



AUTOGRAPH
SOUND RECORDING

Autograph Sound Recording Ltd's Response to the
PMSE clearing the 700 MHz band: Support for PMSE equipment owners

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I am writing to present the views of Autograph Sound Recording Ltd in response to the consultation: '*PMSE clearing the 700 MHz band: Support for PMSE equipment owners*'.

As a member of the BEIRG Steering committee, I am very familiar with Ofcom's views, as Ofcom presumably are with mine. I am also aware of the significant time that has been invested in this process to date by the industry and by Ofcom. I would like to recognise Ofcom's hard work and effort that has gone into gaining a better insight into our industry and in trying to resolve the long-term solution by identifying new spectrum for PMSE to mitigate the losses. However I must similarly express my deep concern and disappointment that the proposals contained in the consultation fall so far short of the industry's needs and conflict significantly with the positive engagement over the last 4-5 years. I will elaborate on these points later.

Background –

Autograph is a small specialist company that provides services to the pro-audio industry. We primarily hire our services and equipment to a wide range of clients across the UK. This will range from supplying a single microphone stand, to designing, hiring and installing an entire sound and communications system for a host of major West End productions.

As a rental company we supply some 60-70% of the West End's productions, and a good proportion of the UK touring shows. As such this makes us one of the key hire companies in the PMSE sector and this has been our livelihood for 44 years. The West End and touring markets have grown with technology throughout that time, and have come to rely on our services and those of our competitors to provide highly engineered, fail-proof systems that are expected to perform 8 shows per week, 52 weeks a year. Developing this level of system for what is a small, niche industry was never at the forefront of manufacturers' research and development programs. So since the 1980's we have worked more and more closely with several manufacturers to develop radio mics, in-ear monitors and radio-comms systems that can meet these stringent operating demands. They take no credit, and they add no tangible value, but the show can't go on without them so they have become an indispensable tool for the job from a creative production perspective and in some cases, a safety of life perspective.

Observations

Ofcom have stated that they believe that a large proportion of the PMSE sector may be able to continue its business with existing equipment in the post clearance spectrum that will be available. This may be true, although it's impossible to tell until all the white space map info is complete. In their stated belief there is no recognition that it's a dynamic process and that it needs to account for short term upheaval and changes in the spectrum plans to accommodate the transition to clearance as well as all the long term detail such as relays/boosters etc that the recently released 'look-up-tool' doesn't necessarily have, or says is subject to change, so in my opinion many aspects of the sector WILL be affected more that Ofcom have stated.

In addition to the above, Ofcom state only 7% of events or productions will be significantly affected. Again while that may be true it appears that the consultation overlooks or over simplifies this element of the industry. There are a small percentage in terms of licensees, or businesses that account for a

very large majority of work in particular areas of the sector. These few parties are responsible for many many high profile events that have become part of the fabric of British society. These parties are companies such as Autograph, Stage Sound Services, Handheld Audio, Plus 4 Audio, Presteigne, Betersound, Terry Tew Sound & Light to name but a few. Noticeably these are all rental companies because the vast majority of these events are serviced by small specialist dynamic rental businesses, none of which have strict economic asset policies or plans. This is mostly because the financial planning or business case for these is based on rental income and that rental income is constant throughout the equipment's life rather than depreciating as a 'normal business' asset value might.

Therefore I believe that Ofcom have significantly underestimated the impact of their proposals because it is seen as a small proportion of the industry, without fully realising the scale of impact its proposals will have if they proceed unchanged. These few companies are critical elements in the supply chain for the production process of the UK wide theatre industry on a nightly basis for 364 days per year, together with a huge proportion of content creation for a wide cross section of primetime TV programs. Productions such as Les Miserables, Phantom of the Opera, Miss Saigon, Harry Potter and the Cursed Child, 42ND Street, The Lion King, Mamma Mia, Kinky Boots, School of Rock, Curious Incident of the dog in the Night-Time, Warhorse and TV shows such as the X Factor, Let it Shine, Britain's Got Talent, Strictly Come Dancing, The Voice, Comic Relief and Children in Need etc are the British staple diet when it comes to entertainment, as well as representing significant core economic value to the world leading entertainment industry that is either exported worldwide or attracts tourists and visitors of all nationalities to our theatres hotels and restaurants on a world class scale.

For the reasons outlined above I believe it is essential that Ofcom and the UK Government radically re-think their proposals to ensure that this critical industry is not damaged irrevocably, and that its proposals must fall in-line with Pascal Lamy's recommendation that 'the broadcasting and PMSE sectors should not be disadvantaged by such a transition and cost compensation should be duly addressed'. It is essential to understand that the 700MHz clearance is seen by the Government, Ofcom and the MNOs as a commercial opportunity for new business or growth, but for the PMSE sector it is an uninvited threat and change to our industry. Ofcom and the Government must act to protect such a valuable existing revenue stream.

Autograph owns assets with a value in the region of £15m and the radio systems account for over one-third of that. In many cases we have been involved in the technical development of these tools and in some cases have set the standard for the industry. From Autograph's perspective the development of these essential tools has led to us owning one of the largest inventories of Radio microphones owned by one company anywhere in the world. In order to endure the working environment set out above, we have made key decisions along the way to buy into the best-engineered systems on the market, which, as you would expect, come with the appropriate price tag.

If only a percentage of equipment is eligible then the PMSE sector is 'worse off'. If only a proportional replacement value is offered on that eligible equipment, the we become even worse off, and if no funding is provided for

additional costs of ancillary equipment, admin costs, up-scaling of equipment to allow for more difficult future operating environment, skills training or recruitment then we are being severely impacted from all sides.

I fail to see how this in anyway upholds the principles of the Lamy report or indeed marries with much of the rhetoric in several previous Ofcom publications where all the various elements and issues referred to above have been contributed, considered and included.

It is that fundamental. I am not trying to over react or be alarmist, but I think somewhere in the midst of the last four years, some of the fundamental principles have been overlooked at best and blatantly ignored at worst.

Key essential requirements:

1. The funding scheme must not leave the sector worse off or disadvantaged.
2. The eligibility criteria must be widened to include all equipment in cases where partial changes are not viable solutions.
3. The 'one size fits all' approach significantly disadvantages certain elements of the sector, so the percentage payable should be significantly nearer 100%.
4. The additional costs of ancillary equipment, training, admin, planning, technical de/re-commissioning of systems, other production costs such as rehearsals should be included in the funding scheme in the same way they are for the TV sector.

What has driven Autograph, or indeed many other companies or individuals, is pure passion and creativity. It is not greed or hunger for wealth. The PMSE sector affects so many aspects of everyday life without the voting public even being aware of our existence.

I should add that the answers below are specific to Autograph's response but confirm that in the context of the wider industry I fully support the BEIRG response.

Answers to questions

Q1: Do you agree with our proposed criteria for who should be eligible for the grant scheme?

We agree that in order to be eligible qualifying claimants should be operating legally.

We do not agree that the scheme should have a defined limit on the extent to which it's deemed to be affected. The rental companies need uniform inventories of equipment that are essential to meet the dynamic needs of our business. Therefore if an entire inventory is affected by the 700MHz clearance then the whole inventory should be eligible.

Similarly all ancillary costs should be included and therefore in some cases such as accessory/bespoke equipment, be included in any rate card, and in other less tangible cases perhaps be a percentage of equipment costs.

In modelling the costs of clearing the band, Ofcom estimated that PMSE equipment owners would encounter additional expenses roughly equal to 5% of the value of equipment being claimed for^{1,2}. By not compensating these costs, which Ofcom have previously recognised, Ofcom are not capturing the full extent of losses attributable to their decision to clear the band. This will leave PMSE users considerably worse off. We have learnt from a meeting at the Digital Television Group that project management costs are being included in the funding scheme for those involved in DTT infrastructure and therefore questions why PMSE is being treated differently.

We regularly supply productions all over the UK that use all of the UHF spectrum available to PMSE and that availability varies from one location to another so there are times when we have no choice to buy equipment that tunes to certain ranges of spectrum that would be affected by the 700MHz clearance, and we may have to continue to do this until 2020. This is particularly likely as a result of the transition phase we will enter in 2018 as DTT gets remapped and the 700MHz becomes more vacant, it will offer a significant safe haven from a changing environment sub 694 between the start and end of the changeover. For these reasons above, we disagree with the 2016 cut-off date for eligibility.

Q2: Do you agree with our assessment of the impact clearance will have on equipment which operates exclusively below 694 MHz?

Autograph does not agree with Ofcom's assessment of the impact of clearance on equipment which operates exclusively below 694 MHz.

It is not acceptable as the world leader in the entertainment field that UK production values and quality is diminished because of the Government's decision to clear the 700MHz band.

In our case, **all** equipment should be eligible for funding regardless of tuning ranges. This is because we will be forced to purchase entirely new systems in order to adjust to the new demands of operating in a vastly reduced and a more congested spectrum environment. The theatres producers that we supply cannot operate different systems and technologies side-by-side for a variety of reasons:

- Some new equipment works on a set frequency spacing grid to work as efficiently as possible which either allows for growth or requires less spectrum for a given production. However if a portion of the equipment is legacy analogue equipment because it is ineligible for funding then this efficiency is lost as the digital frequency planning has to be treated as though it is analogue, with inter-modulation products calculated accordingly.
- Integrating analogue equipment with zero latency alongside newer equipment that generally has up to 3.5ms latency is unacceptable to studio and theatre sound designers. Side-by-side operation may technically be feasible but it leads to inconsistencies in the audio system which, on large scale multi-channel radio mic

¹ https://www.ofcom.org.uk/data/assets/pdf_file/0027/71928/700_mhz_implementation.pdf paragraph 4.8, page 19

² https://www.ofcom.org.uk/data/assets/pdf_file/0024/46923/700-mhz-statement.pdf table A2.1, page 75

installations, causes the vocal sound to become incoherent. Clearly, this would damage production quality and audience enjoyment, and in turn disrupt the revenue generated from the sector.

- For similar reasons, the more subjective aspects of audio quality are compromised by having mixed systems as the old and new will have different audio characteristics that sound different, a situation which is unacceptable to sound designers and producers.

For these reasons, the organisations which own the most equipment, such as Autograph will be forced to purchase complete replacement systems, including equipment operating below 694 MHz. These purchases are unavoidable and therefore should be funded. If we only get 47% funding towards equipment with 50% or more of its tuning range above 700 MHz, only a tiny proportion of our equipment replacement costs will be covered, to say nothing of additional costs detailed elsewhere.

Ofcom is tasked with securing the “optimal use of spectrum”. If Ofcom does not fund complete systems, where necessary, it will be failing to secure the best use of spectrum while simultaneously compromising the revenue earning potential of major end users such as the West End and television studios. In Ofcom’s 2014 statement 7.27 it states that PMSE should improve their equipment and working practises. Manufacturers and industry already produce and use some of the most flexible and efficient equipment but the industry would engage further with this approach if it was adequately funded to do so, but the current proposals will not allow that to happen. This is relevant across the whole range of products, but is particularly relevant to the uptake of new spectrum in the airband, where currently no manufacturers have committed to produce equipment, and minimalist funding will significantly impact the size of the potential market, which in turns further reduces the incentive for manufacturers to build niche, UK only equipment. Ofcom should reconsider other areas of spectrum as alternatives that are more likely to be available across more geographical markets.

Autograph also strongly disagrees with Ofcom’s suggestion that PMSE users will be able to recoup their losses through resale of sub 694 MHz equipment on the secondary market. As previously explained, equipment has a consistent rental value over its whole life, but its resale value diminishes quickly. If there are large quantities of equipment on the market following clearance, resale value will be even lower due to a surplus of supply. In addition to this even if there were a market, we would have to gamble on replacing equipment prior to clearance in the hope that some small proportion of funds could be recouped subsequently. This too leaves companies like Autograph significantly worse off.

In addition it is imperative that specialist comms equipment that requires duplex frequency pairs, becomes eligible even if only part of the system is in 700MHz band. It is also vital that the funding to replace these systems reflects the significant uplift in cost that we have seen with the development of digital comms systems. They are up to three times the price of the older analogue systems that are rendered redundant by the 700MHz band clearance. In many cases, these systems have to operate to a very high quality and standard as they are a key element of ensuring safe operation of show machinery and therefore ensure the actors, technical crews, musicians and audiences are kept safe. There are other examples of high-power talkback systems where the replacement costs are significantly higher than current systems that should also be eligible and funded accordingly.

Q3: Do you agree with our analysis of the impact clearance will have on equipment which straddles the 700 MHz band and the spectrum below 694 MHz?

For similar reasons outlined in the previous question, we disagree with Ofcom's suggested impact clearance will have on equipment which straddles the 700 MHz band and the spectrum below 694 MHz.

As a rental company that supplies touring productions the crossover of equipment from one tour venue to another is entirely predicated on equipment tuning ranges. With any diminution of spectrum, comes a harsher RF environment remaining. In the absence of any new equipment in the AIR BAND, operating across the white space patchwork will become significantly harder post clearance. Therefore uniformity of systems technically becomes even more critical. If a piece of equipment is partially disabled to any extent then its value is diminished to the professional PMSE rental companies, therefore any equipment that tunes to 700MHz at all should be eligible for full compensation.

Further to this its important to ensure that ancillary equipment such as tuner modules and antennae are subject to the same inclusion. eg a wide band antenna may be deemed as ineligible if there is a percentage qualifying element, but the antenna will attract unwanted noise from its wide band nature that will capture new high power transmissions from the incoming mobile services, so the likely need for expensive filters, set up time, training and manpower will increase again.

Q4: Do you have any evidence that an alternative boundary for the tuning range of equipment should be drawn?

In order to ensure that Autograph are left no worse off by the clearance of the 700 MHz band, any equipment impacted, no matter how minimally, should be eligible for funding.

PLEASE note the following are extracts from the BEIRG response, and explain the impact of the tuning range criteria in general but also specifically highlight the relevance to the 700MHZ guard band consultation as well.

For the purposes of the funding scheme the eligibility criteria should disregard any potential for use of the guard band.

Autograph believes Ofcom should allow PMSE access to the guard band, even though its suitability is as yet not fully known. If it is available, it should be on a co-ordinated basis.

From the BEIRG Response

Ofcom based its analysis on the build ranges of equipment from the two largest equipment manufacturers by market share, concluding that the build ranges fall into two categories: (1) only a small quantity of spectrum is lost, meaning that the equipment is minimally affected and (2) over 50% of the tuning range falls within the 700 MHz band, which Ofcom have identified as being eligible for funding. However, if PMSE is granted access to the 700 MHz guard band³, a large portion of

³ <https://www.ofcom.org.uk/consultations-and-statements/category-1/700-mhz-guard-band->

equipment will no longer be eligible for funding.

The popular N-GB⁴ range of Sennheiser wireless microphones (606-790 MHz) currently have 52.2% of their tuning range in the 700 MHz band, but after the boundary is adjusted, that will fall to 47.3%. This is a huge problem because of the quantity of N-GB range equipment currently in use. The range is very popular with touring productions in particular and one of BEIRG's members, Autograph Sound, reports that around three quarters of their equipment is N-GB.

Since Ofcom have currently selected for convenience the arbitrary cut-off point of 50% with points (1) and (2) in mind, BEIRG argues that, since both points materially change after the 700 MHz guard band is included, Ofcom should review its decision. It is not fair that PMSE equipment owners who have invested in top of the range equipment, spanning 184 MHz should receive no funding when their equipment's usable range is reduced to 97 MHz. This is a difference of 87 MHz and clearly represents a significant reduction in the equipment's utility.

Ofcom should exclude the guard band from their assessment of funding eligibility, especially as it is not yet known how usable that spectrum will be – Ofcom are currently also consulting on interference from mobile networks in the 700 MHz band into DTT below the guard band, which suggests that there is risk. Additionally, Ofcom could consider changing the criteria so that it is based on an absolute loss of spectrum access rather than a percentage – at the moment equipment owners who have invested in top of the range equipment with the largest tuning range are disproportionately affected by a cut-off based on a percentage as they lose access to more spectrum.

Q5: Do you agree with the proposed formula to estimate the level of funding?

NO. 47% of the new value is simply inadequate and there is no mechanism to fund or provide for the 53% shortfall that it provides. In simple terms, even if all equipment that tuned from 470 to 790 was eligible, receiving 47% would still render half the West End and touring shows unworkable as neither Autograph nor our clients have the resources to simply fund the other 53%

We do not set aside specific amounts of money for replacement of equipment over time. Our equipment is the best on the market, and lasts the longest as it is maintained to the highest level.. Therefore the economic modelling Ofcom does, together with the 'averaging one size fits all approach' hits Autograph and similar companies the hardest. Our assets far exceed the life cycle of your averages and far exceed the security of tenure that is afforded by the licensing regime. Again its important to realise the clearance of the 700 MHz band does not represent a new business opportunity to us. It is simply a huge cost burden to us. Autograph and other similar companies should receive far closer to 100% funding of the equipment to reflect the scale of the disruption to our business. In addition the level of funding should be expanded to include ancillary costs such as time for training, swapping out systems, short term finance to allow for leap-frog systems to be

[pmse?utm_source=update&utm_medium=email&utm_campaign=pmse700mhz](#)

⁴ The N-GB range is a UK variant of Sennheiser's N range, designed for the UK market to extend down to Channel 38. Shure's Axient C range (606-814 MHz) is similarly affected assuming the range above 790 MHz, which is already unavailable in the UK, is discounted.

deployed to ensure continued service to existing long running productions

None of the above costs were covered in 2012 and for Autograph alone, these costs exceeded £250,000. This is a material cost to us, and should not be dismissed as insignificant. As previously mentioned we are aware these are costs that are being covered for DTT infrastructure. It is only fair that they are covered for the PMSE sector as well.

Q6: Do you agree with our approach to calculating asset life?

Autograph do not believe that asset life should be relevant to Ofcom's funding calculation. Regardless of the age of a piece of equipment, rental companies derive exactly the same economic return from its hire. This means that if Government funds a scheme based on asset age, rental companies will be paying more than expected, earlier than expected but still generating the same economic return, leaving a budgetary shortfall. This is not an acceptable situation 'which would leave our business no worse off'. Instead, we would be left worse off up until the point in time at which the expected asset life of old equipment is exceeded by the remaining life of new equipment and our cash flow returns to normal. However, to make up the shortfall in the short term, we would be reliant on loan capital – which we would have to service – leaving us worse off in the long term even if we are able to source the funds. To prevent us from being left worse off, Government should pay the full cost of replacement up front. PMSE businesses should not be expected to bear the burden of clearance.

Q7: Are you aware of any developments which would mean data from the 2013 equipment survey or the 2010 Channel 69 statement are likely to misrepresent average asset life?

As above, we do not believe that asset life is relevant.

Q8: Do you agree with the use of an average asset age for the estimation of funding entitlements? If not, do you have any suggestions for an alternative approach?

As above, we do not agree with an asset age in the calculation of funding entitlements. To reflect the way that hire-equipment generates money, Government should provide funding that is much closer to 100%.

Q9: Are we correct in our assumption that a large proportion of PMSE equipment owners will not have evidence of when they purchased their equipment?

Yes., However Autograph are able to provide evidence of purchase

Q10: Do the data in the 2013 equipment survey provide a reasonable basis for calculating average equipment age? If not, do you have an alternative approach for gathering relevant data for making this calculation?

I believe the data survey in 2013 is misleading. We have continued to purchase new equipment and in some categories we have increased our inventory by as much as 25-30%

Q11: Do you have any comments on our proposals for how the claims handling process should operate?

The claims handling process will vary enormously from one company to another so its essential the scheme is as flexible as possible. Some companies will swap all equipment at once and others such as Autograph will have a very managed timetable of swapping equipment out show by show. However as production runs change and vary with as little as two weeks notice, we require flexibility in being able to change the programme as it progresses.

We understand that Ofcom will be consulting on a rate card at a later date. We advise Ofcom to ensure that the rate card includes all accessories, antenna systems and mainframes that have to be replaced as part of the move out of the 700 MHz band. Ofcom should also include scope for inclusion of bespoke items on a company by company basis as part of the funding scheme.

In term of timetable, I believe that Ofcom have underestimated the scale of the changeover process, and current plans don't allow for early changeover that may be required during the clearance transition phase, which starts as early as Q1 2018. As a consequence Autograph believe that Ofcom must prioritise the rate card development, alongside reviewing these responses in order to engage further with the industry to redesign the whole scheme to ensure the industry is left no worse off. This work will require more resource than Ofcom current afford PMSE. We (as BEIRG and the wider industry) have seen a significant decline in PMSE resource within Ofcom since the end of the PMSE review, and this should be addressed. A new plan, and rate card leading to a statement must happen sooner than the current suggested timetable of 'hopefully by the end of the year' and the compensation scheme must be in place very early in 2018 and run as long as is required to allow a smooth transition for the industry. This should include continued access to the band beyond 2020 so that PMSE doesn't face the upheaval only to see the spectrum lie fallow during the auction and early MNO deployment phases.

