

DIGITAL TV WHITE PAPER

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Note: Comcast has made some important changes since we originally wrote this paper in May. Please re-read it if you read an earlier version.

DTV Transition

DTV Channel Lineup

DTV FAQ

Comcast Changes

New Comcast Channel Lineup

Comcast FAQ

Disclaimer:

This white paper has been developed by Desco Audio & Video personnel, based on their many years experience in the sales and service of electronics in Olympia. The views are solely Desco's and have not been reviewed or approved by Comcast. It is written in the hope it will help the reader better understand these changes that are occurring in the delivery of television signal.

Please note that Comcast has read our paper and commented positively. Although, they also commented that there will be additional changes coming in September that will require all customers that wish to view channels above 29 to use cable boxes, as the current digital channels will become encrypted at that time.

We can't remember a time when there has been more confusion in the audio video industry. This document is our attempt to explain what is going on and offer some solutions to the changes in broadcast television and the current changes that Comcast is making to our local TV channel line-up. The first section is devoted to the change in broadcasting. This only applies to customers using antennas. The second section is about Comcast and the changes they are making in the SW Washington area.

DTV TRANSITION

Recently, the broadcasters have been talking a lot about the DTV transition that is set to change the way we receive TV signals on June 12, 2009. **This change only affects viewers who receive their TV signals with an antenna.**

Our old broadcast system was called NTSC (National Television Standards Committee). Originally, it was black and white transmission at 330 lines of resolution. In 1953, color was added and made retro-compatible. Now, we have launched into an all-digital system (ATSC) that can broadcast at varying resolutions from 480 lines up to 1080 lines of resolution and in 2 aspect ratios; standard (1.33:1) and widescreen (1.78:1).

If you use an antenna to receive television signal it will no longer work after June 12, 2009. The broadcasters have been ordered by the government to convert all broadcast of television to a digital signal. They have all been issued new frequencies to broadcast on and will terminate analog broadcast on this date.

The government has a rebate program to assisting the purchase of converter boxes that will allow a viewer to receive the new channels on older televisions that do not have new digital tuners (these new tuners are referred to as ATSC tuners).

The difficulty here is that every new channel (except Fox and PBS) is in the UHF band. That band is difficult to receive on a good day in Olympia. Compounding this problem of making new antennas work, we are told that all the stations are not going to be operating at full power until June 12th. Thus, making it difficult to install an antenna and get any results. There is a great website for helping you with antenna installation. It is www.antennaweb.org.

We, at Desco Audio & Video, are not selling or installing antennas. The new signal is just too difficult to receive and Dick and Gene long ago hung up their tree climbing boots. Where possible, we are recommending that customer's seriously consider going with Comcast Cable or a satellite TV provider.

DTV Channel Lineup (for antenna only)

Channel	Network	Compass Heading (from 98502)
4.1	ABC – KOMO	16°
5.1	NBC – KING	17°
7.1	CBS – KIRO	16°
9.1	PBS – KCTS	19°
11.1	CW – KSTW	19°
13.1	FOX – KCPQ	352°
16.1	IND – KONG	17°
20.1	TBN – KTBW	353°
22.1	MNT – KMYQ	19°
28.1	PBS – KBTC	33°
33.1	ION – KWPX	37°
42.1	DAY – KWDK	37°
45.1	SAH – KHCV	37°
51.1	IND – KUNS	37°

DTV FAQ's

Do I have to buy a new TV?

A standard television will work on the new system as long as you have a converter box. These will down-convert the new digital television to work on the analog TV's. While you don't have to buy a new TV, the new models do not need a box and have the ATSC digital tuners built into them and will also display high definition TV in all its glory.

How do I get a coupon for a converter?

Go to <https://www.dtv2009.gov/> and sign up online.

Where can I find help with an antenna?

Unfortunately, we do not know of anyone installing DTV UHF antennas in the Olympia area. If you want to learn more about this, please try www.antennaweb.org. You can purchase antenna equipment locally from ERI (943-1071) or one of our old satellite dish installers, John Reed (704-7333), does installation.

How will I record DTV?

*This is where it gets a little sticky. Now that TV is digital, the tuners in your old VCR's won't work either. You can hook up a converter box ahead of your VCR, leave your VCR on channel 3 and record whatever show the box is on. You will **not** be able to watch one channel while recording another without an additional box just for the VCR.*

COMCAST CHANGES

At the same time that the broadcasters are being required to switch their signal to an all-digital transmission, Comcast has chosen to shift most (but not all) of their programming to digital as well. Unlike the broadcasters, cable companies are not required to switch their signal to digital. Because they are not using the airways to send their signals, they may deliver their content however they deem is best.

This may lead to the question, "Why are they doing this?" We can only speculate the answer. Our best guess is to free up bandwidth for future digital and internet delivery. The benefits of a digital cable system are increased room for more channels, improved picture and sound over analog channels and more space for the growing high-speed internet demand. The downside is that users must use a digital cable box or a new television to receive the digital channels.

If you have a new digital television with the ATSC QAM tuner, you can tune into the basic digital channels listed below only **until September. At that time, you will have to use a cable box to receive the channels above 29.** The analog channels below 29 and the local HDTV channels (like, KOMO, KING, KIRO etc.) should remain unencrypted. If you have an HDTV and use anything other than an HD set-top box, your picture and sound will be worse. At this time there are 5 different kinds of cable boxes:

- **Digital Transport Adapter** – this is a basic box that allows the digital channels to be tuned and play back on Channel 3 or 4 of a basic analog television. Comcast is allowing customers to have two of these boxes at no additional charge.
- **Digital Set Top Receiver** – this box has audio/video output jacks for improved picture and comes with a remote that can be programmed to operate most TV's basic functions but is not high definition. It outputs Standard Definition (SD)
- **HD Digital Set Top Receiver** – this is for HD-Ready TV's or customers that subscribe to an upper HD (high definition) package. This box is used to get the most out of your new high definition TV.
- **SD/DVR Digital Set Top Receiver** – This is the non-high definition box that has two internal tuners and records TV on a built-in hard drive. You can record one channel while watching another or you could record two channels at once. These DVR's also allow for timer recordings of upcoming shows or repeating events like series television.
- **HD/DVR Digital Set Top Receiver** – This top-of-the-line DVR will do all the recording features of the SD/DVR, but also do them in high definition. If you have HD programming and want to record, this is the box for you.

Your Options:

Your next question might be “What do I do now?” Well, your options really depend on what TV you have now and whether now is the right time to replace that TV.

Some people have new TV's and old TV's in the same house. If you are on cable, remember that channels 2 to 29 are going to remain analog for a while (we get the impression that this may last longer than a year – but past that I would not count on it). You may have a picture tube TV, an early LCD TV or Plasma or the latest LED-LCD TV. What is really important for the discussion of DTV is what kind of tuner is in the TV.

NTSC tuner: this is the analog system and will only get you 2-29 on the new Comcast system. For upper channels, you will need a box.

ATSC tuner: when HDTV came out early, these tuners were compatible with both NTSC and the early ATSC terrestrial system only. That means they only work on the antenna digital (which does not work well in Olympia).

ATSC QAM tuner: This is the tuner that will get all of the **unscrambled** digital channels. Most of the TV's that have this tuner have been produced in the last couple of years. But, you can find them in some TV's as long ago as 4 years. Check your manual or call us and we'll check our computer to see which model you purchased and whether it has the right tuner.

If you do have the latest tuner, your only decision is whether to stick with the basic digital channels that we list on the next page or if you want a cable box that records or a larger selection of HD programming that only comes with an HD box. If you don't have ATSC QAM, you must decide which box is right for your TV or if it's time to plunge into that new flat panel TV you have always wanted. If that is your choice, head up to Harrison Ave., we know a few guys that can help you with that.

The other option available is Satellite Dish. The caveat there is that every TV **must** have a box and you **must** have a dish mounted to the side of your house. However, if you are an avid sports fan or would like foreign programming this may be an option worth pursuing.

Comcast Olympia Cable to TV Tuner Cross Reference

CABLE	NAME	TV TUNER	CABLE	NAME	TV TUNER
2	NWCN	79.1	47	MSNBC	92.1
3	TCTW	117.1095	48	FOX	92.2
4	KOMO-SD	79.3	49	TRU TV	92.3
5	KING-SD	79.4	50	OXYGEN	103.3
6	KONG-SD	79.5	51	LIFETIME	92.4
7	KIRO-SD	80.2	52	A&E	92.5
8	DISCOVERY	103.4	53	FX	103.2
9	KCTS-SD	79.7	54	TNT	92.7
10	MYQ2	79.8	55	TBS	92.8
11	CW11-SD	79.9	56	BET	103.1
12	KBTC	79.10	57	SPIKE	103.6
13	KCPQ	80.1	58	USA	92.9
14	SHOP NBC	80.10	59	SCI-FI	103.7
15	ION	79.2	60	COMEDY	103.9
16	QVC	116.10	61	CMT	103.11
17	HSN	116.9	62	VH1	92.1
18	DAYSTAR	80.4	63	MTV	103.10
19	HALLMARK	91.8	64	MTV2	102.40
20	KTBW	80.6	65	E!	102.2
21	KHCV	80.3	66	BRAVO	102.3
22	LOCAL GOV	117.1096	67	AMC	103.8
23	TVW	80.7	68	HGTV-SD	102.7
24	C-SPAN	116.1	70	GOLF	116.8
25	C-SPAN2	116.2	74	TV GUIDE	117.1104
26	TUMWATER	117.1099	78	WEATHER	117.1101
27	UWTV	102.9	79	COMCAST	115.14
28	KUNS	91.4	101	WEATHER S.	112.11
29	CBUT	79.6	104	KOMO-HD	4.1
31	FSN	102.5	105	KING-HD	5.1
32	ESPN	102.6	106	KONG-HD	16.1
33	ESPN2	91.1	107	KIRO-HD	7.1
34	VS	91.3	109	KCTS-HD	9.1
35	FOOD	92.6	110	MYQ2-HD	22.1
36	TRAVEL	116.83	111	CW11-HD	11.1
37	HISTORY	91.5	112	KCTS-C-HD	9.3
38	TLC	103.5	113	KCPQ-HD	13.1
39	FAMILY	91.6	115	U. SPORTS	5.2
40	NICK	91.7	116	FOX WEATHER	13.2
41	DISNEY	80.5	117	KIRO-S-HD	7.2
42	TOON	91.9	118	SPROUT-PBS	114.5
43	ANIMAL P.	116.82	119	KCTS-VME	9.2
44	CNN	116.7	128	BLOOMBERG	108.5
45	HLN	116.12	136	G4	112.4
46	CNBC	91.10	150	C-SPAN3	108.4

Comcast Olympia Cable Channels by TV Tuner

TV TUNER	NAME	CABLE	TV TUNER	NAME	CABLE
4.1	KOMO-HD	104	92.5	A&E	52
5.1	KING-HD	105	92.6	FOOD	35
5.2	U. SPORTS	115	92.7	TNT	54
7.1	KIRO-HD	107	92.8	TBS	55
7.2	KIRO-S-HD	117	92.9	USA	58
9.1	KCTS-HD	109	92.10	VH1	62
9.2	KCTS-VME	119	102.2	E!	65
9.3	KCTS-C-HD	112	102.3	BRAVO	66
11.1	CW11-HD	111	102.4	MTV2	64
13.1	KCPQ-HD	113	102.5	FSN	31
13.2	FOX WEATHER	116	102.6	ESPN	32
16.1	KONG-HD	106	102.7	HGTV-SD	68
22.1	MYQ2-HD	110	102.9	UWTV	27
79.1	NWCN	2	103.1	BET	56
79.2	ION	15	103.2	FX	53
79.3	KOMO-SD	4	103.3	OXYGEN	50
79.4	KING-SD	5	103.4	DISCOVERY	8
79.5	KONG-SD	6	103.5	TLC	38
79.6	CBUT	29	103.6	SPIKE	57
79.7	KCTS-SD	9	103.7	SCI-FI	59
79.8	MYQ2	10	103.8	AMC	67
79.9	CW11-SD	11	103.9	COMEDY	60
79.10	KBTC	12	103.10	MTV	63
80.1	KCPQ	13	103.11	CMT	61
80.2	KIRO-SD	7	108.4	C-SPAN3	150
80.3	KHCV	21	108.5	BLOOMBERG	128
80.4	DAYSTAR	18	112.4	G4	136
80.5	DISNEY	41	112.11	WEATHER S.	101
80.6	KTBW	20	114.5	SPROUT-PBS	118
80.7	TVW	23	115.14	COMCAST	79
80.10	SHOP NBC	14	116.1	C-SPAN	24
91.1	ESPN2	33	116.2	C-SPAN2	25
91.3	VS	34	116.7	CNN	44
91.4	KUNS	28	116.8	GOLF	70
91.5	HISTORY	37	116.9	HSN	17
91.8	HALLMARK	19	116.10	QVC	16
91.6	FAMILY	39	116.12	HLN	45
91.7	NICK	40	116.82	ANIMAL P.	43
9 1.9	TOON	42	116.83	TRAVEL	36
91.10	CNBC	46	117.1095	TCTW	3
92.1	MSNBC	47	117.1096	LOCAL GOV	22
92.2	FOX	48	117.1099	TUMWATER	26
92.3	TRU TV	49	117.1101	WEATHER	78
92.4	LIFETIME	51	117.1104	TV GUIDE	74

Comcast FAQ

How will my VCR record with this digital change?

Your VCR if hooked to the cable will only record channels up to 29. If you use the free digital adapter, you will only record one channel that the digital adapter is tuned to. You can only watch or record one channel at a time. New VCR/DVD recorders are available to record all free digital channels without the need of the adapter.

I want to watch a channel and record a program, how will I do this?

You will need 2 digital adapters one for the TV and one for your recorder, or you will have to get a cable box DVR from Comcast.

I have a new TV with a digital tuner do I need the free digital box?

No, your TV can be programmed to receive basic cable with local channels in HD! In fact if you use the free digital box you will not get the locals in HD.

My TV has a cable card do I need a box?

No, your TV will receive all channels that you subscribe to from cable without a box.

I have a new HDTV and subscribe to premium channels what will I need to get to view them?

You will need the Comcast HD cable box, to get local HD and your premium channels.

I only want to watch the local channels 2-13 what do I need?

Any TV that worked on these channels before will work now without any digital adapter. This is also true for your VCR