

AUTOGRAPH  
SOUND RECORDING

FAO Jane Humphries  
DTI  
151 Buckingham Palace Rd  
London  
SW1W 9SS

And

FAO Catherine Smadja  
DCMS  
2-4 Cockspur St  
London  
SW1Y 5DH

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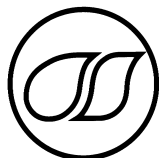
**Re: Digital TV switch over**

Following the recent publication of the consultation documents on 'Digital Television – The Principals of Spectrum Planning', and 'The Independent Review of Spectrum Management', I would like to state the case and views of a vital voice in the radio spectrum management arena; that of Theatre Radio Microphone users.

I represent Autograph Sound Recording Ltd, a Company involved in a large proportion of West End and UK Touring theatre productions.

The Company is independently owned by Andrew Bruce, who has campaigned with the Society of West End Theatre, now the Society of London Theatre, for nearly 20 years to gain access to spectrum and maintain our share.

In conjunction with JFMG, I continue the same cause as Andrew, and we still both feel our voice is too often over-looked and that our Industry will die if our spectrum needs are overlooked at this stage in favour of a 'highest bidder' policy. This is never more true than now as demand is ever increasing, and as you will see below already represents the largest concentration of large scale multiple radio microphone systems in the world.



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## West End Radio Mic usage

The combined usage of radio microphones and in-ear monitoring/reverse radio links across the main commercial centres of the West End is approximately 600 radio channels in use at any given time. This use is spread across approximately 20 principal venues, illustrated below:

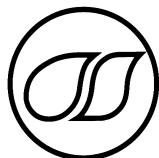
Production	Venue	Radio mic channels	In-ear /reverse	Talkback channels
My Fair Lady	Theatre Royal, Drury Lane	36	2	6
South Pacific	Royal National Theatre	32	2	8
The Lion King	Lyceum Theatre	36		6
Cats	New London Theatre	22		4
Les Miserables	Palace Theatre	24		4
Phantom of the Opera	Her Majesty's Theatre	24	2	4
Mamma Mia!	Prince Edward Theatre	32		6
We Will Rock You	Dominion Theatre	36	2	20
Chitty Chitty Bang Bang	London Palladium	52	10	10
Carmen	Royal Albert Hall	32		4
Chicago	Adelphi Theatre	24		4
The Full Monty	Prince of Wales Theatre	36	2	6
Kiss Me Kate	Victoria Palace	28		6
Bombay Dreams	Apollo Victoria	40	4	10
	Barbican	28	2	6
	Shaftesbury	24	4	4
	<b>Totals</b>	<b>506</b>	<b>28</b>	<b>106</b>

In addition to the above table, I estimate a further 15-20 smaller venues using between 4 to 12 channels per venue at any one time.

Currently, the largest user of radio microphones in the West End is the new production of *Chitty Chitty Bang Bang* at the London Palladium. This uses 52 radio mics as well as 6 in-ear/reverse channels.

## UK Touring Radio Mic usage

In addition to usage in the West End, we also use similar systems for UK Touring theatre productions. The current average is 32 channels, but as shows demand more channels in London, then demand for channels on touring shows will increase accordingly.



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Currently, we have difficulties in finding more than 28 channels that can be used in a touring environment without extensive re-programming or duplication of equipment between cities. The latter is generally not favourable from either a time or cost perspective.

If any improvement can be derived from the transition to digital switch-over, I would request that significant consideration is given to providing approximately 5 to 6 TV bands for country-wide allocation to allow a touring production to move, for example from Plymouth to Newcastle, without technically re-structuring its radio equipment.

Clearly, this may be feasible if digital transmission is principally via satellite or cable, rather than a re-structuring of the many current terrestrial transmitters.

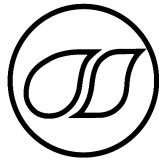
Production	Radio mic channels	In-ear/reverse	Talkback
Miss Saigon	28	4	4
Beauty and the Beast	30		4
Grease	24		2
Sunset Boulevard	28		4
Five Guys Named Moe	16		2
<b>Totals</b>	<b>126</b>	<b>4</b>	<b>16</b>

## Talkback usage

In addition to radio mic and in-ear usage, we have a very serious need of talkback channels.

Our use is not currently too large, and generally shows require up to 4 duplex pairs and 10 simplex channels. This is currently achievable, but potentially needs significant expansion to cope with an increasing demand for multi-frequency, fully-duplex talkback channels, ie, 1 duplex pair per mobile, giving rise to up to 30 duplex pairs of channels with a large and significant separation between send and receive bands.

Recent availability of new equipment operating in this way from Clearcom and Telex has given rise to a huge increase in enquiries and demand based almost entirely on the significant advantages from the safety aspect of fully duplex independent channels.



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This represents the Theatre Industry's usage of talkback as a part of the spectrum, but I fully recognise that there are other more extensive areas of programme making and broadcasting that use significantly larger amounts of spectrum, but feel this rapidly expanding part of our Industry needs due consideration.

## Spectrum Requirements

I hope you can appreciate that this represents an exceptionally valid use of the spectrum. The average requirement for new shows is between 40 to 50 channels of radio mics and in-ear/reverse links and consequently, I trust you will appreciate that this requires a significant amount of spectrum.

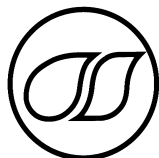
Whilst technology has improved dramatically over the last decade, we are invariably using these multi-channel systems in adjacent or very proximate buildings and more often than not have no choice but to repeat the same frequency allocations. This is necessary not only from an RF planning perspective with JFMG, but also from a logistical perspective as a rental company.

Therefore, to ensure safe use of inter-mod free channels we programme 8 to 10 frequencies per 8 MHz TV band. While it is possible to squeeze 12 to 14, realistically, it is not viable in adjacent TV bands.

The safe intermod free use of channels is important for a number of reasons. The stage environment is potentially dangerous, and therefore talkback and in-ear monitoring/reverse links become an essential part of ensuring safety to all users. They represent vital lines of communications which cannot be threatened by unreliable frequency allocations causing interference. Equally, the very high sound levels associated with interference and intermod troubles are extremely dangerous to the hearing of the individual users of talkback headsets or in-ear monitors

Therefore, to achieve this quantity of channels safely, we currently require 5 to 6 eight MHz TV bands and we anticipate this requirement to rise to 8 to 10 eight MHz TV bands within the next 5 years and therefore, prior to the switch-over to digital TV.

For the most part, our current requirements can be achieved thanks to the new, vastly improved "shared and co-ordinated planning experience" since JFMG took overall responsibility for management of spectrum allocation.



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**Please, please do not allow us to be driven backwards by commercial and financially-driven greed for spectrum pricing.**

### **The Impact on Culture, Theatre and Tourism industries.**

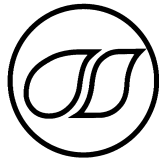
I fully appreciate the scale of the task that the Government is faced with and recognise that there are many, many hurdles to jump before switch-over can occur. It is clearly still some way into the future as we do not appear to yet know how digital television will actually be broadcast, ie, will the whole population be reached via cable, satellite or terrestrial transmitters? Therefore, I hope we are not too late to state our case and make our claim on the spectrum.

I cannot over-stress that the UK Culture, Theatre and Tourist Industries will not survive without viable, manageable spectrum at affordable prices. It is also important to stress that we are not looking for exclusive use, as the recent shared spectrum "policy" has clearly been very successful in sharing this vital spectrum resource.

Relatively speaking, the value to UK Plc is enormous as a component part of the whole Leisure, Culture and Theatre Industries. The UK as a nation is renowned as THE World Leader in the arts and the behind-the-scenes members of the Industry, such as ourselves and many others, are reputed to be world-leaders and technological pioneers of this field. However, the Industry is generally still operating on very strict margins and suffers heavily in the hands of world economies and therefore any radical reform of spectrum pricing will be unsustainable for the producers, theatres, rental companies and smaller end-users.

It is vital, therefore, that the needs outlined above are recognised for its contribution to the overall revenue and success of our culture, theatre and tourism industries and that to auction or out-price, the spectrum will suffocate a massive part of London and the UK as a whole.

Although there are many better placed than me to produce exact figures, I have estimated from our position in the Industry that West End ticket sales alone produce some £300m revenue per annum. This is based specifically on theatre usage and does not even attempt to cover the whole range of entertainment opportunities in London that involve the use of radio spectrum. Furthermore, it makes no account for TV and independent programme makers and neither does it scratch the surface of the



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associated affect other elements of the Industry, such as hotels, restaurants, marketing, transport, employment opportunities, etc, etc.

In this instance, I am sure you are better placed than I to obtain figures that relate to the overall effect on GDP.

I speak on behalf of Autograph Sound Recording Ltd as a market leader in theatre sound rental and design, but would also like to extend these views on behalf of all rental companies alike and all smaller users from all aspects of broadcast, recording, news-gathering and PMSE avenues. I am aware that this issue is still clearly under consultation and I am encouraged to be offered this opportunity to register our views. I sincerely hope there is an opportunity for the scale of contribution that our industry makes to the nation as a whole to be recognised and hope that this will exceed any pressure to generate disproportionate revenue from auction or out-pricing spectrum.

I would be most interested in continuing to take part in discussions and planning at the highest possible level and hope opportunities for this arise in the near future, be they directly with the Department of Culture or indirectly via the Radiocommunications Agency or JFMG.

Yours sincerely

Duncan Bell  
Director