

P5

NEWSLETTER
OF THE
SEVERNSIDE
TELEVISION GROUP
EDITED BY
SHAUN O'SULLIVAN
G8VPG

IN THIS ISSUE

MEMBERSHIP QUESTIONNAIRE ANSWERS
NICAM STEREO TV SOUND EXPLAINED
ALL THE LATEST NEWS ON
DX-TV, CONTESTS, RALLIES
AND NEW GROUP PRODUCTS

SEPTEMBER 1992

We are very grateful to Brian Kelly GW6BWX for producing the following response to the membership questionnaire included with the membership renewals this year. We had a very good response from the members, with most people answering the basic questions. Many also took the time to add comments, most of which were helpful and constructive. On behalf of the committee, many thanks to all those that took part. Each reply was individually considered by the committee, and Brian has produced his article after the committee discussion

An "answeraire" to the questionnaire.

Thanks to all of you who filled in the questionnaire on the last subscription renewal form. The committee have met to discuss the suggestions you made and where your suggestion is feasible we have planned to add it to GB3ZZ. Either for technical or licensing reasons we have to reject some ideas but the others will be used. Bear in mind that the more complex additions will take some time to complete because of other commitments on committee members time.

Here are some of the requests you have made and our comments about them:

A Clock.

This has already been included in the new hardware and software to be released later this year. The present system cannot maintain sufficient accuracy to be used for timekeeping.

Proper encoded teletext.

There are three reasons why this is impractical. Firstly, the cost of building and maintaining a fast data transmission system like teletext is prohibitive. Secondly, teletext is very prone to errors when the signal has multi-path distortion, a condition which many viewers experience. Thirdly, very few, if any viewers have teletext receivers for ATV use.

Narrow band FM sound.

I'm not sure why anyone would want a narrow band channel when wide band is already available. However, we are planning on adding a second sound channel experimentally in the near future. It will be another subcarrier carrying FM audio, it won't be NICAM!

Sine & square wave test tones.

Adding test tones was considered some time ago but it was decided that they would probably annoy more people than they benefited. With the clock facility available it would be possible to restrict their use to unsociable hours though. Tones would have to be sine waves, licensing regulations prohibit other types. In any case it would be impossible to squeeze square waves through the available audio bandwidth.

NEXT SOCIAL EVENING
SUNDAY 4th OCTOBER 1992 at 7.30 pm
ELM PARK PARISH PAVILION
ELM PARK, FILTON, BRISTOL.
ALL MEMBERS, FAMILIES AND GUESTS ARE WELCOME.
DON'T FORGET TO BRING SOME REFRESHMENTS !

Display the direction the receive antenna is pointing to.

This can already be done by selecting either page #81# or #85# but these show it by beam number rather than direction. A list of directions is included amongst the text pages but we will endeavour to show it by compass points as well when the new system is installed.

Indicate when the repeater is in beacon mode.

The very first line of text on the information page states:

"The repeater is currently in beacon mode"

Isn't that clear enough ! Seriously though, the repeater is always in beacon mode when not accessed. If for any reason it can't be used in repeater mode, a message stating so will be put on screen.

Repeater development is an ongoing thing. A few years ago GB3ZZ didn't have a VCR, meteosat, switchable beams and text pages. They were added at the request of users. If you have any other ideas, don't hesitate to tell us what they are. If you don't or can't contact us on 144.750 you can always write in or telephone us. Now is a good time to speak up, its not too late to have features added to the new controller while its still on the drawing board.

A final word, we will NOT be using a digitised photograph of Viv as the new testcard as someone suggested !

A weather station.

We already have satellite images. It would be possible, given time and money, to monitor temperature, barometric pressure and wind speed and direction. We might have opposition from the local authorities if we put a full weather station on the pavilion roof !

Accept DTMF tones on 144.750MHz.

To use a second frequency for controlling the repeater isn't fair to other band users. We don't have exclusive rights to '750 and the temptation to send tones over someone elses QSO is probably too great for some to resist!

Show the usage statistics graphically.

This is already planned for the new software, the lack of an accurate clock in the existing system prevents statistical breakdown by period. The system simply can't determine period lengths with sufficient precision to be of any use. In the new controller histograms will be used to show usage by hour of the day and by day of the week.

PLEASE DON'T FORGET
TO RENEW YOUR ANNUAL MEMBERSHIP PROMPTLY
AND CONTINUE TO BENEFIT FROM

- * GB3ZZ, THE MOST ADVANCED REPEATER IN THE UK
- * "P5", OUR QUARTERLY NEWSLETTER PACKED WITH NEWS AND TECHNICAL TOPICS
- * G7ATV/P, OUR VERY SUCCESSFUL CONTEST TEAM
- * REGULAR SOCIAL EVENINGS DURING THE YEAR

I am once again indebted to Stephen Michie G7KXD for the content of this column. Stephen has sent me a long letter packed full of his activities this summer on the DX-TV front.

One item that is worth noting is the various identification logos that some stations use. Most viewers of UK TV stations would not have been aware of these until comparatively recently, since the only time that we saw them was when the news broadcasts relayed some footage from abroad. However, it has been the practice on the continent for many years for stations to show a small logo in one corner of the screen. With the advent of popular satellite TV, we are all now more familiar with these, since most channels seem to use them.

For the DXer, struggling to resolve a weak signal, they are a real boon. TV-DXing can be a little bit like shortwave listening : you listen to station for half an hour, not knowing what it is, only for it to fade as the captions come up !.

Anyway, Stephen gives an update on some of the latest logos in use. All the former Soviet stations, now CIS of course, are coded OKI OSTANKINO channel [1] logo in bottom right hand corner. Russian TV, PTP or Poccia have no corner logo except during the BECTN news, which has a scrolled PTB in the bottom right hand corner.

Other commonly seen logos are : C1 in top left hand corner, RTP Portugal channel E3 : TVE1 is Spain : A small 2 in bottom right hand corner is Spain TVE2 Santiago channel E2 : RAI ONO is Italy : A small dark SRC is Switzerland.

The main Sporadic E (SpE) season will be ending as you read this, although SpE can occur at any time of the year. Stephen writes that there has been plenty of SpE, together with some Band III and UHF tropospheric DX during the summer. Things started in May, with the old favourites RAI ONO Italy, TVE1 and TVE2 Spain on the 5th. These were joined on the 7th by Russian TV

news, TVR Romania on Ch.R3 and Czechoslovakia on ch.R1. On the 9th, Estonia was seen on R2 together with NRK Norway from Gamlen on ch.E3.

On the 17th, there was a trop opening on Band III. Stephen saw Canal France (scrambled), ARD1 Brocken on E12, Sonneberg in the former East Germany on E11, WDR1 on E11, and several more German, Danish and Netherlands stations.

Returning to SpE, 21st May saw signals from Slovenia, Serbia and Croatia, a part of the world that is sadly very much in the news for the wrong reasons at the moment. Signals continued at this pace until 5th June, when there was a long 2 day SpE opening. Reading through Stephens list, there doesn't appear to be any country in Europe that wasn't seen !. On 12th and 13th, there was UHF trop with France Lille and Strasbourg and signals from the Netherlands. Much the same was seen on the 17th and 21st.

Throughout the rest of June and July, a great deal of SpE and many UHF trop openings were seen. With so many good Trop openings on Band III, I would imagine that there must have been some good DX on 2m. Did anyone catch any of this ?. Of course, when the UHF TV bands open to the continent, there is the chance of some 70 cm and maybe even 23 cm ATV DX. Please let me know if you worked or saw any.

Reading through Stephens letter reminds me so much of one of our first members, now sadly departed, Len Eastman G8UUE. After a lifetime of interest in Radio and TV matters, which included being one of, if not the first person in Bristol to receive British TV broadcasts from Crystal Palace when they resumed after the war, Len finally got his ticket after he retired in 1981. However, like so many Radio Amateurs, he never lost the listening habit. He quickly became involved with the ATV scene in Bristol, at first on 70 cm. In those days, the leading stations were G8GLQ, G8KGH and one G4BVK. However, Len quickly became hooked on DX-TV, and many an issue of PW featured his logs and pictures

taken off screen. Len was always an early riser, having had to clock into Rolls Royce at 7.00 am each morning for many years. He therefore always used to catch the early morning openings, which are generally from the East. He used to like to listen to the news from America on Medium Wave, and was able to copy signals most days. Of course what many Amateurs will remember was that Len used to tape all this exotic DX, and replay it over the air in the evenings when the rest of us got home from the salt mine. It wasn't quite the same as seeing it live and direct, but I am sure that we all saw many stations in this way that we would otherwise never have seen.

Len was one of the real old characters of the Amateur Radio scene. Unmarried, he was totally devoted to his Amateur Radio and Television. His front room was full of equipment, and aerials sprouted from the roof in all places. There was a huge bunch of feeder cables that dangled off the roof just by the front door, before entering into the front room.

The other thing about Len was that he always monitored 144.750 Mhz. At almost any time from 6.00 am to late at night, you could put out a call and Len would always come back. He used to have many regular skeds and contacts in all parts of the country.

Len saw the very early days of GB3ZZ, but passed away before it became anything like as developed as it is today. I am sure that had he lived, he would have been one of the most regular users.

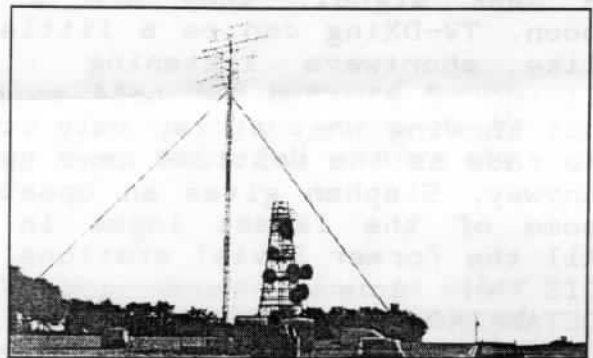
Anyway, this is something of a diversion from this column's subject of DX-TV. What remains is for me to thank Stephen for his letter and useful information, and remind you all to drop me a line about your activities. I look forward to hearing from you.

**WHEN USING GB3ZZ
PLEASE DON'T FORGET TO
WATCH THE OUTPUT BEFORE
TRANSMITTING
AND LISTEN ON 144.750 MHz**

The last issue saw the launch of several new Group Products. One of these was the long spoken of (by me !) book entitled " A Guide to 23 cm Television ". This book is intended to be a beginners guide to 23 cm ATV, and assumes no previous knowledge of ATV or 23 cm operation. Therefore, besides considering the obvious matters such as aerials, receivers and transmitters, there is a lot of information about such basics as the correct cable and connectors to use.

SEVERNSIDE TELEVISION GROUP

A GUIDE TO

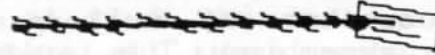
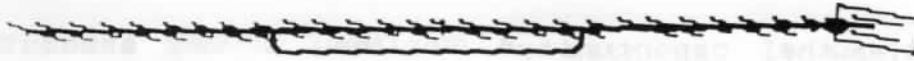


23cm TELEVISION

SHAUN P. O'SULLIVAN

This book is intended for the Radio Amateur who is interested in Amateur Television on the 23 cm band. No previous knowledge of ATV or 23 cm is assumed, and the largely non-technical information will guide the reader through the mysteries of Aerials, Cables, Connectors, Receivers, Transmitters, Repeaters and much more. It is essential reading for anyone who has wondered whether they could participate in ATV, since it strips away all the jargon and reveals how simple and inexpensive ATV operating can be.

The book has proved to be very popular and we have received from very complimentary reviews in Ham Radio Today and CQ-TV. There should also be a mention in the October issue of PW. Having sold over 100 copies just over 2 months, we now have a large new stock available. They are available price £3.00 each



The new line up for the Group Yagis, top the 38 element, middle the original 18 element and bottom, the new 20 element extension.

plus £0.60 postage (UK). They are also available from Mike Wooding G6IQM at KM Publications.

Another new product that has proved very popular is the 20 element extension for our long standing and ever popular 18 element Group aerial. The design for the extension was developed by Paul Stevenson G8YMM, and has worked beyond our best expectations. You may expect a further 4 dB gain over the standard version, with no degradation of its wideband characteristics. Sounds too good to be true, but the tests we have done show this to be the case.

The extension is available ex-stock priced at just £12.00 plus £3.50 postage (UK). It will fit onto any of our 18 element aerials that have been sold over the past 5 years and comes with full instructions.

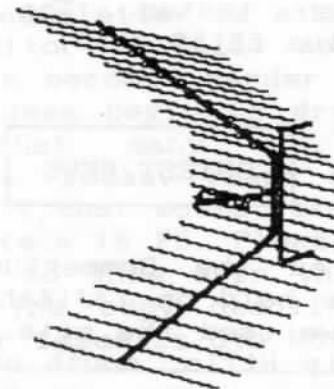
Alternatively a discount package is available, a 38 element aerial comprising an 18 element aerial and 20 element extension at a saving of £1.00 on the separate prices. The 38 element aerials costs £25.00 plus £3.50 postage (UK).

When testing the design for this extension, we made a variety of different prototypes. One of these was a double optimised very high gain yagi that featured tapered element spacing and length. This worked very well, giving about 3 dB more gain than our standard product for no increase in length. The snag was that it had a much narrower bandwidth, and there would need to be two versions to cover both the repeater input and output. This rather goes against our general aerial design philosophy, but if there was sufficient demand, we

could perhaps make it available commercially. What do you think ?.

The final new product is our Trough Reflector. Many people have asked "what is the difference between a trough and a corner reflector ?". The answer is that a trough reflector is a corner reflector with the corner flattened out a little. This does not have any significant effects on the aerial, but makes it much easier to make and less deep on your mast.

I studied all the books on these aerials, and produced a paper design. This was built over the Christmas holidays, and when it was tested the optimum SWR point was only 3 mm different to the calculated position !. Maybe this was luck, but I for one was very pleased at this !.



One of our new 23 cm aerial products, the Trough Reflector.

The big advantage of this aerial is that it has a really wide bandwidth and a wide beamwidth, which makes pointing it much less critical. Also, because the only frequency dependant part of the aerial is the

driven element, the opportunity exists to tweak it for frequencies outside of the 23 cm band.

This aerial is different from our others in another way - it is not sold fully assembled. The finished shape would be difficult to store or post, and hence it is supplied as a fully prepared kit, needing only a screwdriver for assembly. The cost of the Trough Reflector is £18.00 plus £3.50 postage (UK).

Finally, news of one item that has just become available. With interest growing in the use of 10 GHz for ATV, we have a small number of Skyscan L1 LNB's that have been converted for 10 GHz use. This has been done exactly as outlined in the BATC ATV Handbook. This is a difficult task, and involves altering the frequency of the local oscillator by changing the DRO puck and then retuning the front end. We are grateful to Steve Walsh G8KUV for carrying out this delicate task.

These LNB's are the best commonly available method for receiving 10 GHz ATV, featuring as they do high gain, low noise figure, high sensitivity and good stability. They can be used with a standard satellite receiver, the commonly used ATV part of the band tuning around 1050-1150 MHz.

Most of these LNB's are new and unused before conversion and all have been tested. The cost is £50.00 plus £2.50 (UK).

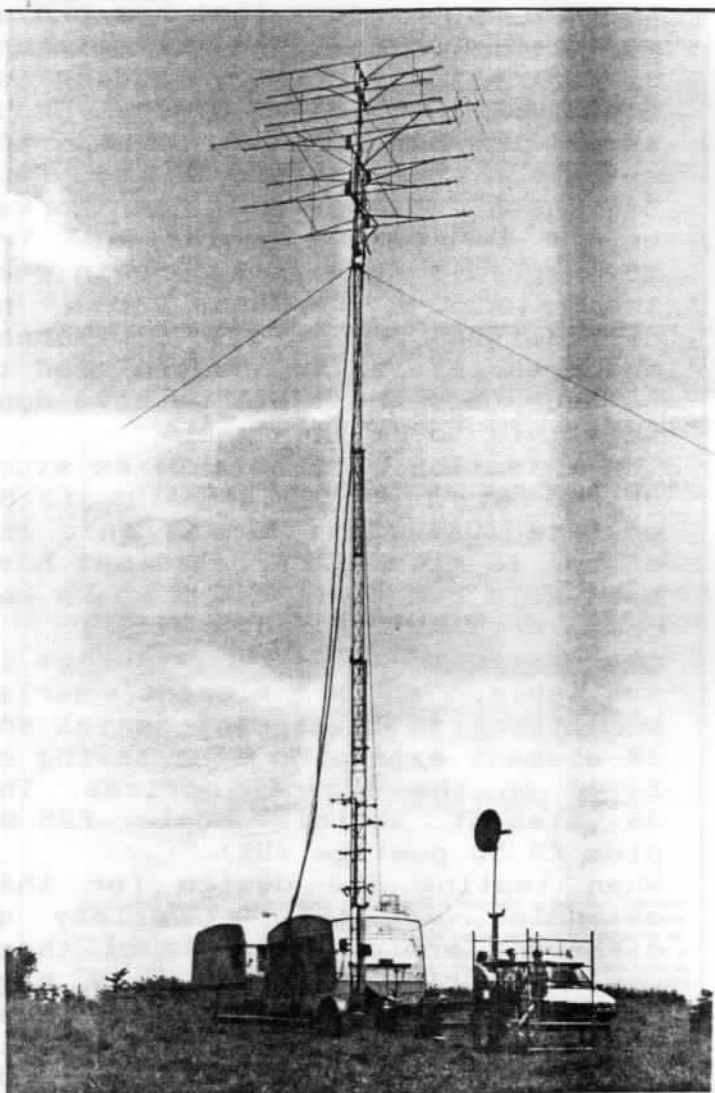
CONTEST NEWS

We entered the Summerfun Contest which was held on 13/14th June. As always, we used the site on top of the Mendip Hills, south of Bristol. In previous years, we have often had bad weather for this contest, despite being only a week or so away from Midsummers day. This year was different, it was very hot and dry. I know that I got a touch of sun burn, and what made matters worse was that we were in the middle of a hay field. I suffer from hayfever, and despite taking the drugs that usually control it

for me, I was absolutely knocked out with sneezing, coughing and wheezing and had to go home early. Even some of our members who have never suffered with hayfever before were badly affected.

Other than this problem, the weekend went quite well. We had a good opening on both 70 and 23 cm which resulted in us working our best DX ever. On 70 cm, our best DX was PA3BJG at 806 km. On this band we worked 28 contacts and are claiming 8203 points.

On 23 cm, we worked PE1DWQ at 580 km distance. We had a total of 32 contacts and will be claiming 7784 points.



G7ATV/P Contest Station on the Mendips, 13/14th June 1992.

Also for the first time ever, we will be entering a log for the 10 GHz band. We worked a total of 2 contacts and will be claiming 192 points. The best DX was Roy G3FYX from his home in Winterbourne in North Bristol. Our 60 cm dish was

only just above ground level on a camera tripod, but we hope that we may be able to locate it at the top of the mast soon. However, the problem that has to be solved is how to steer it accurately. Alignment of the dish is so critical that a standard aerial rotator would not be too crude. I wonder if any of our readers has some clever ideas on this subject. The next contest is the International on 12/13th September. We will be out in force on all 3 bands and would particularly welcome some skeds for 10 GHz. Of course, contacts on any band, even if only one way, are very welcome. We do ask members to make a special effort to come up and work us on this contest, where in the past we have been first in Europe on 23 cm. We would also welcome some more members helping us to set up and dismantle the station. Contrary to what a few people thought, our contest group is NOT a closed shop. We always welcome members to the site, and appreciate a little help from them. Many hands make light work, and some of the regulars get a little tired having to do everything by themselves. How about some of you coming up to operate the station for a while ?.

RALLY NEWS

Once again this summer, we have been represented at several of the major rallies. In May we attended the BATC Rally at Harlaxton Manor. Viv & Ivor and several other members made the long pilgrimage, and put on an impressive show. This was the official launch of our new products, which have been backed up by an extended advertising programme in CQ-TV. We are pleased to report that we sold out of all stock - what a pity we could get any more !. Never the less, those who couldn't buy items at the show placed mail orders, and it took me some weeks to catch up with the backlog. Everything is now ex-stock again. In June, we were at Longleat and once again brought the sun along

with us. It was yet another very hot weekend, and this brought out what must have been a record attendance. On behalf of Viv who organised it, we would like to thank all those members who manned the stand. This certainly spread the load, and enabled everyone to see a little of the rally aswell. As I write this, I am planning the stand for Hamfest at Wimborne. Lets hope that the weather is good !. On 6th September, we will be at the Bristol Rally in the old train shed, Temple Meads Station, Bristol. This is our local rally, close enough for us to be able to stage a live demonstration of GB3ZZ. Once again we appeal for members to help out on the stand. Finally, thanks to the good offices of Mike Wooding G6IQM, we hope that our products will be at Leicester on the KM Publications stand.

EDITORS NOTE

I am sorry that this issue at 8 pages long is a little shorter than we have produced for some time. There are several reasons for this. Firstly I have been incredibly busy of late with many other commitments and have not had as much time as I normally do. The second reason is that although there have been some very welcome contributions from G8KUW, GW6BWX and G7KXD, the bulk of the newsletter is still left for your editor to fill. As time goes by, this becomes harder to achieve since ideas begin to dry up. I am sure that many of you have projects, ideas, views or comments about ATV that would form the basis for a piece in P5. Please give some thought to this over the next few weeks. The copy deadline for the December issue is 6th November.

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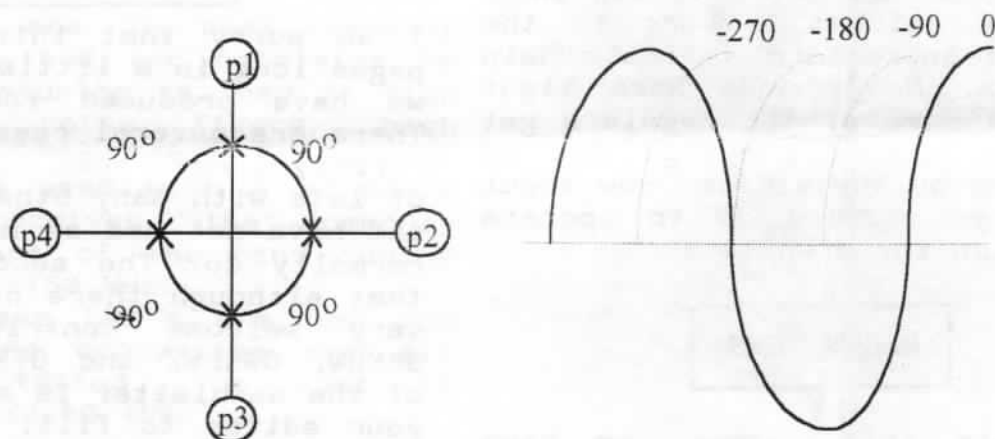
The NICAM digital stereo TV audio system

Steve Walsh G8KUW

This is another in a short series of P5 items of interest to the TV Amateur, this time explaining the latest development in commercial TV broadcasting, NICAM.

The acronym stands for Near Instantaneous Companded Audio Modulation. It is intended to supplement the standard FM 6MHz audio carrier rather than replace it. Mendip has been transmitting NICAM audio for some time now, and I can personally vouch for the high quality.

The NICAM carrier is at 6.552MHz, slightly higher than the normal subcarrier and it occupies a bandwidth of 700KHz at a level some 20db down on the vision carrier. The quality improvement is mainly due to the digital encoding of the audio. Stereo audio is digitised in the studio at a rate almost as high as Compact Disc audio (44KHz), in fact NICAM is sampled at 32KHz into a 14 bit instantaneous value of the audio amplitude. Nyquists theorem dictates that the maximum allowed audio frequency is therefore 15KHz. The 14 bits are companded (compressed) to 10 bits after which a parity bit is added for error checking. The two 11 bit words are DQPSK encoded onto the 6.552MHz carrier.



Differential Encoded Quadrature Phase Shift Keying (DQPSK) is a very suitable modulation system to use with TV. The noise immunity is better than Teletext even at low signal strengths.

A NICAM receiver will switch automatically between NICAM audio and intercarrier audio should the signal become too distorted to resolve the digital bit stream, or should the NICAM data be missing from the signal, such as when playing a VCR tape.

DQPSK works by shifting the phase of the carrier with respect to an unmodulated carrier of the same frequency and phase. The data stream is divided into bit pairs 00,10,11,01 these correspond to a carrier relative phase shift of 0°, -270°, -180°, -90°. The result is that the data is transmitted at a rate of 728 Kbits / sec. The original name for the system was NICAM 728.

There is no plans at this time to convert GB3ZZ to NICAM ! However, some non-NICAM TV sets can be converted to decode NICAM, it depends on the IF filter tailoring. Some SAW filters will attenuate the 6.552MHz signal too much to be of use, but most IF stages that use inductor tuning are wide enough or can be retuned to accomodate the new signal, Maplin are selling a conversion kit.