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Accuphase DDS FM Stereo Tuner T-1000

FM Broadcast With Digital Quality

by Uwe Kirbach

Accuphase has long ago signed up to the hall of fame for making brilliant FM tuners. The new T-1000, which is to process analogue radio waves in the digital domain, can be considered another milestone.

FM broadcast? Well, for most people this means flat sound, silly commercials and often a noisy, sometimes sizzling reception. Perhaps just good enough for piped music in the background, drowning out other noisy sources or merely for having some company whilst doing some lonesome work at the PC. On the other hand, when a couple of years ago that nice little, retro-designed Tivoli radio hit the market many of us could experience anew what FM broadcast can also be, namely a good and round sounding medium to entertain you 24 hours a day, provided one has tuned to the right stations.

And there were those notorious discussions and statements about FM broadcast eventually being substituted by digital radio. But what has really happened since? The digital satellite radio DSR has been switched off and Astra Digital Radio will be history as soon as the last analogue TV stations have ceased their transmissions. To this date DAB is lingering about with more or less poor sound and hardly any programme variety. In Sweden they already stopped further tests with DAB because of its typical shortcomings. To sum up: the threat of having FM broadcast also switched off in this country by the year 2010 has become meaningless in the meantime, and it's an open secret for insiders of Bavaria Broadcast Corporation that the short- and medium-term plans concerning DAB have failed and therefore terminating FM broadcast is a very long way off.

This is one reason why it can still be worthwhile to devote oneself to a really good FM tuner as it will certainly not become obsolete in the future. The other reason is most likely known by all those who already had their "initial great radio experience", i.e. live-broadcast and uncompressed programmes of culture and classic music being offered by nearly all radio stations under public law. A top-notch tuner would in any case allow you to be aurally transported to the venue of sonic origin, like only the best analogue turntables and digital players could do that. In this respect a good tuner may also be the most reasonable source in a high-end audio chain. Just think of it: all of the big radio stations are equipped with superb, carefully maintained technology, such as microphones, mixing consoles and tape recorders, whereby the latter are regularly fed with wonderful tape recordings from huge archives. And not to forget the transmission facilities which are actually providing a direct line so to speak via your antenna into your favourite radio stations respectively their studios.

It may have become evident in the meantime that a tuner fan is writing here. Well, gentle readers, I have indeed become one since I found out as a young boy how interesting it was to listen to the sounds from a small transistor radio under the quilt whilst my parents thought I was fast asleep. Today I have a classic tuner installed in every room, including an Accuphase T-106, by the way. In my large listening room there is a recently refurbished, unsurpassed Marantz 10B at it's sonic best. Be warned however because the 10B is oh so rare, in particular if you want to acquire one that's suitable for the German broadcast network and which has its components and valves (the latter very difficult to find anyway!) still working well, and last but not least, to find someone who is an expert in tuning and aligning this highly complex beauty.

However of all the tuners I have only the Marantz 10B works optimally with my big 12-bar roof antenna as well as with the frequency chaos I get out of the wall from Kabel Deutschland. I assume that for processing the ultimate signals coming by antenna from, say, a live transmission from Bavaria Broadcast, the output stages of all other tuners in my collection are simply not good enough. And they all react quite sensitive to the signal from the cable by increased noise, crackling and chirping.

Then came the Accuphase T-1000 and, except for the Marantz, gave my other manorial tuners a run for their money. Compared to its substantial, stable sonic picture the others sounded thin and quite unbalanced with respect to sound colours. Only the Sansui TU-9900 could catch up as far as spatial presence was concerned and eventually could convey that strong feeling of being there when listening to FM radio and live broadcast. Although I was rather sceptic in the beginning as to whether the internal conversion and digital output of the T-1000 is a good idea for radio signals, I proceeded to connect it to several D/A converters. The first two I tried seemed to confirm my prejudice, as the rendered sound was rather tattered and unbalanced by sound colours when compared to the analogue output of the new Accuphase tuner. But then it was the Jadis-DAC JS-1 Mk III to take care of the conversion and processing the signals for my Kondo pre-amplifier.

Now, this very moment will forever stay in my memory because it has been messing up my aural experiences gathered over decades. I could hear orchestral music with such an incredible resolution I would never have thought possible, even with good FM transmission! The new Accuphase tuner is able to deliver via its digital output an increased directness and openness, a musical high drama and dynamic explosiveness, a fascinating soundstage focus as well as an incredibly precise view onto the back rows of a large orchestra. Within minutes I had to reconsider all my convictions: no, the high-frequency rendition of an orchestra is not audibly restricted by FM's upper frequency limit between 15 und 16 kHz. No, even the hard transmission cut-off by the pilot tone at 19 kHz does not automatically cause phase problems which are likely to smear or restrict spatial rendition and soundstage. And yes, I'm now realising that even the most complex music can be completely transmitted by FM.

As luck would have it, this flood of perception came over me when I was listening to a well-known recording, which however was absolutely not corresponding with my excitement and feelings on the new sonic experience: Dietrich Fischer-Dieskau with his sonorous baritone gave an interpretation of Karl Amadeus Hartmann's singing scenes according to the words of "Sodom and Gomorrha"

whereby Rafael Kubelik conducted the Symphony Orchestra of Bavaria Broadcast Corporation. Therefore, please forgive me my association that the Accuphase T-1000 with at least its digital front end has opened a new chapter in tuner technology, while I wouldn't care much if conventional tuner technology would also fall together with Sodom and Gomorrha…..

The question now is if "digitalisation" in a tuner can offer other advantages still, apart from the option "digital out"? Yes, certainly, because the digital domain allows to cut the pilot tone completely off without the need of conventional filters including their phasing problems and other shortcomings. For this reason the T-1000 can fully use the entire FM transmission range without having to deal with phase errors effecting the audible range. By the way, the digital output has still got another invaluable advantage at hand. Owing to the lack of suitable recording formats it was not easy in recent years to have radio transmissions recorded at the highest quality level. Well, the new Accuphase makes this possible now in by-passing the analogue output stage and sending the signal directly into a digital recorder or onto the hard disk in your PC.

In order to get the pilot tone, a big "tuner-troublemaker", under better control in the T-1000, Accuphase has employed a proprietary trick dubbed "Pilot Tone Direct Synthesis" (DS-DC). This ingenious circuitry detects the pilot tone even in a very weak state, whereupon it is always generated anew by the DSP arithmetic. This results in an optimal channel separation and very low noise in particular when the pilot tone is fading or received at low level. In conventional applications the pilot tone is processed by a PLL circuitry with all the disadvantages of feedback loops.

By experiment the T-1000 could indeed extract a very clean music signal with minute noise from several stations received at medium-strong input levels. On the other hand it doesn't like any of those weak stations which are eventually sacrificed in favour of sonic purism. This is clearly visible when one has a closer look at the construction of the super heterodyne amplifier. None of the usual switches for adjacent station separation has been realised here, yet this can lead to strong distortions when either very weak stations or strong, complex frequency overlays are being received.

This is why this new sonic genius from Accuphase could not really cope with the frequency blend delivered by Kabel Deutschland to my flat, whereupon our editor in chief, Matthias Böde, reported that at his place the T-1000 received cable frequencies without problems and with them was sonically almost surpassing his Metric tuner by Restek. No question, the T-1000 prefers to be hooked up to a real antenna and with that will sound sonically outstanding up to a certain point: If it doesn't like the incoming signal it would react like any other digital circuitry, namely to wave good bye to brilliant sound, at least for the time being. For any such cases Accuphase has provided two rather traditional facilities: one would enable you to manually fine-adjust and optimise the reception frequency in tiny steps of 10 kHz if two adjacent stations are interfering with each other. In some situations a certain offset-tuning may even result in a better sonic rendition and this is something that actually cannot be realised in synthesiser-tuners. The other one is a button for stereo noise filtering which works very well and is audibly less damaging to even weaker stereo signals than the noise filters in conventional tuners.

In view of all this I personally believe that Accuphase's engineering department has made the right decision: those who are eventually going to acquire a new benchmarking tuner would rather afford the expenses for an antenna service or for exchanging the cable outlet than complying to any compromise and hence less sound quality.

In the long history of outstanding Accuphase tuners the T-1000 is by far the most significant development. It already sounds exemplarily powerful and balanced from its antenna input to analogue out, whereby its digital output allows the best possible recordings. And in combination with a Super-DAC the T-1000 can yield a sound quality from FM radio I had never heard before.