eventually,

hardmounted panel displays. We don't yet know which displays will be eligible.

WXWorx is an offshoot of Baron Services, which is the dominant supplier of NEXRAD imagery for the television broadcast market.

There's yet a third player in this offering: A company called Heads Up Technologies will produce the hardware, a \$3750 certified box that will receive data from XMRadio's two geostationary satellites.

Although they aren't saying as much, the WXWorx/Heads Up system could presumably sweeten the weather deal by also providing entertainment channels. Heads Up has experience in this market, having certified an XMRadio system for bizjet aircraft. As currently construed, XMRadio is an all-you-can-eat broadcast system with a \$49 a month flat fee, similar

to Bendix/King's Wingman service.

Yet another satellite-based system is WSI's Inflight, which UPSAT has picked as its leading weather provider for the MX20 MFD. WSI has long been in the contract weather business but datalink is a new market for the company. WSI proposes to certify a remote receiver capable of playing "with many panel-mounted and portable displays." One of those is the MX20; otherwise, we'll have to wait to see who decides to play with WSI. Unfortunately, given the glut of choices, we're not sure the display makers have a compelling reason to sign on with any of these systems yet.

Like XMradio, WSI uses a geosynchronous satellite and a flat-fee of \$49.95 for all the weather you want. The receiver sells for \$3995 and uses a GPS-style low-profile antenna. According to WSI, the system is

available now for display on PDAs such as the Compaq iPAQ line.

Addresses

Avidyne Corp.
55 Old Bedford Road
Lincoln, MA 01773
800-284-3963
www.avidyne.com

WXWorx
4930 Research Drive
Huntsville, AL 35805
321-751-9202
www.wxworx.com

WSI
4 Federal Street
Billerica, MA 01821-3569
978-670-5000
www.wsi.com