SUPPLEMENTARY RESPONSE TO OFCOM'S CONSULTATION ON LISTED EVENTS: COMMENTS ON OFCOM'S LISTED EVENTS MODEL

1. Ofcom has constructed a model for evaluating the reach of television channels for the purposes of determining the classification of channels in the context of legislation on listed events. The model finds that television channels that have carriage on PSB DTT muxes, cable, satellite and broadband have a reach of just over 95% of individuals in the UK, with channels carried on commercial DTT muxes (and the other platforms) having a reach of around 2% less, at around 93% of individuals.

2. This model, however, is not fit for purpose and is unlikely to produce meaningful results. This is for two key reasons.

Estimation of number of people excluded from the calculation

3. A fundamental driver of the results of the model is the difference between (a) the total base of individuals and (b) those that are estimated to use broadband to watch television services, for the small number of groups for which this estimate is relevant. (We discuss the groups for which this is relevant further below.)

4. This difference is particularly important in the case of two groups identified by Ofcom as (a) single platform 'broadband' individuals (Row 11 of the model), and (b) dual platform 'other and broadband' individuals (Row 26 of the Ofcom model). Ofcom estimates the number of individuals in these two categories to be 3.7 million and 922,000 respectively – a total of over 4 million individuals, or approximately 6% of the total base in the Ofcom model.

5. These are individuals who live in households that, at a minimum, do not use one of the major traditional broadcast platforms (satellite, cable, DTT). However, all have broadband.

6. The extent to which individuals in these groups use broadband to view television services is a key driver of the results of Ofcom's model. Individuals in these groups who do not use broadband to view television services are removed from the numerator in the calculation of the percentage reach of television channels in the UK. Accordingly, if, for example, none of these people use broadband to view television services, then the maximum possible reach of any television channel would be 94%.

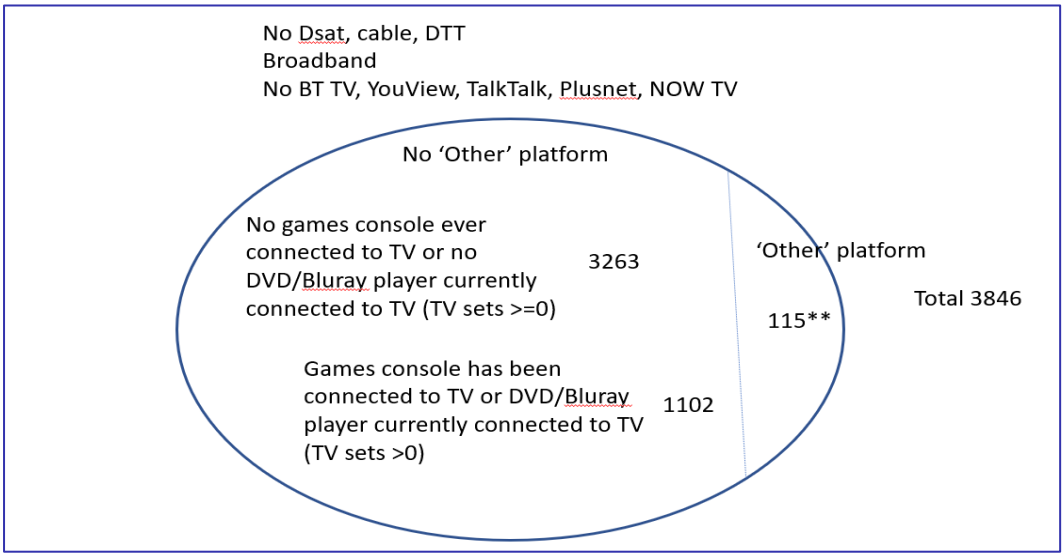
7. In Ofcom's model 44% and 34% of individuals in these two groups, respectively, are estimated to use broadband to view television services. As a result, around 2.7 million UK individuals are found not to view television services when they have the capacity to do so. When combined with the estimated number of individuals who have no television platform (including broadband) - 377,000 individuals - this means that Ofcom calculates that the maximum reach of any television channel in the UK is 95.3% of the population.

8. Given the importance of these figures to the results of the model, therefore, it should be expected that they would be given careful attention, and particular care taken with how they are derived. On the contrary, however, their derivation is inexplicable and appears to lack any reasonable foundation.

9. The number of people in the first group (single platform broadband individuals) is calculated by Ofcom by adding together three sub-groups, as shown in Figure 1 below.[1] [2] They are identified by, among other things, whether they have ever connected a games console to their TV, and whether they currently have a DVD or Blu-ray player connected to their TV. The number of individuals in each sub-category does not add to the total of the category, which suggests that they are not exclusive categories (i.e., there is overlap among them). The emphasis placed on the role of 'other' platform in relation to this category is difficult to understand.

10. This is a perverse approach to identifying the population of individuals who do not use one of the major platforms to receive television services, but have the capability to do so via broadband. The relevance of responses to questions such as whether a household has ever connected a games console to their TV in estimating this population appears to be minimal. On the other hand, this approach ignores readily available data in the BARB Establishment Survey, such as whether their TV is connected to the internet.

Figure 1: How the number of broadband-only individuals is derived



11. The approach then taken to determining who, within this population, is estimated to use broadband to watch TV services is even more perverse. It relies entirely on responses to a survey question about whether their household uses a computer to view television – ignoring entirely the fact that by far the predominant way of watching television services via broadband today is via the television set, using a range of ways of connecting the TV to the internet. In doing so, this approach ignores data in the BARB Establishment Survey about, for example, households' use of services like Netflix and Amazon, and whether their TV set is connected to the internet (albeit that this BARB data is commonly understood not to be fully reliable in relation to this issue).

12. The second group ('other and broadband individuals') comprises people who do not use satellite, cable or DTT, have broadband, and use one or more of BT TV, TalkTalk TV, Plusnet, YouView or NOW TV (although, inexplicably, the specific 'other' category is not taken into account here). Ofcom estimates that there are 922,000 such individuals in the UK.

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1 Ofcom provides only a single figure (3701) for the sum of the number of individuals in these three categories (despite providing a large number of wholly irrelevant splits in many other categories in the model).

2 The figures shown in the diagram are Sky's estimates of the numbers in each category using the same BARB ES as Ofcom. We have been unable to reproduce Ofcom's figures. The double asterisk on the figure of 115 is discussed further below.

13. Again, the approach taken to determining who, within this population, is estimated to use broadband to watch TV services is perverse. These individuals are identified using a long, cumulative list of unusual and/or potentially irrelevant criteria:

    (a) their household watches TV on a computer; and

    (b) their TV is connected to the internet via a games console, via a computer or directly; and

    (c) a games console is not used to watch TV; and

    (d) a games console is used to play games or connect to the internet or watch DVDs / Blu-ray discs; and

    (e) the household uses a projector, mobile phone or 'other' device to watch TV.

Failure to have regard to the reliability of data used in the model

14. The data relied on by Ofcom for its model is derived from a consumer survey. Like all consumer surveys, it is necessary to have regard to the reliability of the data they produce when using their results. A common reason why surveys may provide unreliable results is small sample sizes.

15. In the version of the BARB Establishment Survey available to Sky small sample sizes are indicated by asterisks. Those asterisks flag to users that the figure is either unstable (single asterisk) or highly unstable (double asterisk).

16. Ofcom, however, has no regard to the reliability of the data-points that it uses. All figures in the model are treated as being equally reliable, which is not the case.[3] A significant number of the figures used by Ofcom have either single or double asterisks associated with them.

17. This is particularly important given how close estimates of the reach of certain television channels are to the statutory threshold of 95%. If proper regard were had to the margin of error in the figures there is a realistic prospect that the reach of those channels falls in a range in which they are below that threshold.

Excess complexity and redundancy

18. In addition to the two issues set out above, which render the model not fit for purpose, the approach to modelling is excessively complex and includes a large amount of redundancy. Whilst these factors do not necessarily cause the results to be unreliable, as discussed further below they raise the risk of the results being wrong, and result in the model being non-transparent.

19. Ofcom's model comprises seven sheets in an Excel workbook, which include hundreds of detailed and complex data-points and calculations.

20. The vast majority of that complexity and the data used in the model is unnecessary, and makes no contribution at all to the results of the model.

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[3] Ofcom's failure to appreciate this issue is illustrated clearly by its references in correspondence to having moved 7 individuals between categories. Given the likely margins of error in the data being used, it is meaningless to reallocate 7 individuals between categories.

21. In terms of data-points, the most obviously redundant are (a) the column in the 'BARB ES' sheet entitled 'Watch online', and (b) all but four of the data-points in the column entitled 'watch online (best device)'[4]. That these data-points are redundant in the model is straightforward to observe: if they are deleted from the spreadsheet the results of the model do not change.[5]

Figure 2: The data in red plays no role in the model

Input Data - BARB ES

Processed data from BARB Establishment Survey (ES) Q32017

**thousands of people*

	Platform 1	Platform 2	Platform 3	Platform 4	Platform 5		Total base*	Watch online*	Watch online (best device)*
No platform							377	0	0
One platform	Paid satellite						389	0	0
	Free satellite						187	0	0
	Cable						154	0	0
	DTT						3,589	0	0
	Other						18	0	0
	Broadband						3,701	1,659	1,659
Two platforms	Paid satellite	Free satellite					14	0	0
	Paid satellite	Cable					5	0	0
	Paid satellite	DTT					274	0	0
	Paid satellite	Other					3	0	0
	Paid satellite	Broadband					9,680	3,784	2,396
	Free satellite	Cable					0	0	0
	Free satellite	DTT					137	0	0
	Free satellite	Other					1	0	0
	Free satellite	Broadband					1,733	615	309
	Cable	DTT					141	0	0
	Cable	Other					0	0	0
	Cable	Broadband					4,373	1,759	1,011
	DTT	Other					54	0	0
	DTT	Broadband					13,858	5,352	2,710
	Other	Broadband					922	437	311
Three platforms	Paid satellite	Free satellite	Cable				0	0	0
	Paid satellite	Free satellite	DTT				5	0	0
	Paid satellite	Free satellite	Other				0	0	0
	Paid satellite	Free satellite	Broadband				537	313	214
	Paid satellite	Cable	DTT				0	0	0
	Paid satellite	Cable	Other				0	0	0
	Paid satellite	Cable	Broadband				107	34	14
	Paid satellite	DTT	Other				0	0	0
	Paid satellite	DTT	Broadband				9,500	3,833	2,512
	Paid satellite	Other	Broadband				535	314	222
	Free satellite	Cable	DTT				0	0	0
	Free satellite	Cable	Other				0	0	0
	Free satellite	Cable	Broadband				87	41	31
	Free satellite	DTT	Other				0	0	0
	Free satellite	DTT	Broadband				1,381	487	309
	Free satellite	Other	Broadband				222	122	94
	Cable	DTT	Other				5	0	0
	Cable	DTT	Broadband				4,387	1,856	1,176
	Cable	Other	Broadband				451	289	212
	DTT	Other	Broadband				5,251	2,607	1,632
Four platforms	Paid satellite	Free satellite	Cable	DTT			0	0	0
	Paid satellite	Free satellite	Cable	Other			0	0	0
	Paid satellite	Free satellite	Cable	Broadband			7	7	4
	Paid satellite	Free satellite	DTT	Other			0	0	0
	Paid satellite	Free satellite	DTT	Broadband			666	391	297
	Paid satellite	Free satellite	Other	Broadband			60	25	25
	Paid satellite	Cable	DTT	Other			0	0	0
	Paid satellite	Cable	DTT	Broadband			120	68	48
	Paid satellite	Cable	Other	Broadband			0	0	0
	Paid satellite	DTT	Other	Broadband			867	442	336
	Free satellite	Cable	DTT	Other			0	0	0
	Free satellite	Cable	DTT	Broadband			92	67	49
	Free satellite	Cable	Other	Broadband			13	10	10
	Free satellite	DTT	Other	Broadband			451	267	194
	Cable	DTT	Other	Broadband			659	412	303
Five platforms	Paid satellite	Free satellite	Cable	DTT	Other		0	0	0
	Paid satellite	Free satellite	Cable	DTT	Broadband		18	18	18
	Paid satellite	Free satellite	Cable	Other	Broadband		0	0	0
	Paid satellite	Free satellite	DTT	Other	Broadband		162	95	79
	Paid satellite	Cable	DTT	Other	Broadband		18	3	3
	Free satellite	Cable	DTT	Other	Broadband		29	29	21
Grand total							65,240	25,336	16,199

22. Second, for reasons that are wholly unclear, Ofcom has undertaken a complex and no-doubt time consuming exercise of splitting single data-points relating to households that receive TV services via satellite into three sub-categories (free, pay or both). This split plays no role in determining the results of the model and is therefore again redundant.

4 The cells that are used in the model are J11, J25, J26 and J46.

5 This is not because their values are zero.

23. For example, the following three lines in the model (lines 6, 7 and 12) are derived from a single data-point (i.e., 590). Splitting this single figure into 3 lines makes no difference to the results of the model.

Paid satellite			389
Free satellite			187
Paid satellite	Free satellite		14
Total			590

24. Finally, for most categories in the model Ofcom includes separate lines for individuals with broadband, and those without. In nearly all cases this split again serves no purpose in the model: it is possible to replace these two data-points with a single observation from the BARB Establishment Survey (covering individuals with and without broadband), with no effect on the model.

25. For example, for the three lines above, the corresponding 'with broadband' lines are lines 16, 20 and 20, as follows:

Paid satellite	Broadband		9,680
Free satellite	Broadband		1,733
Paid satellite	Free satellite	Broadband	537
Total			11,950

26. This split – between broadband and non-broadband households – plays no role in the model. Accordingly, these six lines of the model could be replaced with a single figure from the BARB Establishment Survey (12,540) without any effect on the model.

27. Excessive complexity and the incorporation of large amounts of irrelevant data in the model is poor modelling practice. This is because such excess complexity and redundancy:

    (a) obscures what is really going on in a model; and

    (b) gives rise to a risk of errors, whether in data collection and input, or in relation to the construction of the model itself.

28. It is straightforward to establish a far simpler version of Ofcom's model that relies on substantially fewer data-points. To be clear, this is not an alternative model: it is the same model developed and used by Ofcom and produces exactly the same results. However, by simplifying the model it is possible to obtain a clearer view of the calculation actually being undertaken by Ofcom's enormously complex model.

29. That calculation is in fact relatively straightforward.

30. In Ofcom's model, individuals are divided into six categories:

    (a) those who receive TV services via cable or satellite. (These may have other means of reception. However, this is irrelevant for the purposes of the model.);

    (b) those who receive TV services via DTT but not cable or satellite. This category is sub-divided into two categories:

        (i) those who use DTT to watch TV; and

        (ii) those who use broadband (IPTV) to watch TV;

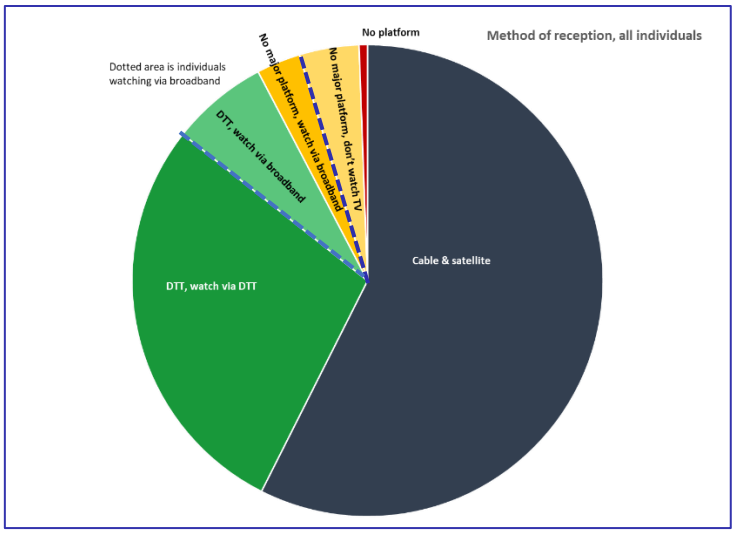
(c) those who do not have one of the major broadcast platforms (i.e. cable, satellite, DTT) but have the potential to watch via broadband. These are also sub-divided into two categories:

(i) those who use broadband (IPTV) to watch TV; and

(ii) those who do not watch TV; and

(d) those with no means of watching TV.

Figure 3: The six categories in Ofcom's model



31. The only difference between the calculation for the reach of channels distributed via the PSB DTT muxes and the commercial DTT muxes is that the figure for (ii)(a) (i.e., individuals who use DTT to watch TV) is multiplied by 92.1%, reflecting the lower reach of the commercial DTT muxes).

32. Only ten data-points from the BARB Establishment Survey are needed to estimate the required outputs of this model, as shown below. By contrast, the full version of Ofcom's model uses over 189 data-points.

33. The following figure shows a simplified version of Ofcom's model, using the minimum necessary data-points required to estimate the two figures which are the output of that model. (Figures highlighted in yellow are the relevant figures used by Ofcom, aggregated where appropriate.)

	Individuals (000)	
Cable and/or satellite	**37,470**	
DTT only	17,447	
DTT, other	5,305	
Total DTT, no cable or satellite	**22,752**	
DTT watching via broadband		
DTT only	2,710	
DTT, other	1,632	
DTT watching via DTT	**18,410**	
Broadband only	3,701	
Other	940	
Total broadband only & Other	4,641	
Watching via broadband		
Broadband only	1,659	
Other	311	
Total watching via broadband	1,970	
Total watching via broadband (DTT & broadband-only households)	**6,312**	
No platform	377	
Total individuals	**65,240**	
Reach of channels with carriage on PSB DTT muxes		
Cable & satellite	37,470	57.4%
DTT watching via DTT	18,410	28.2%
Watching via broadband	6,312	9.7%
Total	**62,192**	**95.3%**
Reach of channels with carriage on commercial DTT muxes		
COM Muxes %	92.1%	
Cable & satellite	37,470	57.4%
DTT watching via DTT	16,963	26.0%
Watching via broadband	6,312	9.7%
Total	**60,745**	**93.1%**

34. The excess complexity and redundancy in Ofcom's full model hides the reality that the calculation being performed is in fact straightforward. It creates an erroneous impression of a highly detailed and complex model being required to estimate the relevant percentages.

35. As explained above, a second key risk associated with such excess complexity and redundancy is the risk of errors. Whilst Ofcom's full model is estimated correctly (i.e., there are no calculation errors), the large number of redundant data-points in the model, and the complexity of the definitions used to extract data from the BARB Establishment Survey, gives rise to a substantial risk of data errors. This concern is reinforced by the facts that:

(a) while Sky has been able to replicate many of the data-points used by Ofcom in the model using the same data source, we have been unable to do so for many others; and

(b) the total number of individuals in Ofcom's data (65,240) is less than the total number in the BARB data used by Ofcom (65,321).

36. Simplifying the model and reducing the number of data-points relied upon would significantly reduce the risk of data errors.