FM Radio

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BY now many readers will have listened very carefully to the stereo reproduction of the BBC's matrix H broadcasts. It is clear that locations are now being chosen more carefully than at first, but some of the broadcasts have been anything but compatible in stereo, and I am still not completely happy with the existing chosen elements.

It has been claimed by the BBC that since 90% of broadcasts are heard on mono receivers, mono compatibility is of fundamental importance, and because of this the back centre quadrant was originally regarded as being of great significance, since it was required to be reproduced in mono with no cancellation. The BBC wished to put no constraints on their producers, so that if the sound was to come from back centre in a drama it would still be completely audible in mono.

However, one can make audience research figures do almost anything, and perhaps these have been misinterpreted, for as I see it, probably 80% of the mono listeners are listening either on medium wave, with its inherent compression and poor quality, or on small VHF portables. Furthermore, the majority of these listeners will not be listening very seriously, since they will probably be regarding the radio as a background to driving or work around the house. One must examine what percentage of all listeners are doing so with a degree of concentration to broadcasts suitable for quadraphonic transmission, but on a high quality mono VHF receiver. I suggest that the figures could well be relatively small, compared with the serious listener monitoring on stereo equipment, and thus I rate stereo compatibility as of absolutely prime importance, good quadraphonic effects second, and finally, and a long way down, reasonable mono compatibility.

The requirement for producers to be able to use the back quadrant seems not altogether reasonable, for after all producers have constraints in pure stereo. These constraints are so obvious that they do not even have to be mentioned in BBC literature. The main one is not using any injection of pure out-of-phase signal. Such a signal may provide a very good ghostlike effect in a stereo drama by creating a phasey atmosphere on some noise, perhaps a phantom voice, but of course it would completely vanish in mono, and so is not used. Thus I make this plea to the BBC: reduce the centre front phase shift considerably and avoid back central sounds, regarding the main part of the back quadrant purely as a reverberant or relatively unimportant sound field.

Many readers are making their own Matrix H decoders, and there has been quite a lot of criticism of this centre front phase-shift, so the BBC should act before it is too late. In the meantime, I advise readers to avoid too much expenditure on matrix H decoders, since in any case the IBA have already announced their involvement with the NRDC matrix, and more recently the BBC have announced that they will be cooperating with the IBA on the possibility of a compromise matrix, which may well involve changes in matrix H anyway.

On July 8th I listened in stereo to the St Albans organ festival relay, in which the BBC Symphony Orchestra conducted by David Atherton played a programme including two organ concertos, with Simon Preston and Gillian Weir as soloists. The broadcast began not in quad or even stereo, but in old fashioned mono, and behind the announcer's voice my wife and I could clearly discern some breakthrough of a musical instrument not associated with the relay. The concert began in mono, and it took a considerable time for the BBC control room staff to appreciate that the stereo encoder at Wrotham had not been turned on. Apart from my relief at discovering that the Accuphase tuner had not blown up, I was appalled at the lack of concentration shown by the engineer concerned, which brings up the point that possibly the pilot should be left on all the time, or some steps should be taken to ensure that this type of oversight does not occur again.

I was rather disturbed by the lack of very high frequencies on this broadcast, and I understand that the landlines cut off very sharply above 11 kHz. The string tone was muffled, but the basic sound was quite good, both in stereo and later as heard in quad. Nevertheless, I feel that it would have been an advantage to have recorded the concert in stereo on location using Dolby A processing, for playback an evening or so later. This would have given a wider response and avoided the landline ringing, which was quite marked on applause for example.

The BBC's obsession with transmitting an event live would be understandable if no audible losses occurred in landlines, but there is no reason why they should not now consider tape with Dolby processing for such events. Tapes could easily be re-used many times over, if recorded without edits from the front leader, treating it as if it were a live relay. On the other hand of course some of the sense of involvement would be lost for the listeners, though I for one cannot become involved in a live relay if it has technical faults, let alone one starting in mono.

On June 30th a matrix H relay of Verdi's *Aida* was transmitted from Covent Garden, conducted by Riccardo Muti. In this instance the Matrix H format was used to its best advantage, and being as fair as possible in my criticism I must report that the sound quality was at least as good as average stereo from Covent Garden. Whereas very considerable troubles were taken with the balance generally, I could hear more problems attributable to imperfect stereo compatibility than due to poor balance or inappropriate use of quadraphonic techniques. The quadraphonic sound was judged by many listeners to be very exciting, and showed that this broadcast format to be more than just worthwhile. But listening critically, I was again worried by some apparent phasiness in the general orchestral sound from time to time, which tended to cause a little fatigue. Furthermore, when the singers were near dead centre they became slightly unnatural in perspective, but I should emphasise that the overall sound quality was very much better than that heard on earlier matrix H transmissions. There was much less of the problem of half-left and half-right sounds sticking out, which was clearly due to good engineering. Summing up, this *Aida* has proved matrix H to be worthy of consideration, but with the reservations mentioned at the beginning of the article.

Unfortunately some very serious clipping problems were clearly audible from time to time, in particular during the last act. Voices almost cracked to pieces on occasions, but this problem was not necessarily present in passages of high deviation, which almost certainly eliminates any equipment from the control desk output stage onwards including the matrix H encoding equipment. Apparently the BBC engineers had only one rehearsal, and it was necessary to use and adapt for four track a fairly old control desk. From listening to the clipping, I got the impression that the microphone input stages were badly overloading, and I understand that the engineers had serious problems during rehearsal which were only partly cleared minutes before the end. I would like to suggest that the already overworked outside broadcast department should permit more rehearsals for important broadcasts such as this, particularly when they are quad encoded.

On looking at a number of new receivers recently on the market, I have been struck by improvements in many of the areas that I have been moaning about for the last two years or so. Many of the latest models have greatly improved IF intermodulation distortion performance and frequency response, crosstalk and weighted noise are also generally much better. Nevertheless I am still alarmed to find the odd new receiver with poor signal-to-noise ratio, and in one case a frequency response at +-3 dB from 5 kHz to 15 kHz. I just cannot understand how manufacturers with a generally good reputation can continue to make these sort of mistakes, for it should not be difficult to get the correct de-emphasis.