



Digital Switchover Transmitter Details

Westcountry Region

Issue 6.0

Issued: 5 January 2011

Digital Switchover Transmitter Details: Westcountry Region

This document contains details of the transmission characteristics which the television transmitter network in the Westcountry Region adopted at digital switchover.

A key to column headings is provided in the Glossary.

If you would like to be kept informed of any changes or update to these details, please join our digital transmitter mailing list by sending an email to broadcast.technical@ofcom.org.uk, with the word 'subscribe' as the message subject.

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Beacon Hill transmitter group - Public Service Broadcaster (PSB) Multiplexes

Site Name	NGR	BBC A		D3&4		BBC B		Aerial Group
		Channel	ERP	Channel	ERP	Channel	ERP	
Beacon Hill	SX857619	60+	20kW	53+	20kW	57+	20kW	EH
Ashburton	SX758687	24	2W	27	2W	21+	2W	AV
Bovey Tracey	SX818787	52-	2W	48	2W	56-	2W	C/DV
Brixham	SX921562	43	3.6W	50	3.6W	46	3.6W	BV
Buckfastleigh	SX742664	41+	2W	47	2W	44	2W	BV
Budleigh Salterton	SY043825	60+	1kW	53+	1kW	57+	1kW	C/DV
Chudleigh	SX876789	41+	2W	47	2W	44	2W	BV
Clennon Valley	SX885596	52-	2W	48	2W	56-	2W	C/DV
Coombe	SX928736	24	2W	27	2W	21+	2W	AV
Dartmouth	SX875511	41+	2W	47	2W	44	2W	BV
Edginswell	SX886658	52-	2W	48	2W	56-	2W	C/DV
Halwell	SX781528	47	2W	41+	2W	44	2W	BV
Harbertonford	SX781559	52-	2W	48	2W	56-	2W	C/DH
Hele	SX912657	43	2W	50	2W	46	2W	BH
Kingskerswell	SX872682	62-	2W	59-	2W	55	2W	C/DV
Liverton	SX811734	62-	2.5W	59-	2.5W	55	2.5W	C/DV
Newton Abbot HP	SX851713	43	0.66W	50	0.66W	46	0.66W	BH
Newton Abbot VP	SX851713	43	2W	50	2W	46	2W	BV
Occombe Valley	SX886625	24	20W	27	20W	21+	20W	AV
Sidmouth	SY136879	52-	6W	48	6W	56-	6W	C/DV
South Brent HP	SX690608	43	0.3W	50	0.3W	46	0.3W	BH
South Brent VP	SX690608	43	2W	50	2W	46	2W	BV
Teignmouth	SX936735	52-	40W	48	40W	56-	40W	C/DV
Torquay Town	SX915637	41+	40W	47	40W	44	40W	BV
Totnes	SX805594	24	2W	27	2W	21+	2W	AV

Beacon Hill transmitter group - Commercial (COM) Multiplexes

Site Name	NGR	SDN		Arqiva A		Arqiva B		Aerial Group
		Channel	ERP	Channel	ERP	Channel	ERP	
Beacon Hill	SX857619	42	10kW	45	10kW	51	10kW	EH

Caradon Hill transmitter group - Public Service Broadcaster (PSB) Multiplexes

Site Name	NGR	BBC A		D3&4		BBC B		Aerial Group
		Channel	ERP	Channel	ERP	Channel	ERP	
Caradon Hill	SX273707	28+	100kW	25+	100kW	22+	100kW	AH
Aveton Gifford	SX694474	44	2W	41+	2W	47	2W	BV
Compton	SX495564	44	2W	41+	2W	47	2W	BV
Croyde	SS446395	44	2W	41+	2W	47	2W	BV
Downderry	SX313542	53	60W	60	60W	57	60W	C/DV
Fowey	SX125507	53	2W	60	2W	57	2W	C/DV
Gunnislake	SX439719	46	6.4W	43	6.4W	50	6.4W	BV
Ivybridge	SX631538	52	50W	49+	50W	48-	50W	BV
Kingsbridge	SX721431	46	34W	43	34W	50	34W	BV
Looe	SX252534	46	20W	43	20W	50	20W	BV
Lostwithiel	SX100588	46	2W	43	2W	50	2W	BV
Marystow	SX435828	45	2W	49	2W	42	2W	BV
Mevagissey	SX011445	46	10W	43	10W	50	10W	BH
Modbury	SX660514	62-	2W	59	2W	55	2W	C/DH
Newton Ferrers	SX545475	62-	2W	59	2W	55	2W	C/DV
North Hessary Tor	SX578742	62-	2.5W	59	2.5W	55	2.5W	C/DV
Okehampton	SX586968	45	16W	49	16W	42	16W	BV
Penaligon Downs	SX026683	45	20W	49	20W	42	20W	BV
Plymouth North Rd HP	SX476552	46	0.12W	43	0.12W	50	0.12W	BH
Plymouth North Rd VP	SX476552	46	2.4W	43	2.4W	50	2.4W	BV
Plymouth Weston Mill	SX454574	42	2W	45	2W	49	2W	BV
Plympton	SX530555	54	400W	61	400W	58	400W	EV
Polperro	SX205508	53	2W	60	2W	57	2W	C/DV
Port Isaac	SW998805	62-	50W	59	50W	55	50W	C/DV
Salcombe	SX753397	41+	3.4W	44	3.4W	47	3.4W	BV
Slapton	SX816416	60	250W	52	250W	48	250W	C/DV
Southway	SX478599	62-	2W	59	2W	55	2W	C/DV
St Neot	SX183676	42	2W	49	2W	45	2W	BV
Tavistock	SX485716	53	20W	60	20W	57	20W	C/DV
Widcombe in the Moor	SX725753	52	2W	50	2W	48	2W	BH

Caradon Hill transmitter group - Commercial (COM) Multiplexes

Site Name	NGR	SDN		Arqiva A		Arqiva B		Aerial Group
		Channel	ERP	Channel	ERP	Channel	ERP	
Caradon Hill	SX273707	21+	50kW	24-	50kW	27-	50kW	AH
Plympton	SX530555	42	400W	45	400W	56	400W	EV

Huntshaw Cross transmitter group - Public Service Broadcaster (PSB) Multiplexes

Site Name	NGR	BBC A		D3&4		BBC B		DSO Aerial Group
		Channel	ERP	Channel	ERP	Channel	ERP	
Huntshaw Cross	SS527220	62-	20kW	59-	20kW	55-	20kW	C/DH
Barnstaple	SS575330	46	8W	43	8W	50	8W	BV
Berrynarbor	SS562468	28	2W	25	2W	22	2W	AV
Braunton	SS494369	45	2W	49	2W	42	2W	BH
Chambercombe	SS532475	27	10W	24	10W	21+	10W	AV
Combe Martin	SS581461	42	70W	49	70W	45	70W	BV
Great Torrington	SS487182	45	2W	50	2W	42	2W	BV
Hartland	SS253256	60+	60W	53	60W	57	60W	C/DV
Ilfracombe	SS507464	54	56W	61-	56W	58-	56W	C/DV
Muddiford	SS559383	44	2W	41+	2W	47	2W	BV
North Bovey	SX741845	46	6.8W	43	6.8W	50	6.8W	BV
Swimbridge	SS622295	26	2W	23	2W	29	2W	AV
Tedburn St Mary	SX830941	45	4W	49	4W	42	4W	BV
Westward Ho!	SS438288	28	32W	25	32W	22	32W	AV
Woolacombe	SS465428	47	2W	41+	2W	44	2W	BV

Huntshaw Cross transmitter group - Commercial (COM) Multiplexes

Site Name	NGR	SDN		Arqiva A		Arqiva B		Aerial Group
		Channel	ERP	Channel	ERP	Channel	ERP	
Huntshaw Cross	SS527220	48	10kW	52	10kW	56+	10kW	C/DH

Redruth transmitter group - Public Service Broadcaster (PSB) Multiplexes

Site Name	NGR	BBC A		D3&4		BBC B		Aerial Group
		Channel	ERP	Channel	ERP	Channel	ERP	
Redruth	SW690394	44+	20kW	41+	20kW	47	20kW	BH
Alverton	SW457299	27	2W	24	2W	21+	2W	AV
Boscastle	SX096911	25	11W	22	11W	28	11W	AV
Bossiney	SX067889	46-	40W	43-	40W	50	40W	BV
Gulval	SW475315	25	5.2W	23	5.2W	29	5.2W	AV
Helston	SW651275	54	2W	61	2W	58	2W	C/DV
Isles Of Scilly	SV911124	27	100W	24	100W	21+	100W	AV
Penryn	SW787334	62-	4.4W	59	4.4W	55	4.4W	C/DV
Perranporth	SW758533	46-	16W	43-	16W	50	16W	BV
Porthleven	SW626257	26	2W	23	2W	29	2W	AH
Porthtowan	SW695478	27	16W	24	16W	21+	16W	AV
Portreath	SW658455	26	20W	23	20W	29	20W	AV
Praa Sands	SW572284	62-	10W	59	10W	56	10W	C/DV
St Anthony-in-Roseland	SW852318	26	2W	23	2W	29	2W	AV
St Austell	SX008535	62-	250W	59	250W	56	250W	C/DV
St Just	SW382331	56	250W	50	250W	53	250W	C/DV
Truro	SW835442	54	4.4W	61	4.4W	58	4.4W	C/DV

Redruth transmitter group - Commercial (COM) Multiplexes

Site Name	NGR	SDN		Arqiva A		Arqiva B		Aerial Group
		Channel	ERP	Channel	ERP	Channel	ERP	
Redruth	SW690394	48	10kW	52	10kW	51	10kW	BH

Stockland Hill transmitter group - Public Service Broadcaster (PSB) Multiplexes

Site Name	NGR	BBC A		D3&4		BBC B		Aerial Group
		Channel	ERP	Channel	ERP	Channel	ERP	
Stockland Hill	ST222014	26+	50kW	23+	50kW	29+	50kW	AH
Bampton	SS966236	49	6W	45	6W	42	6W	BV
Beaminster	ST490024	62-	3.8W	59	3.8W	55	3.8W	C/DV
Beer	SY230896	62-	3W	59	3W	56	3W	C/DV

Site Name	NGR	BBC A		D3&4		BBC B		Aerial Group
		Channel	ERP	Channel	ERP	Channel	ERP	
Bincombe Hill	SY687848	62-	6.4W	59	6.4W	56	6.4W	C/DV
Branscombe	SY195882	44	2W	47	2W	41+	2W	BV
Bridport	SY453915	44	17W	41+	17W	47	17W	BV
Brushford	SS921262	27+	3.2W	24+	3.2W	21+	3.2W	AV
Chagford	SX689890	27+	2.4W	24+	2.4W	21+	2.4W	AV
Charmouth	SY373933	47	100W	44	100W	41+	100W	BV
Chideock HP	SY412933	56	2.2W	52	2.2W	48	2.2W	C/DH
Chideock VP	SY412933	56	20W	52	20W	48	20W	C/DV
Crediton	SS825009	46	7W	43	7W	50	7W	BV
Culm Valley	ST108148	45	11.6W	49	11.6W	42	11.6W	BV
Dawlish	SX951772	62-	20W	59	20W	56	20W	C/DV
Dunsford	SX811880	42	2W	45	2W	49	2W	BV
Exeter St Thomas	SX898922	44	50W	41+	50W	47	50W	BV
Honiton	SY164997	42	2W	49	2W	45	2W	BV
Pennsylvania	SX934948	54	2W	61	2W	58	2W	C/DV
Preston	SY707833	61	20W	58	20W	54	20W	C/DV
Rampisham UHF	ST544008	46	2.4W	43	2.4W	50	2.4W	BH
Stokeinteignhead	SX909711	44	2W	41+	2W	47	2W	BV
Tiverton	SS939126	46	18W	43	18W	50	18W	BV
Weymouth	SY663778	47	400W	44	400W	41+	400W	BV

Stockland Hill transmitter group - Commercial (COM) Multiplexes

Site Name	NGR	SDN		Arqiva A		Arqiva B		Aerial Group
		Channel	ERP	Channel	ERP	Channel	ERP	
Stockland Hill^a	ST222014	25-	25kW	22-	25kW	28-	25kW	AH

^a SDN, Arqiva A and Arqiva B at Stockland Hill will operate at 10kW ERP until 2012.

Glossary

Site Name:	The name of the transmitter site. Primary transmitters in each transmitter group are highlighted in bold , 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)
Aerial Group:	Suggested aerial group for reception of the 3 PSB multiplexes (and the 3 COM multiplexes, where broadcast) from this transmitter. See below for more information on aerial groups. The final character in this column indicates whether signals are horizontally (H) or vertically (V) polarised.
Aerial Group Colour codes:	All frequencies at this transmitter were formerly used by analogue channels.
	One or more digital frequencies at this transmitter were formerly unused at this transmitter by analogue TV, but all digital channels fall within the former analogue aerial group.
	One or more digital frequencies at this transmitter were formerly unused at this transmitter by analogue TV, and at least one of these frequencies also falls outside the former analogue aerial group.
DSO	Digital Switchover
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.

Glossary

Site Name:	The name of the transmitter site. Primary transmitters in each transmitter group are highlighted in bold , 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)
Aerial Group:	Suggested aerial group for reception of the 3 PSB multiplexes (and the 3 COM multiplexes, where broadcast) from this transmitter. See below for more information on aerial groups. The final character in this column indicates whether signals are horizontally (H) or vertically (V) polarised.
Aerial Group Colour codes:	All frequencies at this transmitter were formerly used by analogue channels.
	One or more digital frequencies at this transmitter were formerly unused at this transmitter by analogue TV, but all digital channels fall within the former analogue aerial group.
	One or more digital frequencies at this transmitter were formerly unused at this transmitter by analogue TV, and at least one of these frequencies also falls outside the former analogue aerial group.
DSO	Digital Switchover
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 changed 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 Modes

The post-switchover transmission mode for all multiplexes except BBC B is 64QAM modulation, coding rate 2/3, & 8K FFT.

The BBC B multiplex uses the DVB-T2 standard: 256QAM modulation, coding rate 2/3, & 32K FFT.

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.

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
1.01	12/7/2007	Document Issued
2.0	24/10/2007	Additional explanatory text and revised document format
3.0	4/11/2008	Com mux names revised. Map removed and replaced with link to online version. Transmission mode section revised to include DVB-T2. Relay attributions for Tedburn St Mary, Budleigh Salterton, Chagford, Brushford and Mevagissey changed.
4.0	5/3/2009	Offsets added. Stockland Hill COM transitional arrangements added. Minor editorial amendments.
5.0	1/4/2009	Offsets added/changed for Beacon Hill, Teignmouth, Harbertonford, Sidmouth, Edginswell, Bovey Tracey, Clennon Valley, Liverton, Kingskerswell, Budleigh Salterton, Stockland Hill, Brushford, Chagford, Huntshaw Cross, Hartland, Ilfracombe, Redruth, Bossiney, Perranporth, Caradon Hill & Ivybridge.
6.0	5/1/2011	Format and text changed for post-switchover situation, and analogue details removed. Initial 800Mhz clearance information added. Editorial amendments.

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