



# Digital Switchover Transmitter Details

Yorkshire Region

Issue 2.0

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# Digital Switchover Transmitter Details: Yorkshire Region

This document contains details of the transmission characteristics which the television transmitter network will adopt at digital switchover. Information on current digital frequencies is available on the Ofcom website ([www.ofcom.org.uk](http://www.ofcom.org.uk)).

This information is primarily intended to help systems installers make initial preparations for switchover by highlighting those transmitters where frequency allocations and aerial group requirements are likely to change.

A key to column headings is provided in the Glossary.

Please note that although we anticipate that this frequency plan will remain relatively stable in the run-up to switchover, it may prove necessary to make changes to some aspects of the plan with the aim of maximising coverage across the UK. If you would like to be kept informed of any changes, please join our digital transmitter mailing list by sending an email to [broadcast.technical@ofcom.org.uk](mailto:broadcast.technical@ofcom.org.uk), with the word 'subscribe' as the message subject.

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### Belmont transmitter group - Public Service Broadcaster (PSB) Multiplexes

Site Name	NGR	BBC A		D3&4		BBC B		DSO Aerial Group	Pre-DSO Aerial Group	Analogue Frequencies				
		Channel	ERP	Channel	ERP	Channel	ERP			BBC1	BBC2	ITV1	C4	C5
<b>Belmont</b>	<b>TF218836</b>	<b>22</b>	<b>150kW</b>	<b>25</b>	<b>150kW</b>	<b>28</b>	<b>150kW</b>	<b>WH</b>	<b>AH</b>	<b>22</b>	<b>28</b>	<b>25</b>	<b>32</b>	<b>56</b>
Grimsby	TA279090	45	2W	42	2W	49	2W	BV	BV	39	45	42	49	
Lincoln Central	SK984711	44	2W	41+	2W	47	2W	BV	BV	39	45	42	52	
Weaverthorpe	SE972716	55	9W	59	9W	62-	9W	C/DV	C/DV	55	62	59	65	

### Belmont transmitter group - Commercial (COM) Multiplexes

Site Name	NGR	SDN		Arqiva A		Arqiva B		DSO Aerial Group	Pre-DSO Aerial Group	Analogue Frequencies				
		Channel	ERP	Channel	ERP	Channel	ERP			BBC1	BBC2	ITV1	C4	C5
<b>Belmont<sup>a</sup></b>	<b>TF218836</b>	<b>30-</b>	<b>50kW</b>	<b>53</b>	<b>100kW</b>	<b>60</b>	<b>100kW</b>	<b>WH</b>	<b>AH</b>	<b>22</b>	<b>28</b>	<b>25</b>	<b>32</b>	<b>56</b>

### Chesterfield transmitter group - Public Service Broadcaster (PSB) Multiplexes

Site Name	NGR	BBC A		D3&4		BBC B		DSO Aerial Group	Pre-DSO Aerial Group	Analogue Frequencies				
		Channel	ERP	Channel	ERP	Channel	ERP			BBC1	BBC2	ITV1	C4	C5
<b>Chesterfield</b>	<b>SK382764</b>	<b>26</b>	<b>400W</b>	<b>23</b>	<b>400W</b>	<b>29</b>	<b>800W</b>	<b>WV</b>	<b>AV</b>	<b>33</b>	<b>26</b>	<b>23</b>	<b>29</b>	

<sup>a</sup> Arqiva A & Arqiva B at Belmont will temporarily operate on channels 60 and 53 respectively (i.e. the reverse of their final channel allocations) from switchover until November 2011.

Site Name	NGR	BBC A		D3&4		BBC B		DSO Aerial Group	Pre-DSO Aerial Group	Analogue Frequencies				
		Channel	ERP	Channel	ERP	Channel	ERP			BBC1	BBC2	ITV1	C4	C5
Brockwell	SK373707	45	2W	42	2W	49	2W	BV	E/WV	66	39	68	49	
Dronfield	SK363791	62-	2W	59	2W	55	2W	C/DH	C/DH	55	62	59	65	
Hasland	SK406697	57	2W	60	2W	53	2W	C/DV	C/DV	57	63	60	53	

### Chesterfield transmitter group - Commercial (COM) Multiplexes

Site Name	NGR	SDN		Arqiva A		Arqiva B		DSO Aerial Group	Pre-DSO Aerial Group	Analogue Frequencies				
		Channel	ERP	Channel	ERP	Channel	ERP			BBC1	BBC2	ITV1	C4	C5
<b>Chesterfield</b>	<b>SK382764</b>	<b>43</b>	<b>400W</b>	<b>46</b>	<b>400W</b>	<b>40</b>	<b>400W</b>	<b>WV</b>	<b>AV</b>	<b>33</b>	<b>26</b>	<b>23</b>	<b>29</b>	

### Emley Moor transmitter group - Public Service Broadcaster (PSB) Multiplexes

Site Name	NGR	BBC A		D3&4		BBC B		DSO Aerial Group	Pre-DSO Aerial Group	Analogue Frequencies				
		Channel	ERP	Channel	ERP	Channel	ERP			BBC1	BBC2	ITV1	C4	C5
<b>Emley Moor</b>	<b>SE222128</b>	<b>47</b>	<b>174kW</b>	<b>44</b>	<b>174kW</b>	<b>41+</b>	<b>174kW</b>	<b>BH</b>	<b>BH</b>	<b>44</b>	<b>51</b>	<b>47</b>	<b>41</b>	<b>37</b>
Addingham	SE075492	43	4.6W	50	4.6W	46	4.6W	BV	BV	40	46	43	50	
Armitage Bridge	SE132133	61	2W	58	2W	54	2W	C/DV	C/DV	58	64	61	54	
Batley	SE239249	61	2.5W	58	2.5W	54	2.5W	C/DV	C/DV	57	63	60	67	
Beecroft Hill	SE237350	59	200W	55	200W	62-	200W	C/DV	C/DV	55	62	59	65	
Blackburn in Rotherham	SK389926	60	2W	57	2W	53	2W	C/DV	C/DV	57	63	60	53	

Site Name	NGR	BBC A		D3&4		BBC B		DSO Aerial Group	Pre-DSO Aerial Group	Analogue Frequencies				
		Channel	ERP	Channel	ERP	Channel	ERP			BBC1	BBC2	ITV1	C4	C5
Bradford West	SE133345	55	2.5W	59	2.5W	62-	2.5W	C/DV	C/DV	57	63	49	67	
Calver Peak	SK232743	49	50W	45	50W	42	50W	BV	BV	39	45	49	42	
Cleckheaton	SE184245	59	2W	55	2W	62-	2W	C/DV	C/DV	55	62	59	65	
Conisbrough	SK516980	60	2W	57	2W	53	2W	C/DV	C/DV	57	63	60	53	
Cop Hill	SE058138	25	200W	22	200W	28	200W	AV	AV	22	28	25	32	
Copley	SE081223	59	2W	55	2W	62-	2W	C/DV	C/DV	62	55	59	65	
Cornholme	SD918264	61	8.4W	58	8.4W	54	8.4W	C/DV	C/DV	58	64	61	54	
Cowling	SD970432	42	2.6W	45	2.6W	49	2.6W	BV	BV	40	46	43	50	
Cragg Vale	SE003229	61	5W	58	5W	54	5W	C/DV	C/DV	58	64	61	54	
Cullingworth	SE075381	62-	2.6W	55	2.6W	59	2.6W	C/DV	E/WV	66	39	49	68	
Edale	SK126843	60	2W	57	2W	53	2W	C/DV	C/DV	57	63	60	53	
Elland	SE126212	61	2W	58	2W	54	2W	C/DH	C/DH	58	64	61	54	
Grassington	SE015639	23	12W	26	12W	29	12W	AV	AV	33	26	23	29	
Hagg Wood	SE149105	59	6.6W	55	6.6W	62-	6.6W	C/DV	C/DV	55	62	59	65	
Halifax	SE102241	24	100W	21+	100W	27	100W	AV	AV	21	27	24	31	
Headingley	SE299361	61	2.4W	58	2.4W	54	2.4W	C/DH	C/DH	58	64	61	54	
Hebden Bridge	SD988267	25	50W	22	50W	28	50W	AV	AV	22	28	25	32	
Heyshaw	SE170631	60	100W	57	100W	53	100W	C/DV	C/DV	57	63	60	53	
Holmfield	SE089294	59	4.4W	55	4.4W	62-	4.4W	C/DV	C/DV	55	62	59	65	
Holmfirth	SE140086	61	5.2W	58	5.2W	54	5.2W	C/DV	E/WV	39	66	56	68	
Hope	SK169829	28	2.4W	22	2.4W	25	2.4W	AV	AV	22	28	25	32	
Idle	SE164374	24	50W	21+	50W	27	50W	WV	AV	21	27	24	31	

Site Name	NGR	BBC A		D3&4		BBC B		DSO Aerial Group	Pre-DSO Aerial Group	Analogue Frequencies				
		Channel	ERP	Channel	ERP	Channel	ERP			BBC1	BBC2	ITV1	C4	C5
Keighley	SE068443	61	2kW	58	2kW	54	2kW	C/DV	C/DV	58	64	61	54	
Keighley Town	SE065405	23	2W	26	2W	29	2W	AV	AV	33	26	23	29	
Kettlewell	SD987680	42	26W	49	26W	45	26W	BV	BV	49	42	39	45	
Longwood Edge	SE112161	59	8W	55	8W	62-	8W	C/DH	C/DH	55	62	59	65	
Luddenden	SE048248	60	12W	57	12W	53	12W	C/DV	C/DV	57	63	60	67	
Lydgate	SD932253	23	2W	26	2W	29	2W	AV	AV	33	26	23	29	
Millhouse Green	SE229028	61	2W	58	2W	54	2W	C/DV	C/DV	58	64	61	54	
Oughtibridge	SK307952	59	7.8W	55	7.8W	62-	7.8W	C/DV	C/DV	55	62	59	65	
Oxenhope	SE028338	25	40W	22	40W	28	40W	AV	AV	22	28	25	32	
Primrose Hill	SE142150	60	5.6W	57	5.6W	53	5.6W	C/DV	C/DV	57	63	60	67	
Ripponden	SE043188	61	12W	58	12W	54	12W	C/DV	C/DV	58	64	61	54	
Shatton Edge	SK194813	58	200W	54	200W	61	200W	C/DV	C/DV	52	58	48	54	
Skipton	SD908516	49	2kW	45	2kW	42	2kW	BV	BV	39	45	49	42	
Skipton Town	SD998509	24	2.6W	27	2.6W	21+	2.6W	AV	AV	21	27	24	31	
Stocksbridge	SK275991	61	2.4W	58	2.4W	54	2.4W	C/DV	C/DV	58	64	61	54	
Sutton in Craven	SE004428	23	2.4W	26	2.4W	29	2.4W	AV	AV	33	26	23	29	
Tideswell Moor	SK150780	60	50W	57	50W	53	50W	C/DV	C/DV	56	63	60	66	
Todmorden	SD957241	49	100W	45	100W	42	100W	BV	BV	39	45	49	42	
Walsden	SD927234	60	10W	57	10W	53	10W	C/DV	C/DV	57	63	60	67	
Walsden South	SD937215	43	2W	46	2W	50	2W	BV	BV	40	46	43	53	
Wharfedale	SE198485	25	400W	22	400W	28	400W	AV	AV	22	28	25	32	
Wheatley	SE068265	61	3.2W	58	3.2W	54	3.2W	C/DV	C/DV	58	64	61	54	

Site Name	NGR	BBC A		D3&4		BBC B		DSO Aerial Group	Pre-DSO Aerial Group	Analogue Frequencies				
		Channel	ERP	Channel	ERP	Channel	ERP			BBC1	BBC2	ITV1	C4	C5
Wincobank	SK388919	59	2W	55	2W	62-	2W	C/DV	C/DV	55	62	59	65	

### Emley Moor transmitter group - Commercial (COM) Multiplexes

Site Name	NGR	SDN		Arqiva A		Arqiva B		DSO Aerial Group	Pre-DSO Aerial Group	Analogue Frequencies				
		Channel	ERP	Channel	ERP	Channel	ERP			BBC1	BBC2	ITV1	C4	C5
<b>Emley Moor</b>	<b>SE222128</b>	<b>51</b>	<b>174kW</b>	<b>52</b>	<b>174kW</b>	<b>48</b>	<b>174kW</b>	<b>BH</b>	<b>BH</b>	<b>44</b>	<b>51</b>	<b>47</b>	<b>41</b>	<b>37</b>
Idle	SE164374	42	50W	45	50W	39	50W	WV	AV	21	27	24	31	
Keighley	SE068443	57	2kW	53	2kW	60	2kW	C/DV	C/DV	58	64	61	54	

### Oliver's Mount transmitter group - Public Service Broadcaster (PSB) Multiplexes

Site Name	NGR	BBC A		D3&4		BBC B		DSO Aerial Group	Pre-DSO Aerial Group	Analogue Frequencies				
		Channel	ERP	Channel	ERP	Channel	ERP			BBC1	BBC2	ITV1	C4	C5
<b>Oliver's Mount</b>	<b>TA040869</b>	<b>57</b>	<b>2kW</b>	<b>60</b>	<b>2kW</b>	<b>53</b>	<b>2kW</b>	<b>C/DV</b>	<b>C/DV</b>	<b>57</b>	<b>63</b>	<b>60</b>	<b>53</b>	<b>66</b>
Hunmanby	TA092779	48	25W	42	25W	49	25W	BV	BV	40	46	43	50	

### Oliver's Mount transmitter group - Commercial (COM) Multiplexes

Site Name	NGR	SDN		Arqiva A		Arqiva B		DSO Aerial Group	Pre-DSO Aerial Group	Analogue Frequencies				
		Channel	ERP	Channel	ERP	Channel	ERP			BBC1	BBC2	ITV1	C4	C5
<b>Oliver's Mount</b>	<b>TA040869</b>	<b>54</b>	<b>1kW</b>	<b>58</b>	<b>1kW</b>	<b>61</b>	<b>1kW</b>	<b>C/DV</b>	<b>C/DV</b>	<b>57</b>	<b>63</b>	<b>60</b>	<b>53</b>	<b>66</b>

### Sheffield transmitter group - Public Service Broadcaster (PSB) Multiplexes

Site Name	NGR	BBC A		D3&4		BBC B		DSO Aerial Group	Pre-DSO Aerial Group	Analogue Frequencies				
		Channel	ERP	Channel	ERP	Channel	ERP			BBC1	BBC2	ITV1	C4	C5
<b>Sheffield</b>	<b>SK324870</b>	<b>27</b>	<b>1kW</b>	<b>24</b>	<b>1kW</b>	<b>21+</b>	<b>1kW</b>	<b>WV</b>	<b>AV</b>	<b>31</b>	<b>27</b>	<b>24</b>	<b>21</b>	<b>67</b>
Totley Rise	SK322807	51	16W	48	16W	52	16W	BV	BV	39	45	49	42	

### Sheffield transmitter group - Commercial (COM) Multiplexes

Site Name	NGR	SDN		Arqiva A		Arqiva B		DSO Aerial Group	Pre-DSO Aerial Group	Analogue Frequencies				
		Channel	ERP	Channel	ERP	Channel	ERP			BBC1	BBC2	ITV1	C4	C5
<b>Sheffield<sup>b</sup></b>	<b>SK324870</b>	<b>42</b>	<b>1kW</b>	<b>45</b>	<b>1kW</b>	<b>39</b>	<b>1kW</b>	<b>WV</b>	<b>AV</b>	<b>31</b>	<b>27</b>	<b>24</b>	<b>21</b>	<b>67</b>

<sup>b</sup> Arqiva B at Sheffield is expect to temporarily operate on channel 63 for a short period after switchover.

## Glossary

Site Name:	The name of the transmitter site. Primary transmitters in each transmitter group are highlighted in <b>bold</b> , with their dependent relays listed alphabetically below them. Public Service Broadcaster (PSB) and Commercial (COM) multiplexes are shown in separate tables.
NGR:	The location of the transmitter site, in Ordnance Survey National Grid Reference format.
Multiplex names:	The post-switchover name of the multiplex. See below for more details
Channel	The UHF channel number of the multiplex. The centre frequency, $F_c$ (in Megahertz) of the multiplex can be calculated using $F_c=8n+306$ , where $n$ is the UHF channel number. A + or - following the channel number indicates that the frequency is offset by +0.167MHz or -0.167MHz with respect to the channel centre. Channel numbers highlighted in red are likely to be affected in future by the clearance of channels 61 and 62: see the '800 MHz Clearance' section below.
ERP	The Effective Radiated Power of the multiplex, in watts (W) or kilowatts (kW)
DSO	Digital Switchover
DSO Aerial Group:	Suggested aerial group for reception of the 3 PSB multiplexes (and the 3 COM multiplexes, where broadcast) from this transmitter after digital switchover. See below for more information on aerial groups. The final character in this column indicates whether signals are horizontally (H) or vertically (V) polarised.
DSO Aerial Group Colour codes:	All DSO frequencies at this transmitter are re-assigned analogue frequencies. If aerials and cabling are in good condition, viewers should not need to replace them.
	One or more DSO frequencies were previously unused at this transmitter by analogue TV, but all DSO channels fall within the analogue aerial group. If aerials and cabling are in good condition, replacement should not be necessary. Some changes may be required to larger systems which contain channelised components, such as communal aerial (MATV / IRS) systems.
	One or more DSO frequencies were previously unused at this transmitter by analogue TV, and these also fall outside the existing analogue aerial group. Therefore a replacement aerial of a different group may be required. Some changes may be required to larger systems which contain channelised components, such as communal aerial (MATV / IRS) systems.
Pre-DSO Aerial Group:	Suggested aerial group for reception of analogue services from this transmitter. The aerial groups shown are based upon four-channel reception and do not take into account Channel 5's analogue frequencies where these are out of group.
Analogue channels:	The UHF channel numbers of the analogue services currently broadcast from this transmitter site. The nominal analogue vision carrier frequency, $F_v$ (in Megahertz) of the service can be calculated using $F_v=8n+303.25$ , where $n$ is the UHF channel number.
Single Frequency networks (SFNs)	In order to maximise digital coverage, some transmitter sites will operate as Single Frequency Networks (SFNs) at switchover. In an SFN, neighbouring transmitters use the same frequencies as each other.

## Multiplex Names

The naming convention for the six multiplexes changes at switchover, and the table below compares their pre-switchover and post-switchover designations:

Pre-Switchover Name	Post-Switchover Name	Operator
Multiplex 1	BBC A	BBC
Multiplex 2	D3&4	Digital 3 & 4
Multiplex A	SDN	SDN
Multiplex B	BBC B	BBC
Multiplex C	Arqiva A	Arqiva
Multiplex D	Arqiva B	Arqiva

## Aerial Groups

Television aerials are designed to operate most efficiently over a specific range of frequencies, as shown in the table below. For guidance, this document suggests a suitable aerial group for reception of the digital services from each transmitter. Where a transmitter uses a semi-wideband channel grouping (E or K), a wideband (W) aerial is also suggested as an alternative. The colour codes in the table below are often used by aerial manufacturers to aid identification of the aerial's group.

Aerial Group	Channels	Colour Code
A	21-37	Red
B	35-53	Yellow
C/D	48-68	Green
E	35-68	Brown
K	21-48	Grey
W	21-68	Black

## Transmission Mode

It is anticipated that the post-switchover transmission mode for all multiplexes except BBC B, will be 64QAM modulation, coding rate 2/3, & 8K FFT.

The BBC B multiplex will operate using the DVB-T2 standard (256QAM modulation, coding rate 2/3, & 32K FFT). Conversion to DVB-T2 will generally take place at DSO in each region.

## Transitional Transmission Characteristics

Transmission frequencies are intensively used in many parts of the UK. To avoid unnecessary interference being caused to viewers, a certain number of multiplexes will need to operate with 'transitional' transmission characteristics for a limited period following switchover at particular transmitters. These transitional characteristics are only likely to affect a small proportion of sites. For example, some channels may need to operate at slightly reduced power levels compared to the final post-switchover allocations shown in this booklet. This is primarily in order to prevent interference being caused to neighbouring transmitters which may not switch over until later in the regional sequence. Full power operation will be adopted when these interference constraints are removed, generally when the neighbouring transmitter or region switches over. Details of known transitional arrangements affecting individual transmitters are provided in footnotes.

## 800 MHz clearance

In order to align the frequencies released by digital switchover for alternative uses with those released by other European countries, UHF channels 61 and 62 will be 'cleared' of digital TV services over the coming years. UHF channels 39 and 40 (which were previously among the channels due to be released for other uses after switchover) will instead now be retained for TV broadcasting.

In order to minimise changes to domestic aerial groups, the general approach for adopting these changes is that multiplexes using channels 61 or 62 will move to channels 49 or 50, and multiplexes using channels 49 or 50 will move to channels 39 or 40. Other channels may also be affected in some cases. The changes will either be carried out at digital switchover, or sometime after switchover completes (e.g. during 2013). If the changes are to be carried out at digital switchover, an updated version of this guide will be issued.

Multiplexes using channels 61, 62, 49, or 50 are highlighted in **red** in this guide to indicate that these allocations are likely to change in the future.

## Analogue Channel Changes

For practical engineering reasons, some analogue channel allocations may need to be altered in the period immediately before switchover begins at a particular transmitter. This may involve swapping the frequencies of some programme services. In other cases, a previously unused analogue frequency may need to be used temporarily to allow high-power digital broadcasts to begin. Viewers will be informed of any such channel changes by Digital UK and the broadcasters in the run up to switchover.

## Switchover Dates

Up-to-date information on switchover dates is available from Digital UK

[www.digitaluk.co.uk](http://www.digitaluk.co.uk).

## Transmitter Locations

Maps showing the location of TV transmitters within individual regions are available on Ofcom's website at:

<http://stakeholders.ofcom.org.uk/broadcasting/guidance/tech-guidance/>

## Document History

Version	Date	Details
1.0	5/3/2008	Document Issued
2.0	5/1/2011	Editorial changes to explanatory text. Initial 800MHz Clearance information added. Chesterfield, Idle, and Sheffield Arqiva B channels changed. Editorial amendments.

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