PRIMER ON USING AN MP3 RECORDER[1] FOR DX-ING
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Recording DX has come a long way since I started DX-ing in the early 70's. Tape recording was the only possible way in those days; I started off with a cassette player. Not until the late 90's did other media begin to gain ground, such as the Minidisc-recorder. It is still popular with DX-ers, especially after having evolved into the Hi-MD format which permits quick upload to PC's. Recording directly to the PC is also common and programs for that purpose have been evaluated elsewhere.

But recording to a PC requires – a PC. Which is not always possible, or desired, for reasons like space, transport/weight, RFI etc. So what about those small gadgets we have seen evolve over the last few years, the MP3 players? Some of them actually have the option of analogue recording through a dedicated line input. The thought of using an MP3 player (or more correctly a player/recorder but I will use the term MP3 player in the following) for DX purposes has matured over some time. About a year ago I decided to buy one and see if it could work. I have been an MP3 shopper since.

Recording DX has one vital requirement. The recording device must have the ability to start recording on the fly. No menu-choices, no pre-titleing of file names, no auto-shutdown. And the device needs sufficient capacity for the DX session. Running out of space as DX gets hot is the typical example of a bad setting.

Since MP3 players with a certain label have a life time of months rather than years, I will not list today's MP3 players with line-in facilities. But there are many. You just have to find them. And there are many that don't have. The iPod for instance.

There are two types of MP3 players; flash storage and harddrive storage. Flash storage players typically have 0.5 to 2 GB capacity today, while HDD players typically have 4 to 80 (or more) GB capacity. Like with many other things, bigger is better, and flash players are typically more expensive per storage unit than HDD players. Still, a 512MB flash player, recording with 64kbps bitrate, can store up to 18 hours of DX. So for a one night stand (sorry, I just couldn't resist the term...) even a small and relatively cheap flash player will do.

Different MP3 recorders (not to scale)

After looking around for some time, I decided last year to start off with an iAudio M3 HDD (20 GB) player. There was only one parameter other than the line-in facility that influenced my choice –

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1 These devices are no longer called "MP3 Players/-recorders" but merely DAP – Digital Audio Player, reflecting the fact that there are many other file formats than MP3 which are suitable for both recording and playing back audio files. Since the MP3 file format is very much the format of choice for DX-ers, especially when sending reception reports, I will use the term "MP3 player/recorder" in this article.

it had a huge coolness factor. There is a lot to say about the iAudio M3 as a music machine, but the purpose of this article is not to make people choose the M3 over other MP3 players so I will let that rest. Also, be aware that the user interface may vary from player to player, so be sure to know how the player you choose work before you buy one for recording purposes.

iAudio M3 compared to an MD

The M3 needs an adapter or a charging cradle for connecting to the line input. The adapter is included in the purchase, and in most (but not all it appears) cases the cradle too. The M3 has a wired remote (similar to the MD portables) where the display is. All controls are available on both the main body and the remote. The M3 records in MP3 format only (no WAV), although it can play back in several formats. Bitrates from 64 to 320 kbps can be chosen. 64 kbps will suffice for DX recordings and will occupy typically around 490 kB per minute. So theoretically a 20GB capacity will allow you to store around 680 hours of DX (real capacity is always a bit lower than advertised). Just for the comparison, an 80-minute minidisc running in 4LP mode has a 5h20min capacity. Moreover, since the line-in is stereo, you can connect two receivers to the M3 allowing 1360 hours of DX. Channel separation is excellent. The M3 has a limit of 999 recorded files though, and a maximum file size of 512MB. But should you ever decide to do a 24-hour recording and the 512MB only holds 18 hours don't despair – it just saves the first 512MB in one file and then continues with a new file.

Battery capacity is much better than all except the newest MD recorders; claimed 14 hours, one review found 13 hours plus. This is for playback; no details given for recording but I don't expect it to be significantly different. This will vary from player to player.

The M3 recording session is very simple and I will not delve into it here. However, the M3 had a flaw – a strange one indeed and it took (too) long until I found out. When recording with the charger connected, the charger produced noise – not to the receiver but to the recording! The result was severly degraded audio quality and quite possibly some lost DX. I replaced the 5VDC switching charger with a 6VDC stablised PSU and the noise was gone.

You will probably want to move the files to your PC for further processing and storage. Most (but not all) MP3 players including the iAudio will be recognised as an external HDD by Windows ME and later without the need of installing drivers or proprietary software. With a USB 2.0 interface, transfer should go smoothly and quickly. Sorry, don't ask me about Mac OS. I don't know.

After a while I decided I'd try a flash recorder as well. I bought an iRiver iFP-895, 512 MB which contrary to the M3 has AGC so it is less prone to overload if the line input level is too high. Using the 64 kbps setting I found the recording quality was excellent – after all we don't need a lot of audio bandwidth when we rarely use IF filter bandwidths higher than 6 kHz. I was so satisfied I bought an iFP-899 (1GB) as well, plus an iFP-795 (512 MB, same recorder but slightly different design). Please note that the iRiver iFP's standard firmware requires proprietary software to upload audio files to the PC. Not a big issue, and later firmware allows the recorders to be recognized by Windows as an external disk.

All of the iRivers above use standard AA batteries. This may be expensive in the long run. On the other hand they will never need a noisy charger, so you will never need to worry about RFI. Do take notice though, that when these recorders run out of juice during a recording, they do NOT save the current file before they die.

iRiver iFP-795

I wanted to explore the HDD recorders more, so I also bought a used iRiver iHP-120 off Ebay. This one (pictured to the left on the first page) also has a line output, which could be useful at times. Contrary to the M3 it does not require a special adapter or cradle to connect the line input. Again: The recorder is excellent for recording DX, and its LCD display excels over the M3. But again:

iRiver iHP-120

The power supply/charger sucks, noisewise. I connected a 6VDC stabilised PSU to it and noise was gone. Of course, for one night's DX the internal battery will suffice (and there are battery packs on Ebay to extend battery life, or you can make your own from battery cases bought at ELFA). But if you plan to use HDD recorders on lengthy DX-peditions, you do not want to use the charger, so an alternative power supply is indeed needed. I fear that noisy chargers are more or less a universal problem, so whichever HDD recorder you choose to buy, be prepared that you can't DX with the charger connected. The -120, when running on battery alone, will save the current recording to a file before shutting down if battery life runs out. Another interesting thing about the -120 is that Rockbox (www.rockbox.org) has made alternative firmware for it, including the option of having a pre-recording buffer of up to 30 seconds. Alas, when using Rockbox only wav recordings are possible. Rockbox firmware can also help visually impaired users. Current iRiver HDD models are the -320 and -340 with colour displays but (as far as I know) working rather similar to the -120 and -140 models.

To round this off: There is a mulitude of DAPs out there, both with and without recording capabilities. One of many interesting sources of information is www.dapreview.net. Most major DAPs have manufacturer-independent user forums which discusses the pros and cons of their equipment. I have chosen to focus on the iRiver and iAudio models but there may be many more interesting models out.