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From the Private Secretary

12 February 1990

Dear Martin,

LIABILITY OF CHANNEL 5 FRANCHISE

The Prime Minister has seen your Secretary of State's letter of 30 January to the Home Secretary. Subject to the views of colleagues she would be content with his proposals.

I am copying this letter to Tim Sutton (Lord President's Office), the Private Secretaries to members of MISC 128 and to Sonia Phippard (Cabinet Office).

*Yours,
Paul*

(PAUL GRAY)

Martin Stanley, Esq.,
Department of Trade and Industry.

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the department for Enterprise

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Prime Minister

*Brian Griffiths Gully
supports this approach.*

Direct line 01 215 5622
Our ref PB1AGV
Your ref
Date 30 January 1990

Catch, subject to the views of Messrs?

Dear Secretary of State,

*Rec 6
9/12
Yes not*

LIABILITY OF CHANNEL 5 FRANCHISE

I am writing to inform you and colleagues of work done by my officials to assess more accurately the size of any liability that will fall on the Channel 5 franchise.

You will recall that the Broadcasting White Paper proposed that the winner of the Channel 5 franchise should be made responsible for alleviating interference caused by his services to existing users of equipment such as video cassette recorders (VCRs) and home computers. This policy was confirmed in correspondence last summer and as you know, Clause 28 of the Broadcasting Bill requires the ITC to ensure that the franchise holder makes suitable arrangements to discharge this responsibility. In a letter of 26 June 1989 to the Chancellor's office, David Young's Private Secretary suggested that officials should assess the size of the franchisee's liability more accurately so that colleagues could consider more definite proposals in due course. This was endorsed by the Prime Minister (Paul Gray's letter of 3 July to Jonathan Taylor).

I should first stress that, as the attached paper makes clear, there are a number of irreducible uncertainties which surround any estimate of the licensee's liability in respect of retuning, especially as the commencement of the Channel 5 service is at least three years in the future. However, given that, the paper explains the technical background and provides a broad estimate





the department for Enterprise

of the likely cost. This is £17 million, considerably less than the £100 million "guesstimate" which was made before any detailed study was undertaken.

The approach adopted in the paper is that, where the new Channel 5 service causes interference to the ancillary equipment (such as video tape recorders) being used by existing television viewers, the franchisee should be responsible for alleviating the problem, on the "polluter pays" principle. But where a viewer equips himself to receive the Channel 5 service, and thereby make his equipment liable to interference when this was not previously the case, he himself should bear the responsibility for alleviating the problem.

The paper recommends that the franchisee should make and publicise no-charge arrangements for retuning ancillary equipment at viewers' request and in cases, estimated to be relatively few, where the equipment concerned cannot be retuned, for its modification.

I propose that we make public the cost estimate of £17 million but that we make it clear that this is our best estimate and is for guidance only. A formulation such as "about £20 million" might avoid accusations of spurious accuracy. Bidders for the franchise should, however, be encouraged to make their own assessment of the liability and it should be made clear that we cannot take responsibility for any consequences resulting from a bidder relying on our figure.

Nonetheless, I hope that if our estimate is disclosed during Committee Stage, it will go some way to reduce the pessimism in some quarters that Channel 5 is unviable.

There are also some very much smaller costs related to the removal or disruption of existing users of the spectrum such as the CAA, MoD radar, radioastronomers and those theatres using radio microphones. I would be opposed to any obligation being imposed on the Channel 5 franchisee to pay these costs since it would create an unwelcome precedent in the management of the spectrum. I understand, however, that our officials are discussing how these costs may most appropriately be met (perhaps by encouraging the franchisee to come to a private arrangement with those spectrum users affected) and that, in any case, they are unlikely to exceed £100,000.

I am copying this letter to the Prime Minister, the Lord President, other members of MISC 128 and to Sir Robin Butler.

Yours sincerely
Rosalind GTR

[approved by the Secretary of State
and signed in his absence]



CHANNEL 5 LICENSEE RESPONSIBILITY FOR RETUNING ANCILLARY EQUIPMENT

Summary and Recommendations

Channel 5 will be broadcast on or near frequencies which are now used in connecting ancillary equipment to television receivers. This may be expected to cause interference to the ancillary equipment in many circumstances, and vice versa. The equipment, mainly video cassette recorders (VCRs) may need to be retuned to a non-interfering non-affected frequency, otherwise it is unlikely to work satisfactorily in premises receiving Channel 5, or even in premises not wishing to do so but which are near to a Channel 5 transmitter. We recommend as a policy principle that no television viewer, whether wishing to receive Channel 5 or not, should suffer a significant deterioration in the performance of ancillary equipment in relation to existing services because of the introduction of Channel 5 and that any cost incurred in preventing such deterioration should be borne by the Channel 5 licensee. We do not, however, consider that the licensee should be required to pay for any extra work needed to eliminate interference to the reception of Channel 5 caused by ancillary equipment.

2 An estimate of this cost is hedged about with many uncertainties. In particular, the market is both growing and changing quite rapidly, making it very difficult to assess its likely characteristics in three years' time (the earliest date for launching Channel 5). Furthermore, we do not believe it is for Government to provide an accurate estimate. Accuracy could only possibly be obtained by conducting sample surveys of the ancillary equipment nearer to the intended time for launching Channel 5. It is for applicants for the franchise to protect their interests by ascertaining for themselves the likely cost. The Government's role should be limited to making clear to applicants the nature of their obligation.

3 We recommend:

1) that the franchisee should carry out a publicity campaign about the need for retuning and the retuning service he will provide; and

2) that where existing services are affected by the introduction of Channel 5 and viewers do not retune the equipment themselves, he should pay for the retuning of equipment which is capable of being retuned and for modifying any that cannot. The obligation should extend only to equipment in the location in which it was situated when the various

Channel 5 transmitters commenced service. Any retuning required subsequently, when apparatus is moved to different location, should not be a liability of the franchisee. A rough estimate of retuning costs can be provided, under disclaimer, to applicants for franchises. Our best estimate is £17 million.

Technical

4 Several kinds of ancillary equipment are in use: VCRs, satellite TV receivers, cable TV receivers, video disk players and home computers.

5 A VCR is usually connected to a television by a co-axial cable plugged into the TV aerial socket, carrying an ultra-high frequency (UHF) signal, of the same kind as that received by the TV aerial. The aerial is usually plugged into the VCR. The VCR incorporates a TV tuner which automatically passes all four channels received off air to the TV. When recording or playing back it passes a further channel to the TV. Therefore five channels are needed at the television, each at a different frequency. The output of most VCRs is on or near frequency channel 36. When Channel 5 is broadcast it will use frequency channels 35 and 37. These are close enough to channel 36 to cause some interference. Some VCRs' output may have been tuned to other channels. If the VCR is tuned on or near to channel 35 in an area where Channel 5 is also using channel 35 (or to 37 where it is also using 37), this interference will be much stronger. Some VCRs will therefore need to be retuned once Channel 5 starts to broadcast to enable them to operate on existing terrestrial channels or to replay tapes.

6 To receive Channel 5, viewers will usually need a new TV aerial in addition to the one they already have for the four existing channels. Unless they are close to the broadcasting transmitter, the Channel 5 signal they receive without the new aerial will be too weak for acceptable reception. In that case, the signal is unlikely to cause interference to ancillary equipment. Where there is no Channel 5 aerial, only a minority of VCRs will suffer interference. These will be VCRs close to transmitters and VCRs tuned on or near to channels 35 or 37. Once a viewer obtains a new aerial, the Channel 5 signal will be more likely to interfere with VCR playback, but in addition the VCR will interfere with reception of Channel 5. Thus in order to receive Channel 5, viewers will need to have an aerial installed and to have the VCR retuned. This can be done by a single technician during one visit, for which the viewer will pay. Since the VCR is likely to need retuning to receive Channel 5, any additional effort to tune the VCR output to eliminate interference is unlikely to increase significantly the cost of the visit. Even if there should

be some additional cost, the Channel 5 franchisee should not be called upon to meet it. His obligation is limited to curing interference to VCRs caused by his signal. Once the viewer has made the necessary arrangements to receive Channel 5 by installing a new aerial and thus increasing the Channel 5 signal level, it would not be reasonable to make the licensee responsible for the interference it causes.

7 The spread and levels of UHF frequencies reaching TV aerials in different parts of the country are extremely complicated. Although in any one place there are typically only four signals strong enough to give satisfactory reception, there can be eight or more in some areas, and there can often be many weaker signals from more distant transmitters which can cause interference. Even so, we are reasonably confident that in all or almost all parts of the Channel 5 receiving area there will be at least one free frequency channel between channels 30 to 40 inclusive to which to retune VCRs. There are some 13 million VCRs in use. Though all but 500,000 are tunable between channels 32 to 39 inclusive there are some 50,000 which can be tuned only to channels 36-38. However, some 40% of the total cannot be tuned to channel 40 and some 65% cannot be tuned to channels 30 to 31. Where a VCR cannot be retuned to any one of the available free channels, it will need modification.

8 Satellite and cable TV receivers and video disk players have now been introduced and will doubtless increase in popularity between now and the introduction of Channel 5. Such equipment also produces UHF signals which can be connected to the TV aerial socket in a similar way to those of VCRs. Most viewers connect the equipment in a chain. The terrestrial TV aerial and the satellite dish each plug into a socket on a set-top box. The box passes on the four terrestrial channels and adds one satellite channel, often tuned to frequency channel 38. This is plugged in to the VCR which adds a signal, generally on channel 36. The TV then receives four off-air channels, one satellite channel and the VCR channel all through a single co-axial cable plugged in to the aerial socket. Each piece of equipment added to such a chain requires an additional channel. Hence, once the Channel 5 service starts, there will be even greater pressure on free channels and potentially more viewers unable to retune all their ancillary equipment in a way that avoid interference.

9 Fortunately there is an alternative method of connecting video devices. This is called baseband connection. TVs and ancillary equipment are increasingly being provided with baseband connectors. These eliminate all the UHF interference problems described above, because

UHF links are not used. It is impossible to predict exactly how manufacturers will respond to market forces over the next three years but if video devices grow in popularity the shortcomings of UHF connection will create a corresponding demand for baseband connection even without the advent of Channel 5. It seems most likely that in assessing the need for retuning following the Channel 5 service, it will be safe to provide only for existing VCRs and to assume that users of more sophisticated ancillary equipment will need to take advantage of baseband connection. In many areas this will, in any case, be the only technically viable solution.

10 Home computers and video games equipment also produce UHF outputs. However, they are used in a different way from other ancillary equipment. The TV aerial and the VCRs are normally connected to the TV at the same time, but when the computer is connected to the TV, the TV aerial is usually not. Therefore there is little opportunity for the output from the computer to suffer interference from the Channel 5 signal. Even close to the transmitter, experiments show that the computer output can be protected if it is connected to the TV using a well-shielded co-axial cable. These are used industrially at present and are not generally available to the public but could easily be made so and would not be expensive. Therefore we consider it unnecessary to assess the cost of retuning these devices.

Basis of Retuning Cost Estimate

11	No devices except VCRs to be retuned.	
	1	Total population of VCRs in 1989: 13.0 million
	2	VCRs in Channel 5 coverage area (70% of line 1): 9.1 million
	3	VCRs tuned to frequency channel used locally for broadcasting Channel 5 (5% of line 2): 0.45 million
	4	VCRs tuned to frequency channel 36 (90% of line 2): 8.2 million
	5	VCRs tuned to channel 36 and in high Channel 5 field area (4% of line 2): 0.33 million
	6	VCRs needing to be retuned (line 3 and line 5): 0.78 million
	7	Estimated number of VCRs unable to be retuned to the free channel required in their area: 0.04 million

8	Modification of VCRs in line 7 at £150 each:	£6 million
9	Number of VCRs needing and able to be retuned (line 6-line 7):	0.74 million
10	Number retuned by viewers (30% of line 9):	0.22 million
11	Number retuned by technicians (70% of line 9):	0.52 million
12	Retuning of VCRs by technicians at £20 each:	£10.4 million
13	Estimated total liability of Channel 5 franchise (line 8 and line 12):	£16.4 million

Uncertainties

12 Without a large sample survey a number of the factors used in the above estimate must be subject to uncertainty.

a) Nearly all VCRs can be retuned using a small screwdriver to reach a control screw at the back. However, there is no indication of the frequency to which the channel is being set and the task requires some skill. However, we consider that if viewers can be told the channel to which they should retune in their area, and given some retuning instructions, a conservatively estimated 30% of viewers may well carry out the operation unaided.

b) While we know what proportion of VCRs cannot be tuned to high or low channel numbers, or neither, we do not know where in the country each kind of VCR is. We have assumed a uniform coverage, but clearly the more VCRs that are located in areas where the only free channel for retuning is one to which they cannot be tuned, the higher will be the licensee's liability since they will require modification, (estimated at £150 each) instead of cheaper retuning (£20).

c) We have no way of knowing how many VCRs are no longer tuned to channel 36. The commonest cause of this is the proximity of radar transmissions of similar frequency. Retuning to channel 35 or 37 may then have been the natural solution. Our estimate is based on knowledge of the location of these areas of radar interference but there may be cases of other

interference which has led to retuning. The more VCRs there are tuned to channels 35 or 37, the more retuning will be needed when Channel 5 transmissions begin.

The other values used to estimate retuning and modification costs are based upon research, including discussions with manufacturers about the characteristics of VCRs, and with renters and retailers about retuning costs.

DEPARTMENT OF TRADE AND INDUSTRY
January 1990

BROADCASTING: PA pt 10

