Altronics A2696 DAB+ & Internet Tuner

Adding digital radio to your hifi set-up is a logical move, as it gives you better sound and more stations to listen to. But why be limited to broadcasters in your city? This digital tuner will access the Internet and bring you many thousands of radio stations from across the world, catering for all preferences.

IF YOU WOULD like to add digital radio to your hifi system, you will find the task surprisingly difficult. You might think that you could replace your amplifier with one that has an in-built digital tuner but nearly all amplifier/tuner combinations on the market only support analog (AM/FM) broadcasts. Even individual component tuners are hard to find these days and if you do find one, the chances are that it would be analog only.

This is where Altronics comes to the rescue with the Opus One A2696 which is a component DAB+ and FM tuner styled to fit within a component hifi set-up. It's not your normal radio receiver though – it takes the concept of a digital radio to a whole new level.

That's because in addition to receiv-ing DAB+ and FM stations, this tuner can also connect to the internet and find radio stations there. This means that you can listen to a radio station in another country as if it was a local broadcaster. You are spoiled for choice here as the internet has thousands of stations with a mind-boggling range of programs and content.

But that's not all the Opus One A2696 can do – it can also locate and play podcasts hosted on the internet. For example, if you have missed this morning's ABC AM program, you can later look it up and listen to it using this tuner, just as if it was being broadcast live.

Other sources of audio that this re-markable appliance can play include music on a computer that is connected to your home network or audio files saved on a USB memory stick.

DAB+ and FM

The DAB+ receiver works as ex-pected. It covers the Australian DAB+ broadcast range (174.982-239.2MHz) and we found that it was easy to set up and find the local DAB+ stations.

The antenna input is a standard 75Ω PAL socket and in most cases, you can get away with connecting this to your TV antenna via a splitter. However, digital radio is vertically polarised in Australia so you will get a better signal with a dedicated antenna, especially in marginal signal areas.

During our tests using a TV antenna, we occasionally experienced DAB+ signal drop-outs, even though the

Review by GEOFF GRAHAM

The A2696 has pushbutton controls for tuning, station information and mode and menu selection. It's supplied complete with an infrared remote control.

digital TV signal from the antenna was reasonably strong.

The FM section of the tuner uses the same antenna. The FM receiver is nothing special but it does support RDS which is a protocol for embedding small amounts of digital information in the FM signal. Examples include time, station identification and program information. If the FM broadcaster is using RDS, the data transmitted will be displayed on the tuner's LCD screen.

Internet radio

In order to access the internet-related functions, you obviously need to connect the unit to the internet. The A2696 provides for this by including both WiFi (via an antenna on the rear

panel) and a wired 10/100 Ethernet socket. WiFi support includes both 802.11b & 802.11g, along with a comprehensive range of security protocols (WEP, TKIP, WPA, WPA2 & WPS).

Set-up is reasonably easy and we had it linked to our router in just a few minutes. Once you are online, you will find that tuning into an internet radio station is ridiculously easy. No special knowledge is required and even the most technically challenged would be able to quickly find something to listen to.

Finding a station

The tuner has access to an estimated 20,000 radio stations (we did not try to count them), so the range is truly huge compared to the dozen or so that you might receive via DAB+. Such a large selection needs some way of narrowing the choice so that you can zero in on what you like and the A2696 does an excellent job in this regard.

First of all, you can narrow the search by selecting the genre that you are interested in and/or the country where the station is located. Other options include selecting from new stations, most popular stations or your favourite stations.

If, for example, you choose the genre option, the tuner will then present you with a suitable list (Blues, Celtic, Classic Rock etc). After choosing from this list, you then have a sub-choice of country, most popular, etc. Finally, you will reach a list of stations displayed by name. From there, it's just a matter of pressing the button to select one and if you like it, you can add it to your favourites.

Of course, you also have other ways of finding a station. You can start by region (Africa, Asia, Europe etc), then select by country, then genre. Another option is to search by name (or a fragment of a name) or you can search stations that you recently listened to etc.

Navigating through all of these options and menus is easily done using a large front-panel jog-wheel which is pushed in to select an entry.

Two other front panel controls, the MENU and BACK buttons, complete the menu navigation facilities. Despite a few peculiarities that can sometimes trip you up, the menu system is generally logical and intuitive.

Bandwidth requirements

In order to stream audio over the

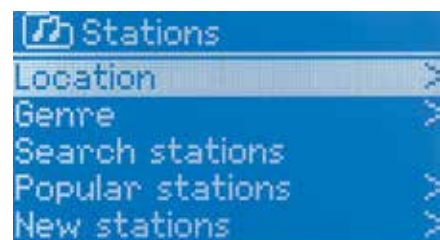Fig.1: this is the standard station readout shown on the LCD when you are listening to DAB+ radio.

Fig.2: when you want to find an Internet radio station you can search by location, by genre, or by name. Alternatively you can look up lists of popular or new stations.
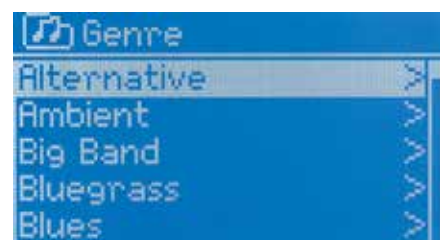

Fig.3: if you decide to search the Internet by genre this is the sort of list that you will be presented with. The list is compiled by Frontier Silicon who send it to your tuner.
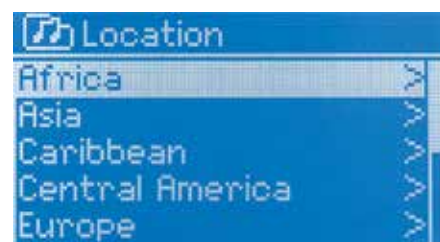

Fig.4: if you search for an Internet radio station by country you first have to select the region and this is the typical selection.

internet, you need to have a download bandwidth of at least 256kb/s and preferably 512bb/s. For readers who have an unlimited download plan, listening to internet radio will be essentially free. However, if you are on a limited plan, you need to consider how much

Inside the A2696 – the Venice 6.2 module is the shiny metal box on the left and is mounted on a PCB along with some support circuitry. The large PCB on the right is the power supply while another PCB at the front holds the front panel display and controls. The Venice module does all the work and everything else is just there to support the module.

of your download allocation will be consumed in this way.

Typically, internet stations stream music in the MP3 format at 32-192kb/s. Most high-quality stations use 128kb/s and at that data rate, you will end up downloading about one megabyte a minute.

You can use this rule of thumb to

Fig.5: a typical display while listening to a station in sunny Port Douglas – and we are on the opposite side of the country.

Fig.6: we searched for podcasts broadcast by the ABC and this was the result.

work out your own usage but as an example, if you listened to internet radio for four hours per day, every day of the week, you would download about seven gigabytes (7GB) per month.

In our tests, the tuner coped well with internet congestion and interruptions. If it did lose the connection, it would quietly retry until it reconnected and then resume playing the program. It was only when we saturated our internet link with a huge high-speed file download that any real problems began, with the tuner struggling with numerous and lengthy drop-outs.

Generally, the quality of the audio streamed over the internet is excellent and after a while you tend to forget where your music is coming from. We took a liking to 106.3 in Port Douglas (thousands of kilometres away) and it was strange hearing them refer to "sunny Port Douglas" while it was wet and windy in our location.

As previously stated, you can also listen to podcasts hosted on the internet. Once again, the choice is huge, with almost 10,000 podcasts available.

The procedure for selecting a podcast is similar to selecting radio stations (ie, by genre, country etc). Once you have found the desired podcast, you then go on to select the episode. The selected program will

then be played just as if it was being broadcast live.

Network streaming

If you have music stored on a computer in your network, you can play that using the A2696 and DLNA. DLNA is a set of standards created by the Digital Living Network Alliance to enable the sharing of digital media between multimedia devices such as servers, players, TVs etc. Windows 7/8 supports DLNA out of the box but Macintosh users need to run some extra software to get going.

When you connect to a DLNA server, you will be presented with a set of choices such genre, artist, rating etc. These options depend on the DLNA server and the tags in your music files and help you when sorting through a large media collection.

The decoders in the tuner can play a wide range of formats including FLAC, WAV, AAC, MP3, WMA and RealAudio – so you have plenty of choice. The A2696 will even find and play playlists stored on your server.

As if that's not enough, you can also plug a USB memory stick into a socket on the front panel of the tuner and play your music from there. The USB playback facility supports the same range of audio formats as network streaming and navigation through the files is done using the folder structure on the USB stick.

Using the A2696

We were unable to perform any technical tests but the sound produced was clean and noise-free. There was an over-emphasis in the bass which may have been added by the broadcaster but this can be corrected using an equaliser built into the tuner. Disappointingly, this only works on the analog output, not the digital TOS-LINK output.

When not navigating the menu system, the large jogwheel becomes the volume control – but again it is only effective on the analog output. It's a puzzle as to why a tuner needs a volume control in the first place and this control would be much better employed as a station selector.

For such a complex device, the A2696 is remarkably easy to drive. About the only complaint is that the small 2.5-inch LCD display is only legible when viewed straight on which can be a problem if your hifi gear is on

The rear panel carries a TOSLINK connector for digital audio, two RCA connectors for analog audio out, a wired Ethernet (LAN) socket and a WiFi (WLAN) antenna socket. There's also a 75Ω PAL socket for a DAB+/FM antenna. Note the 2-way labelling – very handy if you're looking down from above!

a low shelf. In that case, you will have to kneel down to follow the menus.

To get around this problem, you can use an application called "Libretto" which runs on your smartphone. This provides a comprehensive remote control and display for the tuner, complete with the menus.

The manual describes the application running on an iPhone or iPod touch but in our case, we tried the Android version as suggested on the Altronics website. Unfortunately, this version didn't work with the A2696.

The tuner lets you save favourite stations for each mode and by using this facility, you can quickly return to them. A remote control is supplied and one of its features is that it allows you to jump to a favourite station with a single button press.

Build quality

The A2696 has a solid feel with its black metal case and textured front panel. The LCD and power indicator are both blue, in keeping with modern styling (green is just so yesterday!).

On the back panel there is a wired Ethernet socket and the WiFi antenna. Also on the rear are two RCA connectors for analog audio out and an optical TOSLINK connector for digital audio. The collection is rounded out by a 75Ω PAL socket for the DAB+/FM antenna.

Like many electronic goods these days, this tuner is a generic product built in China. It's also available in other guises such as the Sansui WLD+201L in the UK, which is identical except for the remote control.

Inside the tuner

We couldn't resist opening the case and were surprised by what we found. Mostly it was open space but what was interesting was that all the hard work – the DAB+ tuner, Ethernet, WiFi, internet access, DLNA, USB

etc – was performed by a small 40 x 110mm metal-clad module just a few millimetres thick.

This is the Venice 6.2 module manufactured by Frontier Silicon. As you can see from the photograph, it has a DAB+/FM antenna input at one end, a WiFi antenna input at the other end and a 60-pin connector for control and audio output along one edge. The remainder of the circuitry in the tuner is basically just the power supply and supporting circuitry for this module.

Frontier Silicon, by the way, is a privately-owned UK company that has built a large stake in the digital radio market. Their modules are used in most digital radios and Silicon Chip used the Venice 7 module in the High-Quality DAB+/FM Tuner described in October-December 2010. The Venice 6.2 module, however, takes things to a much higher level with its internet access, including WiFi, the TCP/IP protocol stack and much more.

Frontier Silicon also provide a reference design for a complete DAB+/internet tuner based on the Venice 6.2 module and this tuner is essentially an implementation of that design. Purchasing this technology is probably expensive but it does mean that the manufacturer of the A2696 did not have to spend time designing complex digital circuitry and therefore could quickly enter the market.

Station catalog

Another area where Frontier Silicon has had a hand in the A2696 is the catalog of internet radio stations – necessary in order for users to make selections. We discovered the importance of a catalog when we attempted an internet radio project of our own some time ago. Eventually, we had to give up on the project because we couldn't find an easy way of locating and connecting to a station.

Most internet stations broadcast for free but the only way you can listen to them is by finding their website and clicking on a button to start streaming to your PC or smartphone, etc. Even then, the details of the protocol (port number, etc) are usually hidden.

There are companies (eg **shoutcast. com**) that index internet radio stations but they require a hefty fee for access. To address this issue, Frontier Silicon set up a separate organisation (**www. wifiradio-frontier.com**) whose job it is to build an internet station catalog.

The Venice 6.2 module contains the security codes to access this catalog via an internet connection. For example, when you select by genre, the list to be displayed will be sent to your tuner by Frontier Silicon. Similarly, when you select a station, the access details (IP address, port number etc) will also come from Frontier Silicon. This catalog is not stored in your tuner and is not available publicly – only authorised products can access it.

This raises an interesting question: what happens if Frontier Silicon stops funding their indexing service (not that we're suggesting that this is going to happen)? The answer is that you would completely lose the internet function in your tuner. There is no provision to manually enter a station's (or a podcast's) details into the tuner, nor is there the ability to use an alternative indexing service.

So if that ever happened, you would be limited to just DAB+ or FM stations.

Wrap up

The Opus One A2696 is well designed and deserves full marks for its comprehensive features and ease of use. It would be an excellent addition to most hifi set-ups. The list price of the tuner is normally $399 but Altronics currently has it on special until the end of December for $319. **SC**