

§ 73.601

47 CFR Ch. I (10–1–08 Edition)

**Subpart E—Television Broadcast Stations**

**§ 73.601 Scope of subpart.**

This subpart contains the rules and regulations (including engineering standards) governing TV broadcast stations, including noncommercial educational TV broadcast stations and, where indicated, low power TV and TV translator stations in the United States, its Territories and possessions. TV broadcast, low power TV, and TV translator stations are assigned channels 6 MHz wide, designated as set forth in § 73.603(a).

[47 FR 21494, May 18, 1982]

**§ 73.602 Cross reference to rules in other parts.**

See § 73.1010.

[43 FR 32781, July 28, 1978]

**§ 73.603 Numerical designation of television channels.**

(a)

Channel No.	Frequency band (MHz)
2	54–60
3	60–66
4	66–72
5	76–82
6	82–88
7	174–180
8	180–186
9	186–192
10	192–198
11	198–204
12	204–210
13	210–216
14	470–476
15	476–482
16	482–488
17	488–494
18	494–500
19	500–506
20	506–512
21	512–518
22	518–524
23	524–530
24	530–536
25	536–542
26	542–548
27	548–554
28	554–560
29	560–566
30	566–572
31	572–578
32	578–584
33	584–590
34	590–596
35	596–602
36	602–608
37	608–614
38	614–620

Channel No.	Frequency band (MHz)
39	620–626
40	626–632
41	632–638
42	638–644
43	644–650
44	650–656
45	656–662
46	662–668
47	668–674
48	674–680
49	680–686
50	686–692
51	692–698
52	698–704
53	704–710
54	710–716
55	716–722
56	722–728
57	728–734
58	734–740
59	740–746
60	746–752
61	752–758
62	758–764
63	764–770
64	770–776
65	776–782
66	782–788
67	788–794
68	794–800
69	800–806

(b) [Reserved]

(c) Channel 37, 608–614 MHz is reserved exclusively for the radio astronomy service.

(d) In Hawaii, the frequency band 488–494 MHz is allocated for non-broadcast use. This frequency band (Channel 17) will not be assigned in Hawaii for use by television broadcast stations.

[28 FR 13660, Dec. 14, 1963, as amended at 35 FR 11179, July 11, 1970; 39 FR 10576, Mar. 21, 1974; 47 FR 16789, Apr. 20, 1982; 47 FR 30068, July 12, 1982; 47 FR 35989, Aug. 18, 1982; 51 FR 18450, May 20, 1986; 70 FR 46676, Aug. 10, 2005]

**§ 73.606 Table of allotments.**

(a) *General.* The following table of allotments contains the channels designated for the listed communities in the United States, its Territories, and possessions. Channels designated with an asterisk are assigned for use by non-commercial educational broadcast stations only. A station on a channel identified by a plus or minus mark is required to operate with its carrier frequencies offset 10 kHz above or below, respectively, the nominal carrier frequencies.

(b) *Table of Allotments.*

**Federal Communications Commission**

**\$ 73.606**

**ALABAMA**

	Channel No.
Anniston .....	40-
Arab .....	56-
Bessemer .....	17
Birmingham .....	6-, *10-, 13-, 21-, 42+, *62+, 68-
Decatur .....	
Demopolis .....	*41
Dothan .....	4, 18, *39+, 60-
Dozier .....	*2-
Florence .....	15, 26, *36-
Gadsden .....	44+, 60
Gulf Shores .....	55
Huntsville .....	19, *25+, 31+, 48-
Huntsville-Decatur .....	54
Louisville .....	*43+
Mobile .....	5+, 10+, 15+, 21+, *31, *42
Montgomery .....	12, 20, *26+, 32, 45-, *63
Mount Cheaha .....	*7-
Munford .....	*16-
Opelika .....	50, 66
Ozark .....	34
Selma .....	8, 29-
Troy .....	67
Tuscaloosa .....	23-, 33, *39-
Tuscumbia .....	52+
Tuskegee .....	22-

**ALASKA**

	Channel No.
Anchorage .....	2-, 4-, 5, *7-, *9, 11, 13-, and 33
Bethel .....	*4
Dillingham .....	*2, 10
Fairbanks .....	2+, 7+, *9+, 11+, 13+
Juneau .....	*3, 8, 10
Ketchikan .....	2, 4, *9
North Pole .....	4+
Seward .....	3-,
Sitka .....	13

**ARIZONA**

[See footnotes at end of tables]

	Channel No.
Ajo .....	*23-
Coolidge .....	*43
Douglas .....	3, *28
Flagstaff .....	2, 4+, 9, 13, and *16
Globe .....	*14+
Green Valley .....	46
Holbrook .....	*11+, *18+
Kingman .....	6-, *14-
McNary .....	*22+
Mesa .....	12-
Nogales .....	*16+
Page .....	*17
Parker .....	*17-
Phoenix .....	3+, 5-, *8+, 10-, 15-, 21, 33, 39, 45, 61
Prescott .....	7, *19
Safford .....	*23+
Sierra Vista .....	58
Tolleson .....	51
Tucson .....	4-, *6+, 9-, 13-, 18-, *27-, 40
Tucson-Nogales .....	≥ 11
Yuma .....	11-, 13+, *16-

**ARKANSAS**

	Channel No.
Arkadelphia .....	*9+
Camden .....	237A, 246, 49-
Cimarron .....	23
El Dorado .....	10-, 43-
Eureka Springs .....	34+
Fayetteville .....	*13-, 36
Fort Smith .....	5-, 24+, 40-
Gosnell .....	46
Harrison .....	31+
Hot Springs .....	*20, 26
Jonesboro .....	8-, *19+, 48+
Little Rock .....	*2-, 4, 7-, 11, 16-, *36, and 42
Mountain Home .....	43+
Mountain View .....	*6-
Newark .....	*17
Pine Bluff .....	25-, 38-
Rogers .....	51-
Russellville .....	*28+
Springdale .....	57

**CALIFORNIA**

[See footnotes at end of tables]

	Channel No.
Alturas .....	13+
Anaheim .....	56-
Arcata .....	23
Avalon .....	54
Bakersfield .....	17, 23-, 29, *39-, 45, 65+
Barstow .....	*35+, 64
Big Bear Lake .....	59+
Bishop .....	*14-, 20+
Blythe .....	*22-
Brawley .....	*26
Calipatria .....	54
Ceres .....	*23+
Chico .....	12-, *18, 24+, *46-
Clovis .....	43
Coalinga .....	*27-
Concord .....	42
Corona .....	52
Cotati .....	*22-
El Centro .....	7+, 9+
Eureka .....	3-, 6-, *13-, and 29
Fort Bragg .....	8-
Fresno .....	*18+, 24, 30+, 47, 53,
Hanford .....	21
Huntington Beach .....	*50-
Indio .....	*19+
Long Beach .....	18-
Los Angeles .....	2, 4, 5, 7, 9, 11, 13, 22, *28, 34, *58-, *68-
Merced .....	51
Modesto .....	19-
Novato .....	68
Oakland .....	2+
Ontario .....	46
Oroville .....	28
Oxnard .....	63+
Palm Springs .....	36-, 42
Paradise .....	30
Porterville .....	61
Rancho Palos Verdes .....	44+
Redding .....	7, *9, 16
Ridgecrest .....	*25
Riverside .....	62
Sacramento .....	3, *6, 10, 29-, 31-, 40-
Salinas-Monterey .....	8+, 35-, 46-, *56, 67-
San Bernardino .....	*24-, 30
San Diego .....	8, 10, *15, 39, 51, 69

**CALIFORNIA—Continued**  
[See footnotes at end of tables]

	Channel No.
San Francisco .....	4-, 5+, 7-, *9+, 14+, 20-, 26-, *32+, 38, 44-
San Jose .....	11+, 36, 48-, *54, 65
San Luis Obispo .....	6+, *15+, and 33
San Mateo .....	*60
Sanger .....	59
Santa Anna .....	40,
Santa Barbara .....	3-, 14, 1 *20, 1 , 38, and *55
Santa Cruz .....	*16-
Santa Maria .....	12+, 42+
Santa Rosa .....	50-, *62
Stockton .....	13+, 58, 64
Susanville .....	*14
Twentynine Palms .....	31
Vallejo-Fairfield .....	66
Ventura .....	57
Visalia .....	26+, *49
Watsonville .....	*25+
Weaverville .....	32
Willits .....	11-
Yosemite Valley .....	41
Yreka City .....	*20+

**COLORADO**

	Channel No.
Alamosa .....	*16, 47
Boulder .....	14
Broomfield .....	*12
Castle Rock .....	53
Colorado Springs .....	11, 13, 21
Craig .....	*16+
Denver .....	2, 4-, *6-, 7, 9-, 20, 31, *41, 50, 59
Durango .....	6+, *20-, and 33+
Fort Collins .....	22-
Glenwood Springs .....	3-, *19+
Grand Junction .....	5-, 8-, *18+, 4*, 11+
Gunnison .....	*17-
La Junta .....	*22+
Lamar .....	12-, *14-
Leadville .....	*15-
Longmont .....	25
Montrose .....	10+, *22
Pueblo .....	5, *8, 32-, 48
Salida .....	*23+
Steamboat Springs .....	24+
Sterling .....	3, *18+
Trinidad .....	*24

**CONNECTICUT**

	Channel No.
Bridgeport .....	43-, *49-
Hartford .....	3+, 18-, *24, 61+
New Britain .....	30+
New Haven .....	8, 59+, 55
New London .....	26+
Norwich .....	*53
Waterbury .....	20

**DELAWARE**

	Channel No.
Dover .....	*34
Seaford .....	38, *64

**DELAWARE—Continued**

	Channel No.
Wilmington .....	*12, 61

**DISTRICT OF COLUMBIA**

	Channel No.
Washington .....	4-, 5-, 7+, 9, 20+, *26-, *32+, 50

**FLORIDA**

	Channel No.
Boca Raton .....	*63
Bradenton .....	*19, 66
Bunnell .....	58
Cape Coral .....	36
Clearwater .....	22
Clermont .....	18-
Cocoa .....	*52, 68
Crystal River .....	39-
Daytona Beach .....	2-, 26
Destin .....	48
Fort Lauderdale .....	51
Fort Myers .....	11+, 20+, *30
Fort Pierce .....	*21-, 34
Fort Walton Beach .....	35, 53, 58
Gainesville .....	*5-, 20, 29
High Springs .....	53+
Hollywood .....	69
Inverness .....	64
Islamorada .....	*9+
Jacksonville .....	4+, *7, 12+, 17, 30+, 47-, *59
Kenansville .....	31
Key West .....	8, *13, and 22+
Lake City .....	*41
Lake Worth .....	67
Lakeland .....	32
Leesburg .....	*45-, 55
Live Oak .....	57-
Madison .....	*36-
Marathon .....	16+
Marianna .....	*16+, 51
Melbourne .....	43+, 56
Miami .....	*2, 4, 6, 7-, 10+, *17-, 23-, 33, 35, 39, and 45+
Naples .....	26-, 46
New Smyrna Beach .....	*15+
Ocala .....	*29, 51-
Orange Park .....	25-
Orlando .....	6-, 9, * 24-, 27, 35+, and 65
Palatka .....	*42, 63+
Palm Beach .....	61
Panama City .....	7+, 13, 28-, *56, 46
Panama City Beach .....	46
Pensacola .....	3-, *23, 33+, 44
St. Petersburg .....	10-, 38, 44+
Sarasota .....	40
Sebring .....	*48, 60
Stuart .....	59
Tallahassee .....	*11-, 24, 27+, 40+
Tampa .....	*3, 8-, 13-, *16, 28, and 50
Tequesta .....	25
Tice .....	49
Venice .....	62
West Palm Beach .....	5, 12, 29+, *42+,

**Federal Communications Commission**

**\$ 73.606**

**GEORGIA**

	Channel No.
Albany .....	10, 19-, 31-, and 52-
Ashburn .....	*23+
Athens .....	*8-, 34
Atlanta .....	2, 5-, 11+, 17-, *30, 36, 46-, *57+, 69
Augusta .....	6+, 12-, 26, 54-
Bainbridge .....	49
Baxley .....	34
Brunswick .....	21+
Carrollton .....	*49-
Carnesville .....	*52
Cedartown .....	*65-
Chatsworth .....	*18-
Cochran .....	*29+
Columbus .....	3, 9+, *28, 38+, *48, 54+
Cordele .....	55+
Dalton .....	23
Dawson .....	*25
Draketown .....	*27-
Elberton .....	*60+
Flintstone .....	*41-
Lafayette .....	*35
Macon .....	13+, 24+, 41+, *47+, 64-
Monroe .....	63
Pelham .....	*14-
Perry .....	58+
Rome .....	14+
Royston .....	*22+
Savannah .....	3, *9-, 11, 22,
Thomasville .....	6
Toccoa .....	32-, *68-
Valdosta .....	*33, 44-
Vidalia .....	*18+
Warm Springs .....	
Warner Robbins .....	35-
Waycross .....	*8+
Wrens .....	*20-
Young Harris .....	*51-

**HAWAII**

	Channel No.
Hilo (Hawaii) .....	2, *4, 9, 11, 13, 14+, 20+, 26+, *32+, *38+
Honolulu (Oahu) .....	2+, 4-, 5, 9-, *11+, 13-, 14, 20, 26, 32, *38, and *44.
Kailua .....	50
Kailua-Kona (Hawaii) .....	6
Kaneohe .....	66+
Lihue (Kauai) .....	3+, *8-, 10+, 12-, 15-, *21-, *27-, *67
Wailuku (Maui) .....	3, 7, *10, 12, 15, 21, *27, *33, 39
Waimanalo .....	56

**IDAHO**

	Channel No.
Boise .....	2, *4+, 7, 39
Burley .....	*17+
Caldwell .....	9-
Coeur d'Alene .....	*26+
Filer .....	*19-
Grangeville .....	*15-
Idaho Falls .....	3, 8+, 20, *33+
Lewiston .....	3-
Moscow .....	*35-
Nampa .....	6, 12+
Preston .....	*28
Pocatello .....	6-, *10, 15, 25+, 31-
Sandpoint .....	*16+

**IDAHO—Continued**

	Channel No.
Sun Valley .....	5-
Twin Falls .....	11, *13-, 35
Weiser .....	*17

**ILLINOIS**

[See footnotes at end of tables]

	Channel No.
Aurora .....	60
Bloomington .....	43
Carbondale .....	*8
Champaign .....	3+, 15-
Charleston .....	*51+
Chicago .....	2-, 5, 7, 9+, *11, *20, 26, 32, 38-, 44
Danville .....	68
Decatur .....	17, 23-
DeKalb .....	*33, *48-
East St. Louis .....	46
Edwardsville .....	*18-
Elgin .....	*66+
Freeport .....	23, *65-
Galesburg .....	53
Harrisburg .....	3
Jacksonville .....	*14
Joliet .....	*14-, 66+
Kankakee .....	*54-
LaSalle .....	35
Macomb .....	*22+
Marion .....	27
Moline .....	8, *24-
Mount Vernon .....	13+
Olney .....	*16-
Paris .....	46+
Peoria .....	19, 25+, 31+, *47-, 59+
Pontiac .....	53
Quincy .....	10-, 16+, *27+
Rockford .....	13, 17+, 39
Rock Island .....	4+
Springfield .....	20+, 49-, 55+
Streator .....	*63
Urbana .....	*12-, 27-
Vandalia .....	*21

**INDIANA**

	Channel No.
Anderson .....	67+
Angola .....	63
Bloomington .....	4, *30-, 42+ and 63+
Elkhart .....	28+
Evansville .....	7, *9+, 14-, 25-, and 44
Fort Wayne .....	15+, 21+, 33-, *39-, 55
Gary .....	50, *56+
Hammond .....	62+
Indianapolis .....	6, 8-, 13-, *20-, 40, 59-, *69
Kokomo .....	29-
Lafayette .....	18, *24
Madison .....	*60+
Marion .....	23
Muncie .....	49, *61
Richmond .....	43+
Salem .....	58+
South Bend .....	16, 22, *34-, 46
Terre Haute .....	2+, 10, *26-, 38
Vincennes .....	*22-

IOWA	
	Channel No.
Ames .....	5, 23-, *34+
Burlington .....	26-, *57-
Carroll .....	*18-, 30+, and 52
Cedar Rapids .....	2, 9-, 28+, and 48-
Centerville .....	*31-
Council Bluffs .....	*32
Davenport .....	6+, 18+, 30-, *36+
Decorah .....	*14+
Des Moines .....	8-, *11+, 13-, 17+, *43-, 63-
Dubuque .....	16-, *29-, 40-
Estherville .....	*49+
Fort Dodge .....	*21
Fort Madison .....	*38+
Hampton .....	50
High Point .....	*14-
Iowa City .....	*12+, 20-
Keokuk .....	*44+
Keosauqua .....	*54+
Lansing .....	*41+
Mason City .....	3+, *24+
Mount Ayr .....	*25-
Newton .....	39+
Ottumwa .....	15+, *33-
Red Oak .....	*36
Rock Rapids .....	*25+
Sibley .....	*33
Sioux City .....	4-, 9, 14, *27-, 44
Spirit Lake .....	*38
Waterloo .....	7+, 22-, *32-

KANSAS	
	Channel No.
Chanute .....	*30+
Cimarron .....	23
Colby .....	4
Columbus .....	*48-
Dodge City .....	*21-
Emporia .....	*25+
Ensign .....	6+
Fort Scott .....	20+
Garden City .....	11+, 13-, *18
Goodland .....	10
Great Bend .....	2
Hays .....	7-, *9
Hoisington .....	14
Hutchinson .....	*8, 12, 36+
Junction City .....	31
Lakin .....	*3
Lawrence .....	38
Liberal .....	5+
Manhattan .....	*21
Oakley .....	*15-
Parsons .....	*39
Phillipsburg .....	*22-
Pittsburg .....	7+ and 14
Pratt .....	*32+
Randall .....	
Salina .....	18+, 34-, 44
Sedan .....	*28
Topeka .....	*11, 13+, 22+, 27, 49
Wichita .....	3-, 10-, *15+, 24-, 33, *42

KENTUCKY	
	Channel No.
Ashland .....	*25, 50-, 61+
Beattyville .....	65

KENTUCKY—Continued	
	Channel No.
Blanco .....	52+
Bowling Green .....	13, *24-, 40+, *53-, 59+
Campbellsville .....	34
Covington .....	*54+
Danville .....	56
Elizabethtown .....	*23+
Harlan .....	44-
Hazard .....	*35+, 57-
Hopkinsville .....	51
Lexington .....	18+, 27-, 36, *46, 62
Louisville .....	3-, 11, *15, 21-, 32-, 41+, *68+
Madisonville .....	19-, *35-, and 57+
Morehead .....	*38+, 67-
Murray .....	*21+, 38
Newport .....	19+
Owensboro .....	31-, 48, 61+
Owenton .....	*52+
Paducah .....	6+, 29 and 49
Paintsville .....	69+
Pikeville .....	*22-, 51+
Somerset .....	16, *29+

LOUISIANA	
	Channel No.
Alexandria .....	5, *25+, 31+, 41+
Baton Rouge .....	2, 9-, *27+, 33-, and 44+
Columbia .....	11+
De Ridder .....	*23-
Houma .....	11
Lafayette .....	3+, 10, 15, *24
Lake Charles .....	7-, *18-, 29-
Minden .....	21+
Monroe .....	8+, *13,
Morgan City .....	*14+
Natchitoches .....	*20+
New Iberia .....	50
New Orleans .....	4+, 6, 8-, * 12, 20-, 26, * 32+, 38+, and 49
Shreveport .....	3-, 12, *24-, 33, and 45+
Slidell .....	54+
Tallulah .....	*19
West Monroe .....	14-, 39+

MAINE	
	Channel No.
Augusta .....	*10-
Bangor .....	2-, 5+, 7-
Biddeford .....	*26-
Calais .....	*13-
Fort Kent .....	*46+
Fryeburg .....	*18+
Houlton .....	*25+
Kittery .....	*39
Lewiston .....	35-
Millinocket .....	*44-
Orono .....	*12-
Poland Spring 8- .....	
Portland .....	6-, 13+, 51
Presque Isle .....	8, *10+, 47
Rumford .....	*43+
Waterville .....	23-

# Federal Communications Commission

\$ 73.606

## MARYLAND

	Channel No.
Annapolis .....	*22+
Baltimore .....	2+, 11-, 13+, 24+, 45, 54, *67-
Cumberland .....	52+, 65
Frederick .....	*62
Hagerstown .....	25-, *31, and 68+
Oakland .....	*36+
Salisbury .....	16+, *28-, 47-
Waldorf .....	*58+

## MASSACHUSETTS

[See footnotes at end of tables]

	Channel No.
Adams .....	19
Boston .....	*2+, 4+, 5-, 7+, 25+, 38, *44, 68+
Cambridge .....	56
Greenfield .....	32+
Lawrence .....	62
Marlborough .....	66
New Bedford .....	6+, 28-, *34
North Adams .....	*35
Norwell .....	46+
Pittsfield .....	51+
Springfield .....	22, 40, *57+
Vineyard Haven .....	58+
Worcester .....	14, 1 27, *48+,

## MICHIGAN

	Channel No.
Alpena .....	*6, 11
Ann Arbor .....	31+, *58+
Bad Axe .....	* 15-, 41-
Battle Creek .....	41+, and 43-
Bay City .....	5-, 46+
Cadillac .....	9, *27, 33
Calumet .....	5-, *22-
Cheboygan .....	4+
Detroit .....	2+, 4, 7-, 20+, 50-, *56, 62
East Lansing .....	*23-, *69-
Escanaba .....	3+
Flint .....	12-, *28-, 66-
Grand Rapids .....	8+, 13+, 17-, *35+
Iron Mountain .....	8-, *17+
Ironwood .....	*15-, 24+
Ishpeming .....	10
Jackson .....	18+
Kalamazoo .....	3-, *52+, 64
Lansing .....	6-, 47, 53-
Manistee .....	*21
Manistique .....	*15+
Marquette .....	6-, *13, 19
Mount Clemens .....	38+
Mount Pleasant .....	*14
Muskegon .....	54+
Onondaga .....	10-
Petoskey .....	*23+
Port Huron .....	46+
Saginaw .....	25-, 49-
Sault Ste. Marie .....	8, 10+, *32-
Traverse City .....	7+, 29-
University Center .....	*19+
Vanderbilt .....	45
West Branch .....	*24

## MINNESOTA

	Channel No.
Alexandria .....	7, * 24, and 42
Appleton .....	*10-
Austin .....	6-, *15-
Bemidji .....	*9, 26+
Brainerd .....	*22
Chisholm .....	11
Crookston .....	*33
Duluth .....	3, *8, 10+, 21+, 27-
Ely .....	*17-
Fairmont .....	*16+
Hibbing .....	13-
International Falls .....	*35+
Mankato .....	12, *26-
Marshall .....	*30-
Minneapolis-St. Paul ..	*2-, 4, 5-, 9+, 11-, *17, 23+, 29+, and 45
Redwood Falls .....	43
Rochester .....	10, 47-
St. Cloud .....	19, *25-, 41
St. James .....	32+
Thief River Falls .....	10, *30
Wadena .....	*20-
Walker .....	12-, 38-
Wilmar .....	*14-
Winona .....	*35+, 44-
Worthington .....	*20

## MISSISSIPPI

	Channel No.
Biloxi .....	13+, *19+,
Booneville .....	*12-
Bude .....	*17+
Clarksdale .....	*21
Cleveland .....	*31-
Columbia .....	*45
Columbus .....	4-, *43
Greenville .....	15-, 44
Greenwood .....	6+, *23+
Gulfport .....	25-
Grenada .....	22+
Hattiesburg .....	22, *47
Holly Springs .....	40
Houston .....	45+
Jackson .....	3, 12+, 16, *29+, 40+, and 51
Laurel .....	7, 18+
Magee .....	34+
Meridian .....	11-, *14, 24-, 30-
Mississippi State .....	*2+
Natchez .....	*42+, 48
Oxford .....	*18
Senatobia .....	*34-
Tupelo .....	9-, 49+
Vicksburg .....	35-
West Point .....	27
Wiggins .....	43-, 46-
Yazoo City .....	*32-

## MISSOURI

	Channel No.
Birchtree .....	*20-
Bowling Green .....	*35+
Cape Girardeau .....	12, 23, *39-
Carrollton .....	*18
Columbia .....	8+, 17-*23+
Fiat River .....	*22
Hannibal .....	7-

## MISSOURI—Continued

	Channel No.
Jefferson City .....	13, 25, *36-
Joplin .....	12+, 16, *26-
Kansas City .....	4, 5+, 9+, *19+, 29, 41-, 50-, 62+, *68-
Kennett .....	58+
King City .....	*28-
Kirksville .....	3-
LaPlata .....	*21+
Lowry City .....	*15-
Osage Beach .....	49+
Poplar Bluff .....	15+, *26+, 55
Rolla .....	*28
St. Joseph .....	2-, 16-, 22
St. Louis .....	2, 4-, 5-, *9, 11-, 24+, 30+, *40-, *46
Sedalia .....	6
Sikeston .....	45
Springfield .....	3+, 10, *21-, 27-, 33--

## MONTANA

	Channel No.
Anaconda .....	2+
Billings .....	2-, 6, 8, *11, 14, 20+
Bozeman .....	7-, *9
Butte .....	*2+, 4, 6+, 18, 24
Cut Bank .....	*14-
Dillon .....	*14+
Glendive .....	5+, 13+, *16-
Great Falls .....	3+, 5+, 16, 26, *32
Hardin .....	4+
Havre .....	9+, 11-, and *18-
Helena .....	10+, 12, *15+
Joplin .....	35-, 48, 54-
Kalispell .....	9-, *29-
Lewistown .....	13
Miles City .....	3-, *10
Missoula .....	8-, *11+, 13-, 17-, and 23-
Wolf Point .....	*17+

## NEBRASKA

	Channel No.
Albion .....	18, *21+, 24+
Alliance .....	*13-
Bassett .....	*7-
Beatrice .....	23+
Falls City .....	*24
Grand Island .....	11-, 17
Hastings .....	5-, *29+
Hayes Center .....	6
Hay Springs- Scottsbluff .....	4+
Kearney .....	13
Lexington .....	*3+
Lincoln .....	8+, 10+, *12-, 45, 51
McCook .....	8-, 16+, 12
Merriman .....	*12
Norfolk .....	*19+
North Platte .....	235, 246, 278
Omaha .....	3, 6+, 7, 15, *26, 42+, *48-, and 54
Orchard .....	16
Pawnee .....	33+
Scottsbluff .....	10-, 16
Superior .....	4+

## NEVADA

	Channel No.
Elko .....	10-, *14+
Ely .....	3-, 6+
Fallon .....	*25
Goldfield .....	7-
Henderson .....	5+
Las Vegas .....	3, 8-, *10+, 13-, 15+, 21+, and 33+
Laughlin .....	34+
McGill .....	*13
Paradise .....	39+
Pawnee City .....	*33+
Reno .....	2, 4, *5, 8, 11, 21+, and 27+
Tonopah .....	9-, *17+
Winnemucca .....	7+, *15-
Yerington .....	*16+

## NEW HAMPSHIRE

[See footnotes at end of tables]

	Channel No.
Berlin .....	*40-
Concord .....	21+
Derry .....	50-
Durham .....	*11
Hanover .....	*15+
Keene .....	*52+
Littleton .....	*49+
Manchester .....	9-
Merrimack .....	60+
Portsmouth .....	*17-

## NEW JERSEY

	Channel No.
Atlantic City .....	*36, 53+, 62-
Burlington .....	48-
Camden .....	*23+
Linden-Newark .....	47+
Montclair .....	*50+
Newark .....	13-, 68
New Brunswick .....	*58
Newton .....	63
Paterson .....	41-
Secaucus .....	9+
Trenton .....	*52-
Vineland .....	59-, 65-
West Milford .....	*66-
Wildwood .....	40

## NEW MEXICO

	Channel No.
Alamogordo .....	*18-
Albuquerque .....	4+, *5+, 7+, 13+, 14-, 23-, *32+, 41, 50
Carlsbad .....	6-, *15+, 25-
Clayton .....	*17
Clovis .....	12--
Deming .....	*16
Farmington .....	3, 12+, *15+
Gallup .....	*8-, 10
Hobbs .....	29+
Las Cruces .....	*22-, 48+
Lovington .....	*19
Portales .....	*3+
Raton .....	*18-
Roswell .....	8, 10-, 21-, 27-, *33+

**Federal Communications Commission**

**\$ 73.606**

**NEW MEXICO—Continued**

	Channel No.
Santa Fe .....	2+, *9+, 11-, 19-
Silver City .....	6, 10+, *12
Socorro .....	*15-
Tucumcari .....	*15

**NEW YORK**

[See footnotes at end of tables]

	Channel No.
Albany-Schenectady ..	6, 10-, 13, *17+, 23-, *29+, 45
Amsterdam .....	*39+, 55
Arcade .....	62-
Batavia .....	51-
Bath .....	14-
Binghamton .....	12-, 34, 40-, *46+
Buffalo .....	2, 4, 7+, 17, *23, 29-, 49-
Carthage .....	7-
Corning .....	*30, 48+
Elmira .....	18+, 36-
Garden City .....	*21-
Glens Falls .....	*58-
Ilion .....	67-
Ithaca .....	52, *65+
Jamestown .....	26+, *46
Kingston .....	62+
Lake Placid .....	*34+
New York .....	2, 4, 5+, 7, 11+, *25, 31-
North Pole .....	5
Norwood .....	*18
Oneonta .....	1 15, *42
Plattsburg .....	*57
Poughkeepsie .....	54+
Riverhead .....	55+
Rochester .....	8, 10+, 13-, *21, 31+, *61+
Saranac Lake .....	40+
Smithtown .....	67
Springville .....	67+
Syracuse .....	3-, 5-, 9-, *24+, 43+, 56+, 68-
Utica .....	2-, 4-, 20+, 33, *59
Watertown .....	*16, 50+
Waverly .....	*57-

**NORTH CAROLINA**

	Channel No.
Andrews .....	*59
Asheville .....	13-, 21+, *33, 62+
Belmont .....	46+
Bryson City .....	*67
Burlington .....	16
Canton .....	*27
Chapel Hill .....	*4+
Charlotte .....	3, 9+, 18, 36, *42+
Concord .....	*58
Cullowhee .....	50+
Durham .....	11+, 28+
Edenton .....	*2
Fayetteville .....	40+, 62
Forest City .....	66+
Franklin .....	*56+
Goldsboro .....	17-
Greensboro .....	2-, 48-, 61
Greenville .....	9-, 14, *25, and 38+
Hickory .....	14-
High Point .....	8-, *32+, 67+
Jacksonville .....	*19, 35
Kannapolis .....	64-
Laurel Hill .....	59+

**NORTH CAROLINA—Continued**

	Channel No.
Lexington .....	20
Linville .....	*17
Lumberton .....	*31
Manteo .....	4
Morehead City .....	8+
Morganton .....	23-
New Bern .....	12+
Raleigh .....	5, 22, *34, 50+
Roanoke Rapids .....	*36-
Rockingham .....	*53
Rocky Mount .....	47+
Washington .....	7
Waynesville .....	59
Wilmington .....	3-, 6, 26-, *39-
Wilson .....	30-
Winston-Salem .....	12, *26+, 45

**NORTH DAKOTA**

	Channel No.
Bismarck .....	*3, 5, 12-, 17-, 26+
Devils Lake .....	8+, *22+
Dickinson .....	2+, *9-, 7
Ellendale .....	*19-
Fargo .....	6, 11+, *13, 15-
Grand Forks .....	*2, 14+, 27+
Jamestown .....	7-, *23
Minot .....	*6+, 10-, 13-, 14-, 24
Pembina .....	12
Valley City .....	4-
Williston .....	*4, 8-, 11-, *15-

**OHIO**

[See footnotes at end of tables]

	Channel No.
Akron .....	23+, *49+, 55-
Alliance .....	*45+
Ashtabula .....	1 15
Athens .....	20*, 63-
Bowling Green .....	*27+
Cambridge .....	*44-
Canton .....	17-, 67
Chillicothe .....	53
Cincinnati .....	5-, 9, 12, *48-, 64-
Cleveland .....	3, 5+, 8, *25+, 61
Columbus .....	4-, 6+, 10+, 28-, *34, *56-
Dayton .....	2, 7+, *16+, 22+, 45
Defiance .....	65+
Hillsboro .....	*24+, 55+
Lima .....	35-, 44+, *57+, 17
Lorain .....	43
Mansfield .....	*47+, 68-
Newark .....	*31-, 51
Oxford .....	*14+
Portsmouth .....	30, *42-
Sandusky .....	52
Shaker Heights 19.	
Springfield .....	26+, *66
Steubenville .....	9+, *62+
Toledo .....	11-, 13, 24-, *30+, 36-, and 40-
Xenia .....	32
Youngstown .....	21-, 27, 33, *58
Zanesville .....	18-



§ 73.606

OKLAHOMA

[See footnotes at end of tables]

	Channel No.
Ada .....	10+, *22
Altus .....	*27
Ardmore .....	*17, *28-
Bartlesville .....	17+
Cheyenne .....	12+
Claremore .....	*35
Duncan .....	40+
Elk City .....	*15-
Enid .....	20-, *26+
Eufaula .....	*3
Grove .....	45+
Guymon .....	9+, *16
Hugo .....	42+, <sup>1</sup> *15+, *48+
Lawton .....	7+, *36-, 16-, 45
McAlester .....	*32-
Miami .....	*18-
Muskogee .....	19
Norman .....	46-
Oklahoma City .....	4-, 5, 9-, *13, 14-, 25-, 34-, 43+, 52, and 62+
Okmulgee .....	44-
Sayre .....	8+
Shawnee .....	30
Tulsa .....	2+, 6+ 8-, *11-, 23, 41+, 47, 53
Woodward .....	*17-, 35+

OREGON

	Channel No.
Astoria .....	*21
Bend .....	*3+, *15, 21+, 51
Brookings .....	*14-
Burns .....	*18
Coos Bay .....	11, 23+, 41
Corvallis .....	*7-
Eugene .....	9+, 13, 16+, *28-, and 34
Grants Pass .....	*18+, 30+
Klamath Falls .....	2-, *22+, and 31
LaGrande .....	*13+, 16
Medford .....	5, *8+, 10+, 12+, and 26+
North Bend .....	*17+
Pendleton .....	11-
Portland .....	2, 6+, 8-, *10, 12, 24+, *30, 40-
Roseburg .....	4+, 36, 46+
Salem .....	22, 32
The Dalles .....	*17-

PENNSYLVANIA

[See footnotes at end of tables]

	Channel No.
Allentown .....	*39, 69
Altoona .....	10-, 23-, 47, *57+
Bethlehem .....	60-
Clearfield .....	*3+
Erie .....	12, 24, 35+, *54+, 66+
Greensburg .....	40+
Harrisburg .....	21+, 27-, *33+
Hazleton .....	56
Jeanette .....	19+
Johnstown .....	6, 8-, 19+, *28+
Lancaster .....	8+, 15+
Lebanon .....	55-
Philadelphia .....	3, 6-, 10, 17-, 29, *35-, 57
Pittsburgh .....	2-, 4+, 11, *13-, 16, 22, 53+
Reading .....	51
Red Lion .....	49+

47 CFR Ch. I (10–1–08 Edition)

PENNSYLVANIA—Continued

[See footnotes at end of tables]

	Channel No.
Scranton .....	16-, 22-, 38+, *44-, 64
State College .....	29+, and *59+
Wilkes Barre .....	28
Williamsport .....	<sup>1</sup> 20-, 53-
York .....	43,

RHODE ISLAND

[See footnotes at end of tables]

	Channel No.
Block Island .....	69-
Providence .....	10+, 12+, <sup>1</sup> 16, *36, 64+

SOUTH CAROLINA

	Channel No.
Aiken .....	*44
Allendale .....	*14
Anderson .....	40
Beaufort .....	*16-
Charleston .....	2+, 4, 5+, *7-, 24, and 36+
Columbia .....	10-, 19+, 25-, *35+, 47, 57-
Conway .....	*23+
Florence .....	13+, 15-, 21, *33+
Greenville .....	4-, 16+, 21, *29
Greenwood .....	*38, 48+
Hardeeville .....	28-
Myrtle Beach .....	32, 43+
Rock Hill .....	30+, 55-
Spartanburg .....	7+, 49
Sumter .....	*27- and 63-

SOUTH DAKOTA

	Channel No.
Aberdeen .....	9-, *16-
Allen .....	22+
Brookings .....	*8
Eagle Butte .....	*13
Florence .....	3-
Huron .....	12+
Lead .....	5-, 11+
Lowry .....	*11-, 56, 62+, 68-
Martin .....	*8-
Mitchell .....	5+
Pierre .....	4, *10+
Rapid City .....	3+, 7+, *9, 15-, 21-
Reliance .....	6-
Seneca .....	*2-
Sioux Falls .....	11, 13+, 17-, *23, 36+, 46
Vermillion .....	*2+

TENNESSEE

	Channel No.
Athens .....	*24
Chattanooga .....	3+, 9, 12+, *45, 61-
Cleveland .....	53
Cookeville .....	*22, 28+
Crossville .....	20+, *55+
Fayetteville .....	*29-
Greeneville .....	39-
Hendersonville .....	50

**Federal Communications Commission**

**\$ 73.606**

**TENNESSEE—Continued**

	Channel No.
Jackson .....	7+, 16+, *32+
Jellico .....	54-
Johnson City .....	11-, *41
Kingsport .....	19
Knoxville .....	6, 8, 10+, *15-, 43+
Lebanon .....	66--
Lexington .....	*11+
Livingston .....	60-
McMinnville .....	33+
Memphis .....	3-, 5+, *10+, 13+, *14+, 24, 30, 50+, and *56
Murfreesboro .....	39+
Nashville .....	2-, 4+, 5, *8+, 17+, 30+, *42, and 58
Sneedville .....	*2+
Tazewell .....	48+
Tullahoma .....	64+
Union City .....	41

**TEXAS**

	Channel No.
Abilene .....	9+, 15, *26+, 32+
Alpine .....	12-
Alvin .....	67
Amarillo .....	*2+, 4, 7, 10, 14+
Austin .....	7+, *18+, 24, 36, 42-, and 54
Bay City .....	*43+
Baytown .....	57+
Beaumont .....	6-, 12-, 21, *34-
Belton .....	46-
Big Spring .....	4-, *14
Blanco .....	17
Boquillas .....	8-
Borger .....	31
Brady .....	13
Brownsville .....	23
Bryan .....	3, 28
Childress .....	*21
College Station .....	*15, 50-
Conroe .....	49+ and 55+
Corpus Christi .....	3-, 6, 10-, *16, 28-, 38+
Crockett .....	40
Dallas .....	4+, 8, *13+, 27-, 33+, 39, and 58
Decatur .....	29
Del Rio .....	10, *24+
Denton .....	*2
Eagle Pass .....	16+
El Paso .....	4, 7, 9, *13, 14, 26+, *38--, and 65
Farwell .....	18+
Fort Stockton .....	5+
Fort Worth .....	5+, 11-, 21-, *31+, and 52-
Fredericksburg .....	2+
Galveston .....	*22, 47
Garland .....	23
Greenville .....	47+
Harlingen .....	4+, *44, 60
Houston .....	2-, *8, 11+, 13-, *14, 20, 26, 39-, and 61
Irving .....	49
Jacksonville .....	56
Katy .....	51+
Kennville .....	35+
Killeen .....	62
Lake Dallas .....	55
Laredo .....	8, 13, 27-, *39
Liano .....	14-
Longview .....	16+, 38-, and 51-
Lubbock .....	*5-, 11, 13-, 16+, 28, and 34-
Lufkin .....	9
McAllen .....	48

**TEXAS—Continued**

	Channel No.
Marfa .....	3
Marshall .....	*22-, 35+
Midland .....	2-, 18
Mineola .....	64+
Monahans-Odessa .....	9-
Nacogdoches .....	19-, *32
Odessa .....	7-, 24-, 30, *36+, and 42
Palestine .....	43
Paris, Texas .....	36+, 42+
Port Arthur .....	4-
Presidio .....	7+
Rio Grande City .....	40
Rosenberg .....	45
San Angelo .....	3-, 6, 8+, *21+
San Antonio .....	4, 5, *9-, 12+, *23-, 29+, 41+, and 60+
Sherman .....	12-, 20-, *26-
Snyder .....	17-
Sonora .....	11+
Sulphur Springs .....	18
Sweetwater .....	12
Temple .....	6+,
Texarkana .....	6, 17-, *34
Tyler .....	7, 14+, *38, and 60
Uvalde .....	26-
Victoria .....	19+, 25, 31, and *47
Waco .....	10+, 25+, *34+, 44-
Weslaco .....	5-
Wichita Falls .....	3+, 6-, 18-, *24
Wolfforth .....	22-

**UTAH**

	Channel No.
Cedar City .....	4, *16+
Logan .....	12-, *22
Moab .....	*14+
Monticello .....	*16-
Ogden .....	*9+, *18-, 24, 30
Price .....	3+, *15
Provo .....	*11-, 16, 32
Richfield .....	8+, *19
Salt Lake City .....	2-, 4-, 5+, *7-, 13+, 14-, 20+, *26-
St. George .....	12, *18-
Vernal .....	6, *17+

**VERMONT**

	Channel No.
Burlington .....	3, 22+, *33-, 44+
Hartford .....	31
Rutland .....	*28+
St. Johnsbury .....	*20-
Windsor .....	*41

**VIRGINIA**

	Channel No.
Arlington .....	14-
Ashland .....	65+
Blacksburg .....	*43, 65-
Bristol .....	5+, *28-
Bluefield .....	*63+
Charlottesville .....	29-, *41-, 64+
Courtland .....	*52
Danville .....	24-, 44+, *56
Farmville .....	*31-

## VIRGINIA—Continued

	Channel No.
Fairfax .....	*56-
Fredericksburg .....	69+
Front Royal .....	*42
Goldvein .....	*53
Grundy .....	68
Harrisonburg .....	3-
Lynchburg .....	13, 21-, *54+
Manassas .....	66+
Marion .....	*52-
Norfolk-Portsmouth- Newport News- .....	3+, 10+, 13-, *15, 27, 33, 49- and
Hampton .....	*55+
Norton .....	*47-
Onancock .....	*25+
Petersburg .....	8
Richmond .....	6+, 12-, *23, 35+, *57-, 63
Roanoke .....	7-, 10, *15+, 27+, 38-, and 60
Staunton .....	*51-
Virginia Beach .....	21+, 43+
West Point .....	*46

## WASHINGTON

	Channel No.
Anacortes .....	64
Bellevue .....	33+, 51+
Bellingham .....	12+, 24, *34
Centralia .....	*15+
East Wenatchee .....	249A
Everett .....	16-
Kennewick .....	42+
Morton .....	39
Olympia .....	67
Pasco .....	19-
Pullman .....	*10-, 24+
Richland .....	25, *31
Rochester .....	26+
Seattle .....	4, 5+, 7, *9, 22+, 45+, and *62
Spokane .....	2-, 4-, 6-, *7+22, 28-, and 34-
Tacoma .....	11+, 13-, 20, *28, and *56
Vancouver .....	*14, 49
Walla Walla .....	9+
Wenatchee .....	*18+, 27
Yakima .....	23+, 29+, 35, *47

## WEST VIRGINIA

[See footnotes at end of tables]

	Channel No.
Bluefield .....	6-, 40-
Charleston .....	8+, 11+, 29, *49-
Clarksburg .....	12+, 46-
Fairmont .....	66-
Grandview .....	*9-
Huntington .....	3+, 13+, *33+
Keyser .....	*30+
Lewisburg .....	59
Martinsburg .....	*44, 60+
Morgantown .....	*24-
Oak Hill .....	4
Parkersburg .....	15-, 39+, *57
Weirton .....	*50+
Weston .....	5
Wheeling .....	7, *14, *41
Williamson .....	*31+

## WISCONSIN

	Channel No.
Antigo .....	46
Appleton .....	32+
Bloomington .....	*49
Chippewa Falls .....	48
Crandon .....	4
Eagle River .....	34
Eau Claire .....	13+, 18
Fond du Lac .....	68
Green Bay .....	2+, 5+, 11+, 26+, *38, 50+
Highland .....	*51
Janesville .....	57+
Kenosha .....	55-
Kieler .....	*46+
LaCrosse .....	8+, 19+, 25, *31
Madison .....	3, 15, *21-, 27+, 47+
Manitowoc .....	16+
Marshfield .....	39-
Mayville .....	52
Menomonie .....	*28-
Milwaukee .....	4-, 6, *10+, 12, 18-, 24+, 30, *36, and 58
Oshkosh .....	22+and *50+
Park Falls .....	*36+
Racine .....	49+
Rhineland .....	12+
Rice Lake .....	16
Richland Center .....	45+
Sheboygan .....	28
Sturgeon Bay .....	42
Superior .....	6+, 40
Suring .....	14-
Tomah .....	43
Wausau .....	7-, 9, *20+, 33-
Wittenberg .....	55

## WYOMING

	Channel No.
Casper .....	2+, *6+, 13+, 14-, 20-
Cheyenne .....	5+, *17, 27-, 33-
Jackson .....	2, 11+
Lander .....	*4, 5
Laramie .....	*8+
Rawlins .....	11-
Riverton .....	10+
Rock Springs .....	13
Sheridan .....	7, 9+, 12+

## U.S. TERRITORIES AND POSSESSIONS

[See footnotes at end of tables]

	Channel No.
Guam:	
Agana .....	*4, 8, 10, *12
Tamuning .....	14, 20
Puerto Rico:	
Aguada .....	50
Aguadilla .....	*32, 44
Arecibo-Aguadilla .....	12+
Arecibo .....	54, 60
Bayamon .....	36
Caguas .....	11-, *58
Carolina .....	52
Cayey .....	
Fajardo .....	13+, 34, and *40
Guayama .....	46
Humacao .....	68
Mayaguez .....	3+, 5-, 16, 22

## Federal Communications Commission

§ 73.609

### U.S. TERRITORIES AND POSSESSIONS— Continued

[See footnotes at end of tables]

	Channel No.
Naranjito .....	64
Ponce .....	7+, 9-, 14, 20, *26, 48
San Juan .....	2+, 4-, *6+, 18, 24, 30, and *62
San Sebastian .....	38
Utuaado .....	
Yauco .....	42
Virgin Islands:	
Charlotte Amalie ....	10-, 17, *23, 43
Charlotte Amalie- Christiansted .....	*3, 6 *12
Christiansted .....	8+, 15, *21, 39
Frederiksted .....	66

#### Footnotes to tables:

<sup>1</sup> Following the decision in Docket No. 18261, channels so indicated will not be available for television use until further action by the Commission.

<sup>2</sup> Operation on this channel is subject to the conditions, terms, and requirements set out in the Report and Order in Docket No. 19075, RM-1645, adopted January 5, 1972, re-leased January 7, 1972, FCC 72-19.

<sup>3</sup> [Reserved]

<sup>4</sup> This channel is not available for use at Elgin unless and until it is determined by the Commission that it is not needed for use at Joliet, Ill.

<sup>5</sup> [Reserved]

<sup>6</sup> Stations using these allotments shall limit radiation toward stations on the same channel in Puerto Rico, to no more than the effective radiated power which would be radiated by an omnidirectional radio station using maximum permissible effective radiated power for antenna height above average terrain, at the minimum distances from such stations specified in Sec. 73.610(b). The FCC shall consider the status of the negotiations with the appropriate British authorities concerning these allotments when the applications for construction permits come before the FCC.

(Sec. 5, 48 Stat. 1068; 47 U.S.C. 155)

[28 FR 13660, Dec. 14, 1963]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 73.606, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and on GPO Access.

### § 73.607 Availability of channels.

(a) Applications may be filed to construct TV broadcast stations only on the channels designated in the Table of Allotments (§ 73.606(b)) and only in the communities listed therein. Applications which fail to comply with this requirement, whether or not accompanied by a petition to amend the Table, will not be accepted for filing. However, applications specifying channels which accord with publicly announced FCC Orders changing the Table of Allotments will be accepted for filing even though such applications are tendered before the effective dates of such channel changes.

(b) Notwithstanding paragraph (a) of this section, an application may be

filed for a channel or community not listed in the TV Table of Allotments if it is consistent with the rules and policies established in the Third Report and Order in WT Docket 99-168 (FCC 01-25), adopted January 18, 2001. Where such a request is approved, the Media Bureau will change the Table of Allotments to reflect that approval.

[51 FR 44070, Dec. 8, 1986, as amended at 66 FR 10208, Feb. 14, 2001; 67 FR 13232, Mar. 21, 2002]

### § 73.609 Zones.

(a) For the purpose of allotment and assignment, the United States is divided into three zones as follows:

(1) Zone I consists of that portion of the United States located within the confines of the following lines drawn on the U.S. Albers Equal Area Projection Map (based on standard parallels 29½° and 45½°; North American datum): Beginning at the most easterly point on the State boundary line between North Carolina and Virginia; thence in a straight line to a point on the Virginia-West Virginia boundary line located at north latitude 37°49' and west longitude 80°12'30"; thence westerly along the southern boundary lines of the States of West Virginia, Ohio, Indiana, and Illinois to a point at the junction of the Illinois, Kentucky, and Missouri State boundary lines; thence northerly along the western boundary line of the State of Illinois to a point at the junction of the Illinois, Iowa, and Wisconsin State boundary lines; thence easterly along the northern State boundary line of Illinois to the 90th meridian; thence north along this meridian to the 43.5° parallel; thence east along this parallel to the United States-Canada border; thence southerly and following that border until it again intersects the 43.5° parallel; thence east along this parallel to the 71st meridian; thence in a straight line to the intersection of the 69th meridian and the 45th parallel; thence east along the 45th parallel to the Atlantic Ocean. When any of the above lines pass through a city, the city shall be considered to be located in Zone I. (See Figure 1 of § 73.699.)

(2) Zone II consists of that portion of the United States which is not located in either Zone I or Zone III, and Puerto

## § 73.610

Rico, Alaska, Hawaiian Islands and the Virgin Islands.

(3) Zone III consists of that portion of the United States located south of a line, drawn on the United States Albers Equal Area Projection Map (based on standard parallels 29.50 and 45.50 North American datum), beginning at a point on the east coast of Georgia and the 31st parallel and ending at the United States-Mexican border, consisting of arcs drawn with a 241.4 kilometer (150 mile) radius to the north from the following specified points:

	North latitude	West longitude
(a) .....	29°40'00"	83°24'00"
(b) .....	30°07'00"	84°12'00"
(c) .....	30°31'00"	86°30'00"
(d) .....	30°48'00"	87°58'30"
(e) .....	30°00'00"	90°38'30"
(f) .....	30°04'30"	93°19'00"
(g) .....	29°46'00"	95°05'00"
(h) .....	28°43'00"	96°39'30"
(i) .....	27°52'30"	97°32'00"

When any of the above arcs pass through a city, the city shall be considered to be located in Zone II. (See Figure 2 of § 73.699.)

[28 FR 13660, Dec. 14, 1963, as amended at 33 FR 15422, Oct. 17, 1968; 50 FR 23697, June 5, 1985; 51 FR 44070, Dec. 8, 1986]

### § 73.610 Minimum distance separations between stations.

(a) The provisions of this section relate to allotment separations and station separations. Petitions to amend the Table of Allotments (§ 73.606(b)) (other than those also expressly requesting amendment of this section or § 73.609) will be dismissed and all applications for new TV broadcast stations or for changes in the transmitter sites of existing stations will not be accepted for filing if they fail to comply with the requirements specified in paragraphs (b), (c) and (d) of this section.

NOTE: Licensees and permittees of television broadcast stations which were operating on April 14, 1952 pursuant to one or more separations below those set forth in § 73.610 may continue to so operate, but in no event may they further reduce the separations below the minimum. As the existing separations of such stations are increased, the new separations will become the required minimum separations until separations are reached which comply with the requirements

## 47 CFR Ch. I (10–1–08 Edition)

of § 73.610. Thereafter, the provisions of said section shall be applicable.

(b) Minimum co-channel allotment and station separations:

(1)

Zone	Kilometers	
	Channels 2–13	Channels 14–69
I .....	272.7 (169.5 miles)	248.6 (154.5 miles)
II .....	304.9 (189.5 miles)	280.8 (174.5 miles)
III .....	353.2 (219.5 miles)	329.0 (204.5 miles)

(2) The minimum co-channel distance separation between a station in one zone and a station in another zone shall be that of the zone requiring the lower separation.

(c) Minimum allotment and station adjacent channel separations applicable to all zones:

(1) Channels 2–13 95.7 kilometers (59.5 miles). Channels 14–69 87.7 kilometers (54.5 miles).

(2) Due to the frequency spacing which exists between Channels 4 and 5, between Channels 6 and 7, and between Channels 13 and 14, the minimum adjacent channel separations specified above shall not be applicable to these pairs of channels (see § 73.603(a)).

(d) In addition to the requirements of paragraphs (a), (b) and (c) of this section, the minimum assignment and station separations between stations on Channels 14–69, inclusive, as set forth in Table II of § 73.698 must be met in either rule-making proceedings looking towards the amendment of the Table of Assignments (§ 73.606(b)) or in licensing proceedings. No channel listed in column (1) of Table II of § 73.698 will be assigned to any city, and no application for an authorization to operate on such a channel will be granted, unless the distance separations indicated at the top of columns (2) through (7), inclusive, are met with respect to each of the channels listed in those columns and parallel with the channel in column (1).

(e) The zone in which the transmitter of a television station is located or proposed to be located determines the applicable rules with respect to co-channel distance separations where the transmitter is located in a different zone from that in which the channel to be employed is located.

## Federal Communications Commission

## § 73.611

(f) The distances listed below apply only to allotments and assignments on Channel 6 (82–88 MHz). The Commission will not accept petitions to amend the Table of Allotments, applications for new stations, or applications to change the channel or location of existing assignments where the following minimum distances (between transmitter sites, in kilometers) from any FM Channel 253 allotment or assignment are not met:

MINIMUM DISTANCE SEPARATION FROM FM  
CHANNEL 253 (98.5 MHz)

Fm Class	TV Zone I	TV Zones II & III
A .....	17	22
B1 .....	19	23
B .....	22	26
C3 .....	19	23
C2 .....	22	26
C1 .....	29	33
C .....	36	41

(Secs. 4, 5, 303, 48 Stat., as amended, 1066, 1068, 1082 (47 U.S.C. 154, 155, 303))

[28 FR 13660, Dec. 14, 1963, as amended at 37 FR 25842, Dec. 5, 1972; 44 FR 65765, Nov. 15, 1979; 47 FR 35990, Aug. 18, 1982; 50 FR 23698, June 5, 1985; 51 FR 44070, Dec. 8, 1986; 54 FR 14964, Apr. 14, 1989; 54 FR 16368, Apr. 24, 1989; 54 FR 35340, Aug. 25, 1989]

### § 73.611 Reference points and distance computations.

(a) In considering petitions to amend the Table of Allotments (§ 73.606(b)), the following reference points shall be used by the Commission in determining assignment separations between communities:

(1) Where transmitter sites for the pertinent channels have been authorized in communities involved in a petition to amend the Table of Allotments, separations between such communities shall be determined by the distance between the coordinates of the authorized transmitter sites in the respective communities as set forth in the Commission's authorizations therefor.

(2) Where an authorized transmitter site is available for use as a reference point in one community but not in the other for the pertinent channels, separations shall be determined by the distance between the coordinates of the transmitter site as set forth in the FCC's authorization therefor and the

coordinates of the other community as set forth in the publication of the United States Department of the Interior entitled, Index to *The National Atlas of the United States of America*. If this publication does not contain the coordinates for said other community, the coordinates of the main post office thereof shall be used.

(3) Where no authorized transmitter sites are available for use as reference points in both communities for the pertinent channels, the distance between the two communities listed in the above publication shall be used. If said publication does not contain such distance, the separation between the two communities shall be determined by the distance between the coordinates thereof as set forth in the publication. Where such coordinates are not contained in the publication, the coordinates of the main post offices of said communities shall be used.

(4) Where the distance between the reference point in a community to which a channel is proposed to be assigned and the reference point in another community or communities does not meet the minimum separation requirements of § 73.610, the channel may be assigned to such community upon a showing that a transmitter site is available that would meet the minimum separation requirements of § 73.610 and the minimum field strength requirements of § 73.685. In such cases, where a station is not authorized in the community or communities to which measurements from the proposed channel assignment must be made pursuant to § 73.610 a showing should also be made that the distance between suitable transmitter sites in such other community or communities and the proposed transmitter site for the new channel meet the Commission's minimum spacing and coverage requirements.

(b) Station separations in licensing proceedings shall be determined by the distance between the coordinates of the proposed transmitter site in one community and

(1) The coordinates of an authorized transmitter site for the pertinent channel in the other community; or, where such transmitter site is not available for use as a reference point,

(2) The coordinates of the other community as set forth in the Index to *The National Atlas of the United States of America*; or if not contained therein,

(3) The coordinates of the main post office of such other community.

(4) In addition, where there are pending applications in other communities which, if granted, would have to be considered in determining station separations, the coordinates of the transmitter sites proposed in such applications must be used to determine whether the requirements with respect to minimum separations between the proposed stations in the respective cities have been met.

(c) In measuring assignment and station separations involving cities listed in the Table in combination, where there is no authorized transmitter site in any of the combination cities on the channel involved, separation measurements shall be made from the reference point which will result in the lowest separation.

(d) To calculate the distance between two reference points see paragraph (c), § 73.208. However, distances shall be rounded to the nearest tenth of a kilometer.

[52 FR 11655, Apr. 10, 1987]

**§ 73.612 Protection from interference.**

(a) Permittees and licensees of TV broadcast stations are not protected from any interference which may be caused by the grant of a new station or of authority to modify the facilities of an existing station in accordance with the provisions of this subpart. The nature and extent of the protection from interference accorded to TV broadcast stations is limited solely to the protection which results from the minimum allotment and station separation requirements and the rules and regulations with respect to maximum powers and antenna heights set forth in this subpart.

(b) When the Commission determines that grant of an application would serve the public interest, convenience, and necessity and the instrument of authorization specifies an antenna location in a designated antenna farm area which results in distance separation less than those specified in this subpart, TV broadcast station permit-

tees and licensees shall be afforded protection from interference equivalent to the protection afforded under the minimum distance separations specified in this subpart.

NOTE: The nature and extent of the protection from interference accorded to TV broadcast stations which were authorized prior to April 14, 1952, and which were operating on said date is limited not only as specified above but is further limited by any smaller separations existing between such stations on said date. Where, as a result of the adoption of the Table of Allotments or of changes in transmitter sites made by such stations after said date, separations smaller than the required minimum are increased but still remain lower than the required minimum, protection accorded such stations will be limited to the new separations.

[28 FR 13660, Dec. 14, 1963, as amended at 32 FR 8814, June 21, 1967; 50 FR 23698, June 5, 1985; 51 FR 44070, Dec. 8, 1986]

**§ 73.613 Protection of Class A TV stations.**

(a) An application for a new TV broadcast station or for changes in the operating facilities of an existing TV broadcast station will not be accepted for filing if it fails to comply with the requirements specified in this section.

NOTE TO § 73.613(a): Licensees and permittees of TV broadcast stations that were authorized on November 29, 1999 (and applicants for new TV stations that had been cut-off without competing applications or that were the winning bidder in a TV broadcast station auction as of that date, or that were the proposed remaining applicant in a group of mutually exclusive applications for which a settlement agreement was on file as of that date) may continue to operate with facilities that do not protect Class A TV stations. Applications filed on or before November 29, 1999 for a change in the operating facilities of such stations also are not required to protect Class A TV stations under the provisions of this section.

(b) Due to the frequency spacing which exists between TV channels 4 and 5, between channels 6 and 7, and between channels 13 and 14, first-adjacent channel protection standards shall not be applicable to these pairs of channels. Some interference protection requirements of this section only apply to stations transmitting on the UHF TV channels 14 through 51 (See § 73.603(a) of this part).

(c) A UHF TV broadcast station application will not be accepted if it specifies a site less than 100 kilometers from the transmitter site of a UHF Class A TV station operating on a channel which is the seventh channel above the requested channel. Compliance with this requirement shall be determined based on a distance computation rounded to the nearest kilometer.

(d) A UHF TV broadcast station application will not be accepted if it specifies a site less than 32 kilometers from the transmitter site of a UHF Class A TV station that is authorized an effective radiated power of more than 50 kilowatts and operating on a channel which is the second, third, or fourth channel above or below the requested channel. Compliance with this requirement shall be determined based on a distance computation rounded to the nearest kilometer.

(e) In cases where a TV broadcast station has been authorized facilities that do not meet the distance separation requirements of this section, an application to modify such a station's facilities will not be accepted if it decreases that separation.

(f) New interference must not be caused to Class A TV stations authorized pursuant to Subpart J of this part, within the protected contour defined in § 73.6010 of this part. For this prediction, the TV broadcast station field strength is calculated from the proposed effective radiated power and the antenna height above average terrain in pertinent directions using the methods in § 73.684 of this part.

(1) For co-channel protection, the field strength is calculated using the appropriate F(50,10) chart from Figure 9a, 10a, or 10c of § 73.699 of this part.

(2) For TV broadcast stations that do not specify the same channel as the Class A TV station to be protected, the field strength is calculated using the appropriate F(50,50) chart from Figure 9, 10, or 10b of § 73.699 of this part.

(g) A TV broadcast station application will not be accepted if the ratio in dB of its field strength to that of the Class A TV station at the Class A TV station's protected contour fails to meet the following:

(1) -45 dB for co-channel operations where the Class A TV station does not

specify an offset carrier frequency or where the TV broadcast and Class A TV stations do not specify different offset carrier frequencies (zero, plus or minus) or -28 dB for offset carrier frequency operation where the TV broadcast and Class A TV stations specify different offset carrier frequencies.

(2) 6 dB when the protected Class A TV station operates on a VHF channel that is one channel above the requested channel.

(3) 12 dB when the protected Class A TV station operates on a VHF channel that is one channel below the requested channel.

(4) 15 dB when the protected Class A TV station operates on a UHF channel that is one channel above or below the requested channel.

(5) 23 dB when the protected Class A TV station operates on a UHF channel that is fourteen channels below the requested channel.

(6) 6 dB when the protected Class A TV station operates on a UHF channel that is fifteen channels below the requested channel.

(h) New interference must not be caused to digital Class A TV stations authorized pursuant to Subpart J of this part, within the protected contour defined in § 73.6010 of this part. A TV broadcast station application will not be accepted if the ratio in dB of the field strength of the digital Class A TV station at the digital Class A TV station's protected contour to the field strength resulting from the facilities proposed in the TV broadcast station application fails to meet the D/U signal ratios for "analog TV-into-DTV" specified in §§ 73.623(c)(2) and 73.623(c)(3) of this part. For digital Class A TV station protection, the TV broadcast station field strength is calculated from the proposed effective radiated power and the antenna height above average terrain in pertinent directions using the methods in § 73.684 of this part and using the appropriate F(50,10) chart from Figure 9a, 10a, or 10c of § 73.699 of this part.

(i) In cases where a TV broadcast station has been authorized facilities that do not meet the interference protection



## § 73.614

requirements of this section, an application to modify such a station's facilities will not be accepted if it is predicted to cause new interference within the protected contour of the Class A TV or digital Class A TV station.

(j) In support of a request for waiver of the interference protection requirements of this section, an applicant for a TV broadcast station may make full use of terrain shielding and Longley-Rice terrain dependent propagation methods to demonstrate that the proposed facility would not be likely to cause interference to Class A TV stations. Guidance on using the Longley-Rice methodology is provided in *OET Bulletin No. 69*, which is available through the Internet at <http://www.fcc.gov/oet/info/documents/bulletins/#69>.

[65 FR 3001, May 10, 2000]

### § 73.614 Power and antenna height requirements.

(a) *Minimum requirements.* Applications will not be accepted for filing if they specify less than -10 dBk (100 watts) horizontally polarized visual effective radiated power in any horizontal direction. No minimum antenna height above average terrain is specified.

(b) *Maximum power.* Applications will not be accepted for filing if they specify a power which exceeds the maximum permitted boundaries specified in the following formulas:

(1) Channels 2-6 in Zone I:

$$\text{ERP}_{\text{Max}} = 102.57 - 33.24 * \text{Log}_{10}(\text{HAAT})$$

And,

$$-10 \text{ dBk} \leq \text{ERP}_{\text{Max}} \leq 20 \text{ dBk}$$

(2) Channels 2-6 in Zones II and III:

$$\text{ERP}_{\text{Max}} = 67.57 - 17.08 * \text{Log}_{10}(\text{HAAT})$$

And,

$$10 \text{ dBk} \leq \text{ERP}_{\text{Max}} \leq 20 \text{ dBk}$$

(3) Channels 7-13 in Zone I:

$$\text{ERP}_{\text{Max}} = 107.57 - 33.24 * \text{Log}_{10}(\text{HAAT})$$

And,

$$-4.0 \text{ dBk} \leq \text{ERP}_{\text{Max}} \leq 25 \text{ dBk}$$

(4) Channels 7-13 in Zones II and III:

$$\text{ERP}_{\text{Max}} = 72.57 - 17.08 * \text{Log}_{10}(\text{HAAT})$$

And,

## 47 CFR Ch. I (10-1-08 Edition)

$$15 \text{ dBk} \leq \text{ERP}_{\text{Max}} \leq 25 \text{ dBk}$$

(5) Channels 14-69 in Zones I, II, and III:

$$\text{ERP}_{\text{Max}} = 84.57 - 17.08 * \text{Log}_{10}(\text{HAAT})$$

And,

$$27 \text{ dBk} \leq \text{ERP}_{\text{Max}} \leq 37 \text{ dBk}$$

Where:

$\text{ERP}_{\text{Max}}$  = Maximum Effective Radiated Power measured in decibels above 1 kW (dBk).

HAAT = Height Above Average Terrain measured in meters.

The boundaries specified are to be used to determine the maximum possible combination of antenna height and  $\text{ERP}_{\text{dBk}}$ . When specifying an  $\text{ERP}_{\text{dBk}}$  less than that permitted by the lower boundary, any antenna HAAT can be used. Also, for values of antenna HAAT greater than 2,300 meters the maximum ERP is the lower limit specified for each equation.

(6) The effective radiated power in any horizontal or vertical direction may not exceed the maximum values permitted by this section.

(7) The effective radiated power at any angle above the horizontal shall be as low as the state of the art permits, and in the same vertical plane may not exceed the effective radiated power in either the horizontal direction or below the horizontal, whichever is greater.

(c) *Determination of applicable rules.* The zone in which the transmitter of a television station is located or proposed to be located determines the applicable rules with respect to maximum antenna heights and powers for VHF stations when the transmitter is located in Zone I and the channel to be employed is located in Zone II, or the transmitter is located in Zone II and the channel to be employed is located in Zone I.

[28 FR 13660, Dec. 14, 1963, as amended at 42 FR 20823, Apr. 22, 1977; 42 FR 48881, Sept. 26, 1977; 47 FR 35990, Aug. 18, 1982; 50 FR 23698, June 5, 1985; 56 FR 49707, Oct. 1, 1991; 58 FR 51250, Oct. 1, 1993]

### § 73.615 Administrative changes in authorizations.

In the issuance of television broadcast station authorizations, the Commission will specify the transmitter output power and effective radiated power to the nearest 0.1 dBk. Power

specified by kW shall be obtained by converting dBk to kW to 3 significant figures. Antenna heights above average terrain will be specified to the nearest meter. Midway figures will be authorized in the lower alternative.

[50 FR 23698, June 5, 1985]

**§ 73.616 Post-transition DTV station interference protection.**

(a) Applications seeking facilities that will operate prior to the end of the DTV transition must also comply with § 73.623.

(b) A petition to add a new channel to the post-transition DTV Table of Allotments contained in § 73.622(i) of this subpart will not be accepted unless it meets: the DTV-to-DTV geographic spacing requirements of § 73.623(d) with respect to all existing DTV allotments in the post-transition DTV Table; the principle community coverage requirements of § 73.625(a); the Class A TV and digital Class A TV protection requirements in paragraph (f) of this section; the land mobile protection requirements of § 73.623(e); and the FM radio protection requirement of § 73.623(f).

(c) The reference coordinates of a post-transition DTV allotment shall be the authorized transmitter site, or, where such a transmitter site is not available for use as a reference point, the coordinates as designated in the FCC order creating or modifying the post-transition DTV Table of Allotments.

(d) The protected facilities of a post-transition DTV allotment shall be the facilities (effective radiated power, antenna height and antenna directional radiation pattern, if any) authorized by a construction permit or license, or, where such an authorization is not available for establishing reference facilities, the facilities designated in the FCC order creating or modifying the post-transition DTV Table of Allotments.

(e) An application will not be accepted if it is predicted to cause interference to more than an additional 0.5 percent of the population served by another post-transition DTV station. For this purpose, the population served by the station receiving additional interference does not include portions of the population within the noise-limited

service contour of that station that are predicted to receive interference from the post-transition DTV allotment facilities of the applicant or portions of that population receiving masking interference from any other station.

(1) For evaluating compliance with the requirements of this paragraph, interference to populations served is to be predicted based on the 2000 census population data and otherwise according to the procedure set forth in OET Bulletin No. 69: "Longley-Rice Methodology for Evaluating TV Coverage and Interference" (February 6, 2004) (incorporated by reference, see § 73.8000), including population served within service areas determined in accordance with § 73.622(e), consideration of whether F(50,10) undesired signals will exceed the following desired-to-undesired (D/U) signal ratios, assumed use of a directional receiving antenna, and use of the terrain dependent Longley-Rice point-to-point propagation model. Applicants may request the use of a cell size other than the default of 2.0 km per side, but only requests for cell sizes of 1.0 km per side or 0.5 km per side will be considered. The threshold levels at which interference is considered to occur are:

(i) For co-channel stations, the D/U ratio is +15 dB. This value is only valid at locations where the signal-to-noise ratio is 28 dB or greater. At the edge of the noise-limited service area, where the signal-to-noise (S/N) ratio is 16 dB, this value is +23 dB. At locations where the S/N ratio is greater than 16 dB but less than 28 dB, D/U values are computed from the following formula:

$$D/U = 15 + 10 \log_{10} [1.0 / (1.0 - 10^{-x/10})]$$

Where  $x = S/N - 15.19$  (minimum signal to noise ratio)

(ii) For interference from a lower first-adjacent channel, the D/U ratio is -28 dB.

(iii) For interference from an upper first-adjacent channel, the D/U ratio is -26 dB.

(2) Due to the frequency spacing that exists between Channels 4 and 5, between Channels 6 and 7, and between

## § 73.621

Channels 13 and 14, the minimum adjacent channel technical criteria specified in this section shall not be applicable to these pairs of channels (see § 73.603(a)).

(f) A petition to add a new channel to the post-transition DTV Table or a post-transition DTV station application that proposes to expand its allotted or authorized coverage area in any direction will not be accepted if it is predicted to cause interference to a Class A TV station or to a digital Class A TV station authorized pursuant to subpart J of this part, within the protected contour defined in § 73.6010.

(1) Interference is predicted to occur if the ratio in dB of the field strength of a Class A TV station at its protected contour to the field strength resulting from the facilities proposed in the DTV application (calculated using the appropriate F(50,10) chart from Figure 9a, 10a, or 10c of § 73.699) fails to meet the D/U signal ratios for "DTV-into-analog TV" specified in § 73.623(c)(2).

(2) Interference is predicted to occur if the ratio in dB of the field strength of a digital Class A TV station at its protected contour to the field strength resulting from the facilities proposed in the DTV application (calculated using the appropriate F(50,10) chart from Figure 9a, 10a, or 10c of § 73.699) fails to meet the D/U signal ratios specified in paragraph (e) of this section.

(3) In support of a request for waiver of the interference protection requirements of this section, an applicant for a post-transition DTV broadcast station may make full use of terrain shielding and Longley-Rice terrain dependent propagation methods to demonstrate that the proposed facility would not be likely to cause interference to Class A TV stations. Guidance on using the Longley-Rice methodology is provided in OET Bulletin No. 69, which is available through the Internet at <http://www.fcc.gov/oet/info/documents/bulletins/#69>.

NOTE TO § 73.616: When this rule was adopted, the filing freeze announced in an August 2004 public notice (19 FCC Rcd 14810 (MB 2004)) remained in effect. For a short period of time after the filing freeze is lifted, until a date to be announced by a Media Bureau public notice, applicants must protect Appendix B facilities in addition to any author-

## 47 CFR Ch. I (10–1–08 Edition)

ized facilities required to be protected pursuant to this rule section.

[73 FR 5682, Jan. 30, 2008]

### § 73.621 Noncommercial educational TV stations.

In addition to the other provisions of this subpart, the following shall be applicable to noncommercial educational television broadcast stations:

(a) Except as provided in paragraph (b) of this section, noncommercial educational broadcast stations will be licensed only to nonprofit educational organizations upon a showing that the proposed stations will be used primarily to serve the educational needs of the community; for the advancement of educational programs; and to furnish a nonprofit and noncommercial television broadcast service.

(1) In determining the eligibility of publicly supported educational organizations, the accreditation of their respective state departments of education shall be taken into consideration.

(2) In determining the eligibility of privately controlled educational organizations, the accreditation of state departments of education or recognized regional and national educational accrediting organizations shall be taken into consideration.

(b) Where a municipality or other political subdivision has no independently constituted educational organization such as, for example, a board of education having autonomy with respect to carrying out the municipality's educational program, such municipality shall be eligible for a noncommercial educational television broadcast station. In such circumstances, a full and detailed showing must be made that a grant of the application will be consistent with the intent and purpose of the Commission's rules and regulations relating to such stations.

(c) Noncommercial educational television broadcast stations may transmit educational, cultural and entertainment programs, and programs designed for use by schools and school systems in connection with regular school courses, as well as routine and administrative material pertaining thereto.

## Federal Communications Commission

## § 73.622

(d) A noncommercial educational television station may broadcast programs produced by or at the expense of, or furnished by persons other than the licensee, if no other consideration than the furnishing of the program and the costs incidental to its production and broadcast are received by the licensee. The payment of line charges by another station, network, or someone other than the licensee of a noncommercial educational television station, or general contributions to the operating costs of a station, shall not be considered as being prohibited by this paragraph.

(e) Each station shall furnish a non-profit and noncommercial broadcast service. Noncommercial educational television stations shall be subject to the provisions of § 73.1212 to the extent that they are applicable to the broadcast of programs produced by, or at the expense of, or furnished by others. No *promotional announcements on behalf of for profit entities* shall be broadcast at any time in exchange for the receipt, in whole or in part, of consideration to the licensee, its principals, or employees. However, acknowledgements of contributions can be made. *The scheduling of any announcements and acknowledgements may not interrupt regular programming.*

NOTE: Commission interpretation of this rule, including the acceptable form of acknowledgements, may be found in the Second Report and Order in Docket No. 21136 (Commission Policy Concerning the Noncommercial Nature of Educational Broadcast Stations), 86 F.C.C. 2d 141 (1981); the Memorandum Opinion and Order in Docket No. 21136, 90 FCC 2d 895 (1982), and the Memorandum Opinion and Order in Docket 21136, 49 FR 13534, April 5, 1984.

(f) Telecommunications Service on the Vertical Blanking Interval and in the Visual Signal. The provisions governing VBI and visual signal telecommunications service in § 73.646 are applicable to noncommercial educational TV stations.

(g) Non-program related data signals transmitted on Line 21 pursuant to § 73.682(a)(22)(ii) may be used for remunerative purposes.

(h) Mutually exclusive applications for noncommercial educational TV stations operating on reserved channels

shall be resolved pursuant to the point system in subpart K.

(i) With respect to the provision of advanced television services, the requirements of this section will apply to the entire digital bitstream of noncommercial educational television stations, including the provision of ancillary or supplementary services.

[28 FR 13660, Dec. 14, 1963, as amended at 35 FR 7558, May 15, 1970; 47 FR 36179, Aug. 19, 1982; 48 FR 27068, June 13, 1983; 49 FR 29069, July 18, 1984; 50 FR 4664, Feb. 1, 1985; 50 FR 4684, Feb. 1, 1985; 61 FR 36304, July 10, 1996; 65 FR 36378, June 8, 2000; 66 FR 58982, Nov. 26, 2001]

### § 73.622 Digital television table of allotments.

(a) *General.* The following table of allotments contains the digital television (DTV) channel allotments designated for the listed communities in the United States, its Territories, and possessions. The initial DTV Table of Allotments was established on April 3, 1997, to provide a second channel for DTV service for all eligible analog television broadcasters. Requests for addition of new DTV allotments, or requests to change the channels allotted to a community must be made in a petition for rule making to amend the DTV Table of Allotments. A request to amend the DTV table to change the channel of an allotment in the DTV table will be evaluated for technical acceptability using engineering criteria set forth in § 73.623(c). A request to amend the DTV table to add a new allotment will be evaluated for technical acceptability using the geographic spacing criteria set forth in § 73.623(d). DTV allotments designated with an asterisk are assigned for use by non-commercial educational broadcast stations only. Stations operating on DTV allotments designated with a “c” are required to comply with paragraph (g) of this section. Rules governing noncommercial educational TV stations are contained in § 73.621. Where there is only one technically available channel available in a community, an entity that would be eligible to operate a noncommercial educational broadcast station may, prior to application, initiate a rulemaking proceeding requesting that an unoccupied or new

§ 73.622

channel in the community be changed or added as reserved only for non-commercial educational broadcasting upon demonstrating that the non-commercial educational proponent would provide a first or second non-commercial educational TV service to 2,000 or more people who constitute 10% of the population within the proposed allocation's noise limited contour.

(1) Petitions requesting the addition of a new allotment must specify a channel in the range of channels 2-51.

(2) Petitions requesting a change in the channel of an initial allotment must specify a channel in the range of channels 2-58.

(b) *DTV Table of Allotments.*

ALABAMA

Community	Channel No.
Anniston .....	9
Bessemer .....	18c
Birmingham .....	30, 36, 50, 52, *53
Demopolis .....	*19
Dothan .....	21, 36
Dozier .....	*11
Florence .....	14, 20, *22
Gadsden .....	26, 45c
Homewood .....	28
Huntsville .....	*24, 32c, 41, 49c, 59
Louisville .....	*44c
Mobile .....	9, 18, 20, 27, *41, 47
Montgomery .....	14, 16, *27, 46c, 51
Mount Cheaha .....	*56
Opelika .....	31
Ozark .....	33
Selma .....	55
Troy .....	48
Tuscaloosa .....	5
Tuskegee .....	24

ALASKA

Community	Channel No.
Anchorage .....	6c, *8c, 10c, 12c, 20, *26, 28, 32
Bethel .....	*3
Dillingham .....	*9
Fairbanks .....	18, 22, *24, 26, 28
Juneau .....	*10, 11
Ketchikan .....	*8, 13
North Pole .....	20
Sitka .....	2

ARIZONA

Community	Channel No.
Flagstaff .....	18, 22, 27, 32
Green Valley .....	47c
Kingman .....	19, *46
Mesa .....	36
Phoenix .....	17, 20, 24, 26, *29, 31, 34c, 49, 56
Prescott .....	25
Sierra Vista .....	44

47 CFR Ch. I (10-1-08 Edition)

ARIZONA—Continued

Community	Channel No.
Tolleson .....	52c
Tucson .....	19c, 23, 25, *28c, *30, 32, 35, 42
Yuma .....	16, 41

ARKANSAS

Community	Channel No.
Arkadelphia .....	*13
El Dorado .....	*12, 27
Fayetteville .....	*9, 15
Fort Smith .....	18, 21, 27
Hot Springs .....	14
Jonesboro .....	9c, *20c, 49c
Little Rock .....	*5, 12c, 22, 30, 32, 44
Mountain View .....	*13
Newark .....	*27
Pine Bluff .....	24, 39c
Rogers .....	50
Springdale .....	39

CALIFORNIA

Community	Channel No.
Anaheim .....	32
Arcata .....	22
Avalon .....	47c
Bakersfield .....	10, 25, 33, 55
Barstow .....	44
Blythe .....	*4
Calipatria .....	50
Ceres .....	*15c
Chico .....	36, 43
Clovis .....	44c
Coalinga .....	*22
Concord .....	63c
Corona .....	39
Cotati .....	*23c
El Centro .....	22, 48
Eureka .....	*11, 16, 17, 28
Fort Bragg .....	15
Fresno .....	7, 9, 34, 38, *40
Hanford .....	20
Huntington Beach .....	*48
Long Beach .....	61c
Los Angeles .....	31c, 35c, 36, *41c, 42, 43, 53c, *59c, 60, 65c, 66
Merced .....	5
Modesto .....	18
Monterey .....	31, 32
Novato .....	47
Oakland .....	56
Ontario .....	29c
Oxnard .....	24
Palm Springs .....	46, 52
Paradise .....	20
Porterville .....	48
Rancho Palos Verdes .....	51c
Redding .....	*18, 34
Riverside .....	68
Sacramento .....	21, 35, *43, 48, *53, 55, 61
Salinas .....	10, 13
San Bernardino .....	*26, 38
San Diego .....	18, 19, 25, *30, 40c, 55
San Francisco .....	19, 24, 27c, 29, *30, *33c, 39c, 45c, 51, 57
San Jose .....	12c, 41, 49c, *50, 52
San Luis Obispo .....	15, 34c
San Mateo .....	*43

**Federal Communications Commission**

**\$ 73.622**

**CALIFORNIA—Continued**

Community	Channel No.
Sanger .....	36
Santa Ana .....	23c
Santa Barbara .....	21, 27
Santa Maria .....	19
Santa Rosa .....	54
Stockton .....	25, 46, 62
Twentynine Palms .....	23
Vallejo .....	34
Ventura .....	49
Visalia .....	28, *50c
Watsonville .....	*58

**COLORADO**

Community	Channel No.
Boulder .....	15c
Broomfield .....	*38
Castle Rock .....	46
Colorado Springs .....	10, 22c, 24
Craig .....	*48
Denver .....	16, 17, *18, 19, 32c, 34, 35, *40, 43, 51c
Durango .....	15
Fort Collins .....	21
Glenwood Springs .....	23, *39
Grand Junction .....	2, 7, 12c, 15, *17
Greeley .....	45
La Junta .....	*30
Lamar .....	*50
Leadville .....	*49
Longmont .....	29
Montrose .....	13
Pueblo .....	*26, 42
Steamboat Springs .....	10
Sterling .....	23

**CONNECTICUT**

Community	Channel No.
Bridgeport .....	42, *52
Hartford .....	31, *32, 33, 46
New Britain .....	35
New Haven .....	6, 10, *39
New London .....	34
Norwich .....	*45
Waterbury .....	12

**DELAWARE**

Community	Channel No.
Seaford .....	*44
Wilmington .....	31, *55

**DISTRICT OF COLUMBIA**

Community	Channel No.
Washington .....	*27c, *33c, 34, 35, 36, 39, 48, 51c

**FLORIDA**

Community	Channel No.
Apalachicola .....	3
Boca Raton .....	*40

**FLORIDA—Continued**

Community	Channel No.
Bradenton .....	*5, 42
Cape Coral .....	35
Clearwater .....	21
Clermont .....	17
Cocoa .....	*30, 53c
Daytona Beach .....	11, 49
Fort Lauderdale .....	52c
Fort Myers .....	9, 15, *31c
Fort Pierce .....	*38, 50
Fort Walton Beach .....	40, 49, 50
Gainesville .....	16, *36
High Springs .....	28
Hollywood .....	47
Jacksonville .....	13c, 19, 32, 34, *38, 42, *44
Key West .....	3, 12
Lake Worth .....	36
Lakeland .....	19
Leesburg .....	40, *46c
Live Oak .....	48
Marathon .....	*34
Melbourne .....	20, 48
Miami .....	8c, 9, *18c, 19, *20, 22, 24c, 26, 31, 32, 46c
Naples .....	41, 45
New Smyrna Beach .....	*33
Ocala .....	31
Orange Park .....	10
Orlando .....	14, 22, *23, 39, 41, 58
Palm Beach .....	49
Panama City .....	8, 9, 19, *38
Panama City Beach .....	47c
Pensacola .....	17, *31, 34c, 45c
Sarasota .....	52
St. Petersburg .....	24, 57, 59
Tallahassee .....	2, 22, *32
Tampa .....	7, 12, 29c, *34, 47, *54
Tequesta .....	16
Tice .....	33
Venice .....	25
West Palm Beach .....	13c, *27, 28, 55

**GEORGIA**

Community	Channel No.
Albany .....	12, 17
Athens .....	*12c, 48
Atlanta .....	10, 19, 20, *21, 25, 27, 39, *41, 43
Augusta .....	30, 31, 42, 51
Bainbridge .....	50c
Baxley .....	35c
Brunswick .....	24
Chatsworth .....	*33
Cochran .....	*7
Columbus .....	15, *23, 35, 47, 9
Cordele .....	51
Dalton .....	16
Dawson .....	*8
Macon .....	4, 16, 40, 45
Monroe .....	44
Pelham .....	*5
Perry .....	32
Rome .....	51
Savannah .....	*13, 15, 23c, 39
Thomasville .....	46
Toccoa .....	24
Valdosta .....	43
Waycross .....	*9c
Wrens .....	*2

## HAWAII

Community	Channel No.
Hilo .....	8, 18, *19, 21, 22, 23, *31, *39c
Honolulu .....	8, *10c, *18, 19, 22, 23, 27c, 31, 33c, 35, 40, *43
Kailua Kona .....	25
Kaneohe .....	41
Lihue .....	*7, *12, *28c, *45
Wailuku .....	16c, 24, *28c, 29, *30, *34c, 36, 45

## IDAHO

Community	Channel No.
Boise .....	*21, 26, 28
Burley .....	*48
Caldwell .....	10c
Coeur D'alene .....	*45
Filer .....	*18
Idaho Falls .....	9c, 36
Lewiston .....	32
Moscow .....	*12
Nampa .....	13c, 24
Pocatello .....	*17, 23
Twin Falls .....	16, *22, 34
Weiser .....	*34

## ILLINOIS

Community	Channel No.
Aurora .....	59
Bloomington .....	28
Carbondale .....	*40
Champaign .....	41, 48
Charleston .....	*50
Chicago .....	3c, 19, *21c, 27c, 29, 31, 43, 45c, *47, 52
Decatur .....	18c, 22
East St. Louis .....	47c
Freeport .....	41
Harrisburg .....	34
Jacksonville .....	*15c
Joliet .....	53
Lasalle .....	10
Macomb .....	*21
Marion .....	17
Moline .....	*23, 38
Mount Vernon .....	21
Olney .....	*19
Peoria .....	30, 39, 40, *46, 57
Quincy .....	32, *34, 54
Rock Island .....	58
Rockford .....	16, 42, 54
Springfield .....	36, 42, 44, 53
Urbana .....	*9, 26

## INDIANA

Community	Channel No.
Angola .....	12
Bloomington .....	*14, 27, 48, 56
Elkhart .....	58
Evansville .....	*12, 28, 45c, 46, 59
Fort Wayne .....	19, 24, 31, 36, *40c
Gary .....	*17, 51c
Hammond .....	36
Indianapolis .....	9c, 16, *21c, 25, *44, 45, 46
Kokomo .....	54
Lafayette .....	11
Marion .....	32

## INDIANA—Continued

Community	Channel No.
Muncie .....	52
Richmond .....	39
Salem .....	51
South Bend .....	30, *35c, 42, 48
Terre Haute .....	24, 36, 39c
Vincennes .....	*52

## IOWA

Community	Channel No.
Ames .....	59
Burlington .....	41
Cedar Rapids .....	27, 47, 51, 52
Centerville .....	*44
Council Bluffs .....	*33c
Davenport .....	*34, 49, 56
Des Moines .....	16, 19, 26, 31, *50, 56
Dubuque .....	43
Fort Dodge .....	*25
Iowa City .....	25, *45
Mason City .....	*18, 42
Ottumwa .....	14
Red Oak .....	*35
Sioux City .....	*28c, 30, 39, 41, 49
Waterloo .....	*35, 55

## KANSAS

Community	Channel No.
Colby .....	17, *19
Derby .....	46
Ensign .....	5
Fort Scott .....	40
Garden City .....	16, 18, *42
Goodland .....	14
Great Bend .....	22
Hays .....	*16, 20
Hutchinson .....	19, *29, 35
Lakin .....	*8
Lawrence .....	36
Oakley .....	*40
Pittsburg .....	13
Salina .....	17
Topeka .....	*23, 28c, 44, 48
Wichita .....	21, 26, 31, 45

## KENTUCKY

Community	Channel No.
Ashland .....	*26c, 44
Beattyville .....	7
Bowling Green .....	16, *18, 33, *48
Campbellsville .....	19
Covington .....	*24
Danville .....	4
Elizabethtown .....	*43
Harlan .....	51
Hazard .....	12, *16
Lexington .....	13, 39, 40, *42
Louisville .....	8, *17, 26, *38, 47, 49, 55
Madisonville .....	20c, *42
Morehead .....	*15, 21
Murray .....	*36
Newport .....	29
Owensboro .....	30
Owenton .....	*44
Paducah .....	32, 41, 50c

**Federal Communications Commission**

**\$ 73.622**

**KENTUCKY—Continued**

Community	Channel No.
Pikeville .....	*24
Somerset .....	*14

**LOUISIANA**

Community	Channel No.
Alexandria .....	*26c, 32c, 35
Baton Rouge .....	13, *25, 34c, 45c, 46
Columbia .....	57
Hammond .....	42
Lafayette .....	16c, *23, 28, 56
Lake Charles .....	8c,*20, 30c
Monroe .....	7, *19
New Orleans .....	*11, 15, 21c, 29, *31, 36, 40, 43, 50c
Shreveport .....	17, *25c, 28, 34c, 44
Slidell .....	24
West Monroe .....	36, 38

**MAINE**

Community	Channel No.
Augusta .....	*17
Bangor .....	14, 19, 25
Biddeford .....	*45
Calais .....	*10
Lewiston .....	28
Orono .....	*9
Poland Spring .....	46
Portland .....	38, 43, 44
Presque Isle .....	16, *20

**MARYLAND**

Community	Channel No.
Annapolis .....	*42
Baltimore .....	*29, 38, 40, 41, 46c, 52, 59
Frederick .....	*28
Hagerstown .....	16, *44, 55
Oakland .....	*54
Salisbury .....	21, 53, *56

**MASSACHUSETTS**

Community	Channel No.
Adams .....	36
Boston .....	*19, 20, 30, 31, 32, 39c, 42, *43
Cambridge .....	41
Lawrence .....	18
Marlborough .....	23
New Bedford .....	22, 49
Norwell .....	52
Springfield .....	11, 55, *58c
Vineyard Haven .....	40
Worcester .....	29, *47

**MICHIGAN**

Community	Channel No.
Alpena .....	13, *57
Ann Arbor .....	33
Bad Axe .....	*15
Battle Creek .....	20, 44c
Bay City .....	22

**MICHIGAN—Continued**

Community	Channel No.
Cadillac .....	*17, 40, 47
Calumet .....	11
Cheboygan .....	35
Detroit .....	14, 21c, 41, *43, 44, 45, 58
East Lansing .....	*55
Escanaba .....	48
Flint .....	16, 36, *52
Grand Rapids .....	7, *11, 19, 39
Iron Mountain .....	22
Jackson .....	34
Kalamazoo .....	2, *5, 45
Lansing .....	38, 51, 59
Manistee .....	*58
Marquette .....	*33, 3
Mount Clemens .....	39c
Mount Pleasant .....	*56
Muskegon .....	24
Onondaga .....	57
Saginaw .....	30, 48
Sault Ste. Marie .....	9c, 49
Traverse City .....	*23, 31, 50
University Center .....	*18
Vanderbilt .....	59

**MINNESOTA**

Community	Channel No.
Alexandria .....	24, 36
Appleton .....	*31
Austin .....	*20, 33
Bemidji .....	*18
Brainerd .....	*28
Crookston .....	*16
Duluth .....	17, 33, *38, 43
Hibbing .....	*31, 36, *51
Mankato .....	38
Minneapolis .....	21, 22, *26, 32, 35, *44
Redwood Falls .....	27
Rochester .....	36, 46
St. Cloud .....	40
St. Paul .....	*16, *34, 50
Thief River Falls .....	32
Walker .....	20
Worthington .....	*15

**MISSISSIPPI**

Community	Channel No.
Biloxi .....	*16, 39
Booneville .....	*55
Bude .....	*18c
Columbus .....	35
Greenville .....	17
Greenwood .....	*25, 32
Gulfport .....	48
Hattiesburg .....	58
Holly Springs .....	41c
Jackson .....	9, *20, 21, 41c, 52
Laurel .....	28
Meridian .....	26, 31c, *44, 49
Mississippi State .....	*10
Natchez .....	49c
Oxford .....	*36
Tupelo .....	57
West Point .....	16



## MISSOURI

Community	Channel No.
Birch Tree .....	*7
Bowling Green .....	*50
Cape Girardeau .....	22, 57
Columbia .....	22, 36
Hannibal .....	29
Jefferson City .....	12, 20
Joplin .....	*25, 43, 46
Kansas City .....	7, *18, 24, 31, 34, 42c, 47, 51c
Kirksville .....	33
Poplar Bluff .....	18
Sedalia .....	15
Springfield .....	19, *23, 28c, 44, 52
St. Joseph .....	21, 53
St. Louis .....	14, 26, 31c, 35, *39, 43, 56

## MONTANA

Community	Channel No.
Billings .....	10, 11, *16, 18
Bozeman .....	*8, 13
Butte .....	5, 19c, 33
Glendive .....	10
Great Falls .....	7, 8, *21, 45
Hardin .....	22
Helena .....	14, 29
Kalispell .....	38, *46
Miles City .....	13, *39
Missoula .....	7, *27, 36, 40

## NEBRASKA

Community	Channel No.
Albion .....	23
Alliance .....	*24
Bassett .....	*15
Grand Island .....	19, 32
Hastings .....	21, *28
Hayes Center .....	18
Kearney .....	36
Lexington .....	*26
Lincoln .....	25, 31, *40
McCook .....	12
Merriman .....	*17
Norfolk .....	*16
North Platte .....	*16, 22
Omaha .....	*17, 20, 22, 38, 43c, 45
Scottsbluff .....	7, 29
Superior .....	34

## NEVADA

Community	Channel No.
Elko .....	8, *15
Henderson .....	9
Las Vegas .....	2, 7, *11c, 12, 16c, 22c, 29
Laughlin .....	32
Paradise .....	40c
Reno .....	7, 9c, 13, *15, 20, 22c, 26, 44
Winnemucca .....	12

## NEW HAMPSHIRE

Community	Channel No.
Berlin .....	*15
Concord .....	33

## NEW HAMPSHIRE—Continued

Community	Channel No.
Derry .....	35
Durham .....	*57
Keene .....	*49
Littleton .....	*48
Manchester .....	59
Merrimack .....	34

## NEW JERSEY

Community	Channel No.
Atlantic City .....	44, 49
Burlington .....	27
Camden .....	*22
Linden .....	36
Montclair .....	*51c
New Brunswick .....	*18
Newark .....	53c, 61
Newton .....	8c
Paterson .....	40
Secaucus .....	38
Trenton .....	*43
Vineland .....	66c
West Milford .....	*29
Wildwood .....	36

## NEW MEXICO

Community	Channel No.
Albuquerque .....	16, *17, 21, 24c, 26, *35, 42c, 45
Carlsbad .....	19
Clovis .....	20
Farmington .....	8, 17
Hobbs .....	16, *47
Las Cruces .....	*23c, 47
Portales .....	*32
Roswell .....	28c, *31, 38, 41
Santa Fe .....	10, 27, 29
Silver City .....	12, *33
Socorro .....	*31

## NEW YORK

Community	Channel No.
Albany .....	7, 12, 26
Amsterdam .....	50
Batavia .....	53
Binghamton .....	4, 7, 8, *42
Buffalo .....	14, *32, 33, 34, 38, 39, *43
Carthage .....	35
Corning .....	50
Elmira .....	2, 55
Garden City .....	*22c
Jamestown .....	27c
Kingston .....	48
New York .....	*24, 28, 30, 33, 44, 45, 56
North Pole .....	14
Norwood .....	*23
Plattsburgh .....	*38
Poughkeepsie .....	27
Riverhead .....	57
Rochester .....	*16, 28, 45, 58, 59
Schenectady .....	*34, 39, 43
Smithtown .....	23
Springville .....	46
Syracuse .....	17, 19, *25c, 44c, 47, 54
Utica .....	27, 29, 30
Watertown .....	21, *41

# Federal Communications Commission

§ 73.622

## NORTH CAROLINA

Community	Channel No.
Asheville .....	*25, 45, 56, 57
Belmont .....	47c
Burlington .....	14
Chapel Hill .....	*59
Charlotte .....	*11, 22, 23, 27, 34
Concord .....	*44
Durham .....	27, 52
Edenton .....	*20
Fayetteville .....	36, 38
Goldsboro .....	55
Greensboro .....	33, 43, 51
Greenville .....	10c, 21, *23
Hickory .....	40
High Point .....	35
Jacksonville .....	*18, 34
Kannapolis .....	50
Lexington .....	19
Linville .....	*54
Lumberton .....	*25
Morehead City .....	24
New Bern .....	48
Raleigh .....	49, 53, 57
Roanoke Rapids .....	*39
Rocky Mount .....	15
Washington .....	32
Wilmington .....	*29, 30, 44, 46
Wilson .....	42
Winston-Salem .....	29, 31, *32

## NORTH DAKOTA

Community	Channel No.
Bismarck .....	16, *22, 23, 31
Devils Lake .....	*25, 59
Dickinson .....	18, 19, *20
Ellendale .....	*20c
Fargo .....	19, 21, *23, 44
Grand Forks .....	*56
Jamestown .....	18
Minot .....	15c, *40, 45, 58
Pembina .....	15
Valley City .....	38
Williston .....	14, *51, 52

## OHIO

Community	Channel No.
Akron .....	30, *50c, 59
Alliance .....	*46c
Athens .....	*27
Bowling Green .....	*56
Cambridge .....	*35
Canton .....	39, 47
Chillicothe .....	46
Cincinnati .....	10c, 31, 33, *34, 35
Cleveland .....	2, 15, *26c, 31, 34
Columbus .....	13, 14, 21, 36, *38
Dayton .....	30, 41, 50, 51, *58
Lima .....	8, 47
Lorain .....	28
Mansfield .....	12
Newark .....	24
Oxford .....	*28
Portsmouth .....	17, *43c
Sandusky .....	42
Shaker Heights .....	10
Springfield .....	18
Stuebenville .....	57

## OHIO—Continued

Community	Channel No.
Toledo .....	5, 17, 19, *29, 46, 49
Youngstown .....	20, 36, 41
Zanesville .....	40

## OKLAHOMA

Community	Channel No.
Ada .....	26
Bartlesville .....	15
Cheyenne .....	*8
Claremore .....	*36c
Enid .....	18
Eufaula .....	*31
Guymon .....	*29
Lawton .....	11
Oklahoma City .....	7, 15c, 24, 27, *32, 33, 39, 40, 50, 51
Oklmulgee .....	28
Shawnee .....	29
Tulsa .....	10, 22, *26, *38, 42c, 48c, 49, 55, 56

## OREGON

Community	Channel No.
Bend .....	*11, 18
Coos Bay .....	21, 22
Corvallis .....	*39
Eugene .....	17c, 25, *29c, 31, 44
Klamath Falls .....	13, 29, *33,
La Grande .....	*5
Medford .....	15, 27c, 35, 38, *42
Pendleton .....	8
Portland .....	*27, 30, 40, 43, 45, 6
Roseburg .....	18, 19, 45
Salem .....	4, 33c

## PENNSYLVANIA

Community	Channel No.
Allentown .....	46, *62
Altoona .....	24c, 32, 46
Bethlehem .....	9
Clearfield .....	*15
Erie .....	16, 22, *50, 52, 58
Greensburg .....	50
Harrisburg .....	4, 10, *36
Hazleton .....	45c
Jeannette .....	49
Johnstown .....	29, 34
Lancaster .....	23, 58
Philadelphia .....	26, 32, *34, 42, 54, 64, 67
Pittsburgh .....	25, 26, *38, 42, 43, 48, 51
Reading .....	25
Red Lion .....	30
Scranton .....	13, 31, 32, *41, 49
Wilkes-Barre .....	11
Williamsport .....	29
York .....	47

## RHODE ISLAND

Community	Channel No.
Block Island .....	17
Providence .....	13c, *21, 51, 54c

## SOUTH CAROLINA

Community	Channel No.
Allendale .....	*33
Anderson .....	14
Beaufort .....	*44
Charleston .....	34, 35, 40, 47, *49, 50
Columbia .....	8, 17, *32, 41, 48
Conway .....	*9
Florence .....	16c, 20, *45, 56
Georgetown .....	*38
Greenville .....	*9, 35, 57, 59
Greenwood .....	*18
Hardeeville .....	27
Myrtle Beach .....	18
Rock Hill .....	15, 39
Spartanburg .....	43, 53
Sumter .....	*28c, 39

## SOUTH DAKOTA

Community	Channel No.
Aberdeen .....	*17c, 28
Brookings .....	*18
Eagle Butte .....	*25
Florence .....	2
Huron .....	22
Lead .....	10, 29
Lowry .....	*15
Martin .....	*23
Mitchell .....	26
Pierre .....	19, *21
Rapid City .....	2, 16c, 18, *26
Reliance .....	13
Sioux Falls .....	7, *24c, 29, 32, 47c, 51
Vermillion .....	*34

## TENNESSEE

Community	Channel No.
Chattanooga .....	13, *29, 35, 40, 47
Cleveland .....	42
Cookeville .....	36, *52
Crossville .....	50
Greeneville .....	38
Hendersonville .....	51c
Jackson .....	39, 43
Jellico .....	23
Johnson City .....	58
Kingsport .....	27
Knoxville .....	7, *17, 26, 30, 31, 34
Lebanon .....	44
Lexington .....	*47
Memphis .....	25c, 28, *29, 31c, 51c, 52, 53
Murfreesboro .....	38
Nashville .....	10, 15, 21, 23, 27, *46, 56
Sneedville .....	*41

## TEXAS

Community	Channel No.
Abilene .....	24, 29
Alvin .....	36
Amarillo .....	*8c, 9, 15c, 19, 23
Arlington .....	42
Austin .....	21, *22, 33, 43c, 49, 56
Baytown .....	41
Beaumont .....	21, *33, 50
Belton .....	38
Big Spring .....	33

## TEXAS—Continued

Community	Channel No.
Brownsville .....	24c
Bryan .....	29c, 50
College Station .....	*12
Conroe .....	5, 42
Corpus Christi .....	8, 13, 18, *23, 27
Dallas .....	9c, *14, 32, 35, 36, 40c, 45
Decatur .....	30c
Del Rio .....	28
Denton .....	*43
Eagle Pass .....	18
El Paso .....	15c, 16, 17, 18, 25, *30, *39c, 51
Fort Worth .....	18, 19, 41, 51
Galveston .....	*23c, 48c
Garland .....	24c
Greenville .....	46
Harlingen .....	31, *34, 38
Houston .....	*9c, 19, *24, 27c, 31, 32, 35, 38, 44
Irving .....	48
Jacksonville .....	22
Katy .....	52c
Kerrville .....	32
Killeen .....	13
Lake Dallas .....	54
Laredo .....	15, 19, 31
Llano .....	27
Longview .....	31
Lubbock .....	9, 25, 27, 35c, *39, 40
Lufkin .....	11
McAllen .....	49
Midland .....	26
Nacogdoches .....	18
Odessa .....	13, 23, 31, *38, 43c
Port Arthur .....	40
Rio Grande City .....	20
Rosenberg .....	46c
San Angelo .....	11, 16, 19
San Antonio .....	*8, *16, 30c, 38, 39, 48, 55, 58
Sherman .....	20
Snyder .....	10
Sweetwater .....	20
Temple .....	9
Texarkana .....	15, *50
Tyler .....	10
Victoria .....	11, 15
Waco .....	*20, 26c, 53, 57
Weslaco .....	13
Wichita Falls .....	15, 22, 28

## UTAH

Community	Channel No.
Cedar City .....	14, 44
Monticello .....	*41
Ogden .....	29, *34
Provo .....	17c, *39
Salt Lake City .....	27, 28, 35, 38, 40, *42
St. George .....	9

## VERMONT

Community	Channel No.
Burlington .....	13, *32, 43, 53
Hartford .....	25
Rutland .....	*9
St. Johnsbury .....	*18
Windsor .....	*24

**Federal Communications Commission**

**§ 73.622**

**VIRGINIA**

Community	Channel No.
Arlington .....	15c
Ashland .....	47
Bristol .....	28
Charlottesville .....	32, *46
Danville .....	41
Fairfax .....	*57c
Front Royal .....	*21
Goldvein .....	*30
Grundy .....	49
Hampton .....	41
Hampton-Norfolk .....	*16c
Harrisonburg .....	49
Lynchburg .....	20, 34
Manassas .....	43c
Marion .....	*42
Norfolk .....	38, 40, 46,
Norton .....	*32
Petersburg .....	22
Portsmouth .....	31, 50
Richmond .....	*24c, 25, 26, *42, *44, 54
Roanoke .....	*3, 17, 18, 30, 36
Staunton .....	*11
Virginia Beach .....	29

**WASHINGTON**

Community	Channel No.
Bellevue .....	32, 50
Bellingham .....	19, 35
Centralia .....	*19
Everett .....	31
Kennewick .....	44
Medical Lake .....	51
Pasco .....	18
Pullman .....	*17
Richland .....	26c, *38
Seattle .....	25, 38, 39, *41, 44, 48
Spokane .....	*8, 13, 15, 20, 30, 36
Tacoma .....	14, 18, *27, 36, *42
Vancouver .....	48
Wenatchee .....	46
Yakima .....	14, 16, *21, 33

**WEST VIRGINIA**

Community	Channel No.
Bluefield .....	14, 46
Charleston .....	19, 39, 41, 52
Clarksburg .....	10, 52
Grandview .....	*53
Huntington .....	23, *34c, 47
Lewisburg .....	8
Martinsburg .....	12
Morgantown .....	*33
Oak Hill .....	50
Parkersburg .....	49
Weston .....	6
Wheeling .....	32

**WISCONSIN**

Community	Channel No.
Appleton .....	27c
Chippewa Falls .....	49c
Eagle River .....	28
Eau Claire .....	15, 39
Fond Du Lac .....	44

**WISCONSIN—Continued**

Community	Channel No.
Green Bay .....	23, 39c, 41, *42, 51
Janesville .....	32
Kenosha .....	40
La Crosse .....	14, 17, *30, 41
Madison .....	11, 19, *20, 26, 50
Manitowoc .....	19
Mayville .....	43
Menomonie .....	*27
Milwaukee .....	*8, 22, 25c, 28, 33, 34, *35, 46, 61
Park Falls .....	*47
Racine .....	48
Rhineland .....	16
Superior .....	19
Suring .....	21
Wausau .....	*24, 29, 40

**WYOMING**

Community	Channel No.
Casper .....	15c, 17, 18
Cheyenne .....	11, 28c, 30
Jackson .....	4
Lander .....	7, *8
Rawlins .....	9
Riverton .....	16
Rock Springs .....	21
Sheridan .....	13

**GUAM**

Community	Channel No.
Agana .....	2, 4, 5
Tamuning .....	17

**PUERTO RICO**

Community	Channel No.
Aguada .....	62
Aguadilla .....	17c, *34, 69
Arecibo .....	53, 61c
Bayamon .....	59c
Caguas .....	56, *57
Carolina .....	51
Fajardo .....	*16, 33
Guayama .....	45
Humacao .....	49
Mayaguez .....	23c, 29, 35, 63
Naranjito .....	65c
Ponce .....	8c, 15c, 19, *25, 43c, 47
San Juan .....	21, 27c, 28, 31c, 32, *55c
San Sebastian .....	39c
Yauco .....	41c

**VIRGIN ISLANDS**

Community	Channel No.
Charlotte Amalie .....	*44, 48, 50
Christiansted .....	20, 23

(c)(1) *Availability of channels.* Applications may be filed to construct DTV broadcast stations only on the channels designated in the DTV Table of Al- lotments set forth in paragraph (b) of

this section, and only in the communities listed therein. Applications that fail to comply with this requirement, whether or not accompanied by a petition to amend the DTV Table, will not be accepted for filing. However, applications specifying channels that accord with publicly announced FCC Orders changing the DTV Table of Allotments will be accepted for filing even if such applications are tendered before the effective dates of such channel change. An application for authority to construct a DTV station on an allotment in the initial DTV table may only be filed by the licensee or permittee of the analog TV station with which that initial allotment is paired, as set forth in Appendix B of the *Memorandum Opinion and Order on Reconsideration of the Sixth Report and Order* in MM Docket 87-268, FCC 98-24 (*Memorandum Opinion and Order*) adopted January 29, 1998. Copies of the *Memorandum Opinion and Order* may be inspected during normal business hours at the: Federal Communications Commission, Room CY-C203, 445 12th Street, SW., Reference Information Center, Washington, DC, 20554. This document is also available through the Internet on the *FCC Home Page* at <http://www.fcc.gov>. Applications may also be filed to implement an exchange of channel allotments between two or more licensees or permittees of analog TV stations in the same community, the same market, or in adjacent markets provided, however, that the other requirements of this section and § 73.623 are met with respect to each such application.

(2) Notwithstanding paragraph (c)(1) of this section, an application may be filed for a channel or community not listed in the DTV Table of Allotments if it is consistent with the rules and policies established in the Third Report and Order in WT Docket 99-168 (FCC 01-25), adopted January 18, 2001. Where such a request is approved, the Media Bureau will change the DTV Table of Allotments to reflect that approval.

(d) *Reference points and distance computations.* (1) The reference coordinates of a DTV allotment included in the initial DTV Table of Allotments are the coordinates of the authorized transmitting antenna site of the associated analog TV station, as set forth in Appen-

dix B of the *Memorandum Opinion and Order* (referenced above). An application for authority to construct or modify DTV facilities on such an allotment may specify an alternate location for the DTV transmitting antenna that is within 5 kilometers of the DTV allotment reference coordinates without consideration of electromagnetic interference to other DTV or analog TV broadcast stations, allotments or applications, provided the application complies with paragraph (f)(2) of this section. Location of the transmitting antenna of such a station at a site more than 5 kilometers from the DTV allotment reference coordinates must comply with the provisions of section 73.623(c). In the case where a DTV station has been granted authority to construct more than 5 kilometers from its reference coordinates pursuant to section 73.623(c), and its authorized coverage area extends in any azimuthal direction beyond the DTV coverage area determined for the DTV allotment reference facilities, then the coordinates of such authorized site are to be used in addition to the coordinates of the DTV allotment to determine protection from new DTV allotments pursuant to § 73.623(d) and from subsequent DTV applications filed pursuant to § 73.623(c).

(2) The reference coordinates of a DTV allotment not included in the initial DTV Table of Allotments shall be the authorized transmitter site, or, where such a transmitter site is not available for use as a reference point, the coordinates as designated in the FCC order modifying the DTV Table of Allotments.

(e) *DTV Service Areas.* (1) The service area of a DTV station is the geographic area within the station's noise-limited F(50,90) contour where its signal strength is predicted to exceed the noise-limited service level. The noise-limited contour is the area in which the predicted F(50,90) field strength of the station's signal, in dB above 1 microvolt per meter (dBu) as determined using the method in section 73.625(b) exceeds the following levels (these are the levels at which reception of DTV service is limited by noise):

	dBu
Channels 2–6 .....	28
Channels 7–13 .....	36
Channels 14–69 .....	41

(2) Within this contour, service is considered available at locations where the station's signal strength, as predicted using the terrain dependent Longley-Rice point-to-point propagation model, exceeds the levels above. Guidance for evaluating coverage areas using the Longley-Rice methodology is provided in *OET Bulletin No. 69*. Copies of *OET Bulletin No. 69* may be inspected during normal business hours at the Federal Communications Commission, 445 12th Street, S.W., Dockets Branch (Room CY A09257), Washington, DC 20554. This document is also available through the Internet on the *FCC Home Page* at <http://www.fcc.gov>.

NOTE TO PARAGRAPH (e)(2): During the transition, in cases where the assigned power of a UHF DTV station in the initial DTV Table is 1000 kW, the Grade B contour of the associated analog television station, as authorized on April 3, 1997, shall be used instead of the noise-limited contour of the DTV station in determining the DTV station's service area. In such cases, the DTV service area is the geographic area within the station's analog Grade B contour where its DTV signal strength is predicted to exceed the noise-limited service level, *i.e.*, 41 dB, as determined using the Longley-Rice methodology.

(3) For purposes of determining whether interference is caused to a DTV station's service area, the maximum technical facilities, *i.e.*, antenna height above average terrain (antenna HAAT) and effective radiated power (ERP), specified for the station's allotment are to be used in determining its service area.

(f) *DTV maximum power and antenna heights.* (1) The maximum, or reference, effective radiated power (ERP) and antenna height above average terrain (antenna HAAT) for an allotment included in the initial DTV Table of Allotments are set forth in Appendix B of the *Memorandum Opinion and Order* (referenced in paragraph (c) of this section). In each azimuthal direction, the reference ERP value is based on the antenna HAAT of the corresponding analog TV station and achieving predicted coverage equal to that analog TV sta-

tion's predicted Grade B contour, as defined in section 73.683.

(2) An application for authority to construct or modify DTV facilities will not be subject to further consideration of electromagnetic interference to other DTV or analog TV broadcast stations, allotments or applications, provided that:

(i) The proposed ERP in each azimuthal direction is equal to or less than the reference ERP in that direction; and

(ii) The proposed antenna HAAT is equal to or less than the reference antenna HAAT or the proposed antenna HAAT exceeds the reference antenna HAAT by 10 meters or less and the reference ERP in paragraph (f)(2)(i) of this section is adjusted in accordance with paragraph (f)(3) of this section; and

(iii) The application complies with the location provisions in paragraph (d)(1) of this section.

(3)(i) A DTV station may increase its antenna HAAT by up to 10 meters from that specified in Appendix B if it reduces its DTV power to a level at or below the level of adjusted DTV power computed in the following formula:

ERP adjustment in dB =  $20\log(H_1/H_2)$

Where  $H_1$  = Reference antenna HAAT specified in the DTV Table, and  $H_2$  = Actual antenna HAAT

(ii) Alternatively, a DTV application that specifies an antenna HAAT within 25 meters below that specified in Appendix B may adjust its power upward to a level at or below the adjusted DTV power in accordance with the formula in paragraph (f)(3)(i) of this section without an interference showing. For a proposed antenna more than 25 meters below the reference antenna HAAT, the DTV station may increase its ERP up to the level permitted for operation with an antenna that is 25 meters below the station's reference antenna HAAT.

(4) UHF DTV stations may request an increase in power, up to a maximum of 1000 kW ERP, to enhance service within their authorized service area.

(5) Licensees and permittees assigned a DTV channel in the initial DTV Table of Allotments may request an increase in either ERP in some azimuthal direction or antenna HAAT, or

both, that exceed the initial technical facilities specified for the allotment in Appendix B of the *Memorandum Opinion and Order* (referenced in paragraph (c) of this section), up to the maximum permissible limits on DTV power and antenna height set forth in paragraph (f)(6), (f)(7), or (f)(8) of this section, as appropriate, or up to that needed to provide the same geographic coverage area as the largest station within their market, whichever would allow the largest service area. Such requests must be accompanied by a technical showing that the increase complies with the technical criteria in § 73.623(c), and thereby will not result in new interference exceeding the *de minimis* standard set forth in that section, or statements agreeing to the change from any co-channel or adjacent channel stations that might be affected by potential new interference, in accordance with § 73.623(f). In the case where a DTV station has been granted authority to construct pursuant to § 73.623(c), and its authorized coverage area extends in any azimuthal direction beyond the DTV coverage area determined for the DTV allotment reference facilities, then the authorized DTV facilities are to be used in addition to the assumed facilities of the initial DTV allotment to determine protection from new DTV allotments pursuant to § 73.623(d) and from subsequent DTV applications filed pursuant to § 73.623(c). The provisions of this paragraph regarding increases in the ERP or antenna height of DTV stations on channels in the initial DTV Table of Allotments shall also apply in cases where the licensee or permittee seeks to change the station's channel as well as alter its ERP and antenna HAAT. Licensees and permittees are advised that where a channel change is requested, it may, in fact, be necessary in specific cases for the station to operate with reduced power, a lower antenna, or a directional antenna to avoid causing new interference to another station.

(6) A DTV station that operates on a channel 2–6 allotment created subsequent to the initial DTV Table will be allowed a maximum ERP of 10 kW if its antenna HAAT is at or below 305 meters and it is located in Zone I or a

maximum ERP of 45 kW if its antenna HAAT is at or below 305 meters and it is located in Zone II or Zone III. A DTV station that operates on a channel 2–6 allotment included in the initial DTV Table of Allotments may request an increase in power and/or antenna HAAT up to these maximum levels, provided the increase also complies with the provisions of paragraph (f)(5) of this section.

(i) At higher HAAT levels, such DTV stations will be allowed to operate with lower maximum ERP levels in accordance with the following table and formulas (the allowable maximum ERP for intermediate values of HAAT is determined using linear interpolation based on the units employed in the table):

MAXIMUM ALLOWABLE ERP AND ANTENNA HEIGHT FOR DTV STATIONS IN ZONES II OR III ON CHANNELS 2–6

Antenna HAAT (meters)	ERP (kW)
610 .....	10
580 .....	11
550 .....	12
520 .....	14
490 .....	16
460 .....	19
425 .....	22
395 .....	26
365 .....	31
335 .....	37
305 .....	45

(ii) For DTV stations located in Zone I that operate on channels 2–6 with an HAAT that exceeds 305 meters, the allowable maximum ERP expressed in decibels above 1 kW (dBk) is determined using the following formula, with HAAT expressed in meters:

$$\text{ERP}_{\text{max}} = 92.57 - 33.24 \log_{10}(\text{HAAT})$$

(iii) For DTV stations located in Zone II or III that operate on channels 2–6 with an HAAT that exceeds 610 meters, the allowable maximum ERP expressed in decibels above 1 kW (dBk) is determined using the following formula, with HAAT expressed in meters:

$$\text{ERP}_{\text{max}} = 57.57 - 17.08 \log_{10}(\text{HAAT})$$

(7) A DTV station that operates on a channel 7–13 allotment created subsequent to the initial DTV Table will be allowed a maximum ERP of 30 kW if its antenna HAAT is at or below 305 meters and it is located in Zone I or a

**Federal Communications Commission**

**§ 73.622**

maximum ERP of 160 kW if its antenna HAAT is at or below 305 meters and it is located in Zone II or Zone III. A DTV station that operates on a channel 7-13 allotment included in the initial DTV Table of Allotments may request an increase in power and/or antenna HAAT up to these maximum levels, provided the increase also complies with the provisions of paragraph (f)(5) of this section.

(i) At higher HAAT levels, such DTV stations will be allowed to operate with lower maximum ERP levels in accordance with the following table and formulas (the allowable maximum ERP for intermediate values of HAAT is determined using linear interpolation based on the units employed in the table):

MAXIMUM ALLOWABLE ERP AND ANTENNA HEIGHT FOR DTV STATIONS IN ZONES II OR III ON CHANNELS 7-13

Antenna HAAT (meters)	ERP (kW)
610 .....	30
580 .....	34
550 .....	40
520 .....	47
490 .....	54
460 .....	64
425 .....	76
395 .....	92
365 .....	110
335 .....	132
305 .....	160

(ii) For DTV stations located in Zone I that operate on channels 7-13 with an HAAT that exceeds 305 meters, the allowable maximum ERP expressed in decibels above 1 kW (dBk) is determined using the following formula, with HAAT expressed in meters:

$$ERP_{\max} = 97.35 - 33.24 \cdot \log_{10}(\text{HAAT})$$

(iii) For DTV stations located in Zone II or III that operate on channels 7-13 with an HAAT that exceeds 610 meters, the allowable maximum ERP expressed in decibels above 1 kW (dBk) is determined using the following formula, with HAAT expressed in meters:

$$ERP_{\max} = 62.34 - 17.08 \cdot \log_{10}(\text{HAAT})$$

(8) A DTV station that operates on a channel 14-59 allotment created subsequent to the initial DTV Table will be allowed a maximum ERP of 1000 kW if their antenna HAAT is at or below 365 meters. A DTV station that operates

on a channel 14-59 allotment included in the initial DTV Table of Allotments may request an increase in power and/or antenna HAAT up to these maximum levels, provided the increase also complies with the provisions of paragraph (f)(5) of this section.

(i) At higher HAAT levels, such DTV stations will be allowed to operate with lower maximum ERP levels in accordance with the following table and formulas (the allowable maximum ERP for intermediate values of HAAT is determined using linear interpolation based on the units employed in the table):

MAXIMUM ALLOWABLE ERP AND ANTENNA HEIGHT FOR DTV STATIONS ON CHANNELS 14-59, ALL ZONES

Antenna HAAT (meters)	ERP (kW)
610 .....	316
580 .....	350
550 .....	400
520 .....	460
490 .....	540
460 .....	630
425 .....	750
395 .....	900
365 .....	1000

(ii) For DTV stations located in Zone I, II or III that operate on channels 14-59 with an HAAT that exceeds 610 meters, the allowable maximum ERP expressed in decibels above 1 kW (dBk) is determined using the following formula, with HAAT expressed in meters:

$$ERP_{\max} = 72.57 - 17.08 \cdot \log_{10}(\text{HAAT})$$

(g) *DTV stations operating on channels above an analog TV station.* (1) DTV stations operating on a channel allotment designated with a "c" in paragraph (b) of this section must maintain the pilot carrier frequency of the DTV signal 5.082138 MHz above the visual carrier frequency of any analog TV broadcast station that operates on the lower adjacent channel and is located within 88 kilometers. This frequency difference must be maintained within a tolerance of  $\pm 3$  Hz.

(2) Unless it conflicts with operation complying with paragraph (g)(1) of this section, where a low power television station or TV translator station is operating on the lower adjacent channel within 32 km of the DTV station and



§ 73.622

notifies the DTV station that it intends to minimize interference by precisely maintaining its carrier frequencies, the DTV station shall cooperate in locking its carrier frequency to a common reference frequency and shall be responsible for any costs relating to its own transmission system in complying with this provision.

(h)(1) The power level of emissions on frequencies outside the authorized channel of operation must be attenuated no less than the following amounts below the average transmitted power within the authorized channel. In the first 500 kHz from the channel edge the emissions must be attenuated no less than 47 dB. More than 6 MHz from the channel edge, emissions must be attenuated no less than 110 dB. At any frequency between 0.5 and 6 MHz from the channel edge, emissions must be attenuated no less than the value determined by the following formula:

$$\text{Attenuation in dB} = -11.5(\Delta f + 3.6);$$

Where:  $\Delta f$  = frequency difference in MHz from the edge of the channel.

(2) This attenuation is based on a measurement bandwidth of 500 kHz. Other measurement bandwidths may be used as long as appropriate correction factors are applied. Measurements need not be made any closer to the band edge than one half of the resolution bandwidth of the measuring instrument. Emissions include sidebands, spurious emissions and radio frequency harmonics. Attenuation is to be measured at the output terminals of the transmitter (including any filters that may be employed). In the event of interference caused to any service, greater attenuation may be required.

(i) Post-Transition Table of DTV Allotments.

Community	Channel No.
<b>ALABAMA</b>	
Anniston .....	9
Bessemer .....	18
Birmingham .....	*10, 13, 30, 36, 50
Demopolis .....	*19
Dothan .....	21, 36
Dozier .....	*10
Florence .....	14, 20, *22

47 CFR Ch. I (10–1–08 Edition)

Community	Channel No.
Gadsden .....	26, 45
Gulf Shores .....	25
Homewood .....	28
Huntsville .....	19, *24, 32, 41, 49
Louisville .....	*44
Mobile .....	9, 15, 20, 23, 27, *41
Montgomery .....	12, 16, *27, 32, 46
Mount Cheaha .....	*7
Opelika .....	47
Ozark .....	33
Selma .....	29, 42
Troy .....	48
Tuscaloosa .....	6, 33
Tuskegee .....	22

**ALASKA**

Anchorage .....	5, *8, 10, 12, 20, *26, 28, 32
Bethel .....	*3
Fairbanks .....	7, *9, 18, 26
Juneau .....	*10, 11
Ketchikan .....	13
North Pole .....	20
Sitka .....	7

**ARIZONA**

Douglas .....	36
Flagstaff .....	2, 13, 18, 32
Green Valley .....	46
Holbrook .....	*11
Kingman .....	19
Mesa .....	12
Phoenix .....	*8, 10, 15, 17, 20, 24, 26, 33, 39, 49
Prescott .....	7
Sierra Vista .....	44
Tolleson .....	51
Tucson .....	9, 19, 23, 25, *28, *30, 32, 40
Yuma .....	11, 16

**ARKANSAS**

Arkadelphia .....	*13
Camden .....	49
El Dorado .....	*10, 27, 43
Eureka Springs .....	34

## Federal Communications Commission

\$ 73.622

Community	Channel No.
Fayetteville .....	*9, 15
Fort Smith .....	18, 21, 27
Harrison .....	31
Hot Springs .....	26
Jonesboro .....	8, *20, 48
Little Rock .....	*7, 12, 22, 30, 32, *36, 44
Mountain View .....	*13
Pine Bluff .....	24, 39
Rogers .....	50
Springdale .....	39

## CALIFORNIA

Anaheim .....	32
Arcata .....	22
Avalon .....	47
Bakersfield .....	10, 25, 33, 45
Barstow .....	44
Bishop .....	20
Calipatria .....	36
Ceres .....	*15
Chico .....	24, 43
Clovis .....	43
Concord .....	14
Corona .....	39
Cotati .....	*23
El Centro .....	9, 22
Eureka .....	3, *11, 17, 28
Fort Bragg .....	8
Fresno .....	7, 30, 34, 38, *40
Hanford .....	20
Huntington Beach .....	*48
Long Beach .....	18
Los Angeles .....	7, 9, 11, 13, *28, 31, 34, 36, *41, 42, 43
Merced .....	11
Modesto .....	18
Monterey .....	31, 32
Novato .....	47
Oakland .....	44
Ontario .....	29
Oxnard .....	24
Palm Springs .....	42, 46
Paradise .....	20
Porterville .....	48
Rancho Palos Verdes .....	51
Redding .....	7, *9
Riverside .....	35
Sacramento .....	*9, 10, 21, 35, 40, 48
Salinas .....	8, 13
San Bernardino .....	*26, 38

Community	Channel No.
San Diego .....	8, 10, 18, 19, *30, 40
San Francisco .....	7, 19, 27, 29, *30, *33, 38, 39, 45, 51
San Jose .....	12, 36, 41, 49, *50
San Luis Obispo .....	15, 34
San Mateo .....	*43
Sanger .....	36
Santa Ana .....	23
Santa Barbara .....	21, 27
Santa Maria .....	19
Santa Rosa .....	32
Stockton .....	25, 26, 46
Twentynine Palms .....	23
Vallejo .....	34
Ventura .....	49
Visalia .....	28, *50
Watsonville .....	*25

## COLORADO

Boulder .....	15
Broomfield .....	*13
Castle Rock .....	46
Colorado Springs .....	10, 22, 24
Denver .....	7, 9, *18, 19, 32, 34, 35, *40, 43, 51
Durango .....	15, *20, 33
Fort Collins .....	21
Glenwood Springs .....	23
Grand Junction .....	2, 7, 12, 15, *18
Greeley .....	38
Longmont .....	29
Montrose .....	13
Pueblo .....	*8, 42, 48
Steamboat Springs .....	10
Sterling .....	23

## CONNECTICUT

Bridgeport .....	42, *49
Hartford .....	31, 33, *45, 46
New Britain .....	35
New Haven .....	*6, 10, 39
New London .....	26
Norwich .....	*9

§ 73.622

Community	Channel No.
Waterbury .....	20
<b>DELAWARE</b>	
Seaford .....	*44
Wilmington .....	*12, 31
<b>DISTRICT OF COLUMBIA</b>	
Washington .....	7, 9, *27, *33, 35, 36, 48, 50
<b>FLORIDA</b>	
Boca Raton .....	*40
Bradenton .....	42
Cape Coral .....	35
Clearwater .....	21
Clermont .....	17
Cocoa .....	*30, 51
Daytona Beach .....	11, 49
Destin .....	48
Fort Lauderdale .....	30
Fort Myers .....	9, 15, *31
Fort Pierce .....	34, *38
Fort Walton Beach .....	40, 49, 50
Gainesville .....	9, 16, *36
High Springs .....	28
Hollywood .....	47
Jacksonville .....	*7, 13, 19, 32, 34, 42, *44
Key West .....	3, 8
Lake Worth .....	36
Lakeland .....	19
Leesburg .....	40, *46
Live Oak .....	48
Marianna .....	51
Melbourne .....	43, 48
Miami .....	7, 10, *18, 19, *20, 22, 23, 31, 32, 35, 46
Naples .....	41, 45
New Smyrna Beach .....	*33
Ocala .....	31
Orange Park .....	10
Orlando .....	22, *23, 26, 27, 39, 41
Palm Beach .....	49
Panama City .....	7, 9, 13, *38
Panama City Beach .....	47
Pensacola .....	17, *31, 34, 45
Sarasota .....	24

47 CFR Ch. I (10–1–08 Edition)

Community	Channel No.
St. Petersburg .....	10, 38, 44
Stuart .....	44
Tallahassee .....	24, 27, *32, 40
Tampa .....	7, 12, *13, 29, *34, 47
Tequesta .....	16
Tice .....	33
Venice .....	25
West Palm Beach .....	12, 13, *27, 28
<b>GEORGIA</b>	
Albany .....	10, 12
Athens .....	*8, 48
Atlanta .....	10, 19, 20, *21, 25, 27, 39, *41, 43
Augusta .....	12, 30, 42, 51
Bainbridge .....	49
Baxley .....	35
Brunswick .....	24
Chatsworth .....	*33
Cochran .....	*7
Columbus .....	9, 15, *23, 35, 49
Cordele .....	51
Dalton .....	16
Dawson .....	*8
Macon .....	13, 16, 40, 45
Monroe .....	44
Pelham .....	*6
Perry .....	32
Rome .....	51
Savannah .....	*9, 11, 22, 39
Thomasville .....	46
Toccoa .....	24
Valdosta .....	43
Waycross .....	*8
Wrens .....	*6
<b>HAWAII</b>	
Hilo .....	*9, 11, 13, 22, 23
Honolulu .....	8, 9, *10, *11, 19, 23, 27, 31, 33, 35, 40, *43

# Federal Communications Commission

\$ 73.622

Community	Channel No.
Kailua .....	50
Kailua Kona .....	25
Kaneohe .....	41
Wailuku .....	7, *10, 12, 16, 21, 24
Waimanalo .....	38
<b>IDAHO</b>	
Boise .....	7, *21, 28, 39
Caldwell .....	10
Coeur d'Alene .....	*45
Filer .....	*18
Idaho Falls .....	8, 20, 36
Lewiston .....	32
Moscow .....	*12
Nampa .....	13, 24
Pocatello .....	15, *17, 23, 31
Sun Valley .....	5
Twin Falls .....	11, *22, 34
<b>ILLINOIS</b>	
Aurora .....	50
Bloomington .....	28
Carbondale .....	*8
Champaign .....	41, 48
Charleston .....	*50
Chicago .....	7, 12, 19, *21, 27, 29, 31, 43, 45, *47
Decatur .....	18, 22
East St. Louis .....	47
Freeport .....	23
Galesburg .....	8
Harrisburg .....	34
Jacksonville .....	*15
Joliet .....	38
LaSalle .....	10
Macomb .....	*21
Marion .....	17
Moline .....	*23, 38
Mount Vernon .....	21
Olney .....	*19
Peoria .....	19, 25, 30, 39, *46 *34
Quincy .....	10, 32, *34
Rock Island .....	4
Rockford .....	13, 16, 42
Springfield .....	13, 42, 44
Urbana .....	*9, 26
<b>INDIANA</b>	
Angola .....	12
Bloomington .....	*14, 27, 42, 48

Community	Channel No.
Elkhart .....	28
Evansville .....	7, *9, 28, 45, 46
Fort Wayne .....	19, 24, 31, 36, *40
Gary .....	*17, 51
Hammond .....	36
Indianapolis .....	9, 13, 16, *21, 25, *44, 45
Kokomo .....	29
Lafayette .....	11
Marion .....	32
Muncie .....	23
Richmond .....	39
Salem .....	51
South Bend .....	22, *35, 42, 48
Terre Haute .....	10, 36, 39
Vincennes .....	*22
<b>IOWA</b>	
Ames .....	5, 23, *34
Burlington .....	41
Cedar Rapids .....	9, 27, 47, 51
Council Bluffs .....	*33
Davenport .....	*34, 36, 49
Des Moines .....	8, *11, 13, 16, 31
Dubuque .....	43
Fort Dodge .....	*25
Iowa City .....	*12, 25
Mason City .....	*18, 42
Newton .....	39
Ottumwa .....	15
Red Oak .....	*35
Sioux City .....	9, *28, 39, 41, 44
Waterloo .....	7, 22, *35
<b>KANSAS</b>	
Colby .....	17, 19
Derby .....	46
Dodge City .....	*21
Ensign .....	6
Garden City .....	11, 13
Goodland .....	10
Great Bend .....	22
Hays .....	7, *16
Hoisington .....	14
Hutchinson .....	*8, 12, 35
Lakin .....	*8
Lawrence .....	41
Pittsburg .....	7, 13
Salina .....	17
Topeka .....	*11, 12, 13, 27, 49

Community	Channel No.
Wichita .....	10, 19, 26, 45

**KENTUCKY**

Ashland .....	*26, 44 7
Beattyville .....	13, 16, *18, *48
Bowling Green .....	19
Campbellsville .....	*24
Covington .....	4
Danville .....	*43
Elizabethtown .....	51
Harlan .....	12, *16
Hazard .....	13, 39, 40, *42
Lexington .....	8, 11, *17, 26, *38, 47, 49
Louisville .....	20, *42
Madisonville .....	*15, 21
Morehead .....	*36
Murray .....	29
Newport .....	30
Owensboro .....	*44
Owenton .....	32, 41, 49
Paducah .....	*24
Pikeville .....	*14
Somerset .....	

**LOUISIANA**

Alexandria .....	*26, 31, 35, 41
Baton Rouge .....	9, 13, *25, 34, 45
Columbia .....	11
Hammond .....	42
Lafayette .....	10, 16, *23, 28
Lake Charles .....	7, *20, 30
Minden .....	21
Monroe .....	8, *13
New Iberia .....	50
New Orleans .....	8, *11, 15, 21, 26, *31, 36, 43, 50
Shreveport .....	17, *25, 28, 34, 44
Slidell .....	24
West Monroe .....	36, 38

**MAINE**

Augusta .....	*10
Bangor .....	2, 7, 19
Biddeford .....	*45
Calais .....	*10
Lewiston .....	35
Orono .....	*9
Poland Spring .....	8

Community	Channel No.
Portland .....	38, 43, 44
Presque Isle .....	8, *10, 47
Waterville .....	23

**MARYLAND**

Annapolis .....	*42
Baltimore .....	11, 13, *29, 38, 40, 41, 46, *28
Frederick .....	26, 39, *44
Hagerstown .....	*36
Oakland .....	21, *28, 47
Salisbury .....	

**MASSACHUSETTS**

Adams .....	36
Boston .....	7, *19, 20, 30, 31, 32, 39, *43
Cambridge .....	41
Lawrence .....	18
Marlborough .....	27
New Bedford .....	22, 49
Norwell .....	10
Pittsfield .....	13
Springfield .....	11, *22, 40
Vineyard Haven .....	40
Worcester .....	29, *47

**MICHIGAN**

Alpena .....	11, *24
Ann Arbor .....	31
Bad Axe .....	*15
Battle Creek .....	20, 44
Bay City .....	22, 46
Cadillac .....	9, *17, 47
Calumet .....	5
Cheboygan .....	35
Detroit .....	7, 14, 21, 41, *43, 44, 45
East Lansing .....	*40
Escanaba .....	48
Flint .....	12, 16, *28
Grand Rapids .....	7, *11, 13, 19
Iron Mountain .....	8
Ishpeming .....	10
Jackson .....	34
Kalamazoo .....	*5, 8, 45
Lansing .....	36, 38, 51
Manistee .....	*21
Marquette .....	*13, 19, 35

# Federal Communications Commission

\$ 73.622

Community	Channel No.
Mount Clemens .....	39
Mount Pleasant .....	*26
Muskegon .....	24
Onondaga .....	10
Saginaw .....	30, 48
Sault Ste. Marie .....	8, 10
Traverse City .....	7, 29

## MINNESOTA

Alexandria .....	7, 42
Appleton .....	*10
Austin .....	*20, 36
Bemidji .....	*9, 26
Brainerd .....	*28
Chisholm .....	11
Crookston .....	*16
Duluth .....	*8, 10,
	17,
	27, 33
Hibbing .....	13, *31
Mankato .....	12
Minneapolis .....	9, 11,
	22,
	29,
	32, 45
Redwood Falls .....	27
Rochester .....	10, 46
St. Cloud .....	40
St. Paul .....	*26,
	*34,
	35
Thief River Falls .....	10
Walker .....	12
Worthington .....	*15

## MISSISSIPPI

Biloxi .....	13, *16
Booneville .....	*12
Bude .....	*18
Columbus .....	35, *43
Greenville .....	15
Greenwood .....	*25, 32
Gulfport .....	48
Hattiesburg .....	22
Holly Springs .....	41
Houston .....	45
Jackson .....	7, 12,
	*20,
	21,
	40, 51
Laurel .....	28
Magee .....	34
Meridian .....	11, 24,
	31,
	*44
Mississippi State .....	*10
Natchez .....	49
Oxford .....	*36
Tupelo .....	8
Vicksburg .....	41
West Point .....	16

## MISSOURI

Cape Girardeau .....	12, 22
Columbia .....	8, 17
Hannibal .....	7
Jefferson City .....	12, 20
Joplin .....	*25, 43,
	46

Community	Channel No.
Kansas City .....	9, *18,
	24,
	31,
	34,
	42,
	47, 51
Kirksville .....	33
Osage Beach .....	49
Poplar Bluff .....	15
Sedalia .....	15
Springfield .....	10, 19,
	*23,
	28, 44
St. Joseph .....	7, 21
St. Louis .....	14, 24,
	26,
	31,
	35,
	*39,
	43

## MONTANA

Billings .....	10, 11,
	18
Bozeman .....	*8, 13
Butte .....	5, 6, 19,
	24
Glendive .....	10
Great Falls .....	7, 8, 26,
	45
Hardin .....	22
Havre .....	9
Helena .....	12, 29
Kalispell .....	9
Lewistown .....	13
Miles City .....	3
Missoula .....	7, *11,
	13,
	17, 23

## NEBRASKA

Alliance .....	*13
Bassett .....	*7
Grand Island .....	11, 19
Hastings .....	5, *28
Hayes Center .....	18
Kearney .....	36
Lexington .....	*26
Lincoln .....	8, 10,
	*12,
	51
McCook .....	12
Merriman .....	*12
Norfolk .....	*19
North Platte .....	2, *9
Omaha .....	15, *17,
	20,
	22,
	43, 45
Scottsbluff .....	7, 17,
	29
Superior .....	34

## NEVADA

Elko .....	10
Ely .....	3, 27
Goldfield .....	50
Henderson .....	9

Community	Channel No.
Las Vegas .....	2, 7, *11, 13, 16, 22, 29
Laughlin .....	32
Paradise .....	40
Reno .....	7, 8, 13, *15, 20, 26, 44
Tonopah .....	9
Winnemucca .....	7

**NEW HAMPSHIRE**

Concord .....	33
Derry .....	35
Durham .....	*11
Keene .....	*49
Littleton .....	*48
Manchester .....	9
Merrimack .....	34

**NEW JERSEY**

Atlantic City .....	44, 49
Burlington .....	27
Camden .....	*22
Linden .....	36
Montclair .....	*51
New Brunswick .....	*8
Newark .....	13, 30
Newton .....	18
Paterson .....	40
Secaucus .....	38
Trenton .....	*43
Vineland .....	29
West Milford .....	*29
Wildwood .....	36

**NEW MEXICO**

Albuquerque .....	7, 13, *17, 22, 24, 26, *35, 42, 45
Carlsbad .....	19, 25
Clovis .....	20
Farmington .....	8, 12
Hobbs .....	29
Las Cruces .....	*23, 47
Portales .....	*32
Roswell .....	8, 10, 21, 27
Santa Fe .....	*9, 10, 27, 29
Silver City .....	10, 12

**NEW YORK**

Albany .....	7, 12, 26
Amsterdam .....	50
Batavia .....	23
Bath .....	14
Binghamton .....	7, 8, 34, *42

Community	Channel No.
Buffalo .....	14, 32, 33, 34, 38, 39, *43
Carthage .....	7
Corning .....	*30, 48
Elmira .....	18, 36
Garden City .....	*21
Ithaca .....	20
Jamestown .....	26
Kingston .....	48
New York .....	7, 11, *24, 28, 31, 33, 44
North Pole .....	14
Norwood .....	*23
Plattsburg .....	*38
Poughkeepsie .....	27
Riverhead .....	47
Rochester .....	10, 13, *16, 28, 45
Saranac Lake .....	40
Schenectady .....	6, *34, 43
Smithtown .....	23
Springville .....	7
Syracuse .....	15, 17, 19, 24, *25, 44, 47
Utica .....	27, 29, 30
Watertown .....	21, *41

**NORTH CAROLINA**

Asheville .....	13, *25, 45
Belmont .....	47
Burlington .....	14
Chapel Hill .....	*25
Charlotte .....	*11, 22, 23, 27, 34
Concord .....	*44
Durham .....	11, 28
Edenton .....	*20
Fayetteville .....	36, 38
Goldsboro .....	17
Greensboro .....	33, 43, 51
Greenville .....	10, 14, *23, 51
Hickory .....	40
High Point .....	8
Jacksonville .....	*19, 34
Kannapolis .....	50
Lexington .....	19
Linville .....	*17
Lumberton .....	*31
Manteo .....	9
Morehead City .....	8
New Bern .....	12
Raleigh .....	27, 48, 49
Roanoke Rapids .....	*36

# Federal Communications Commission

\$ 73.622

Community	Channel No.
Rocky Mount .....	15
Washington .....	32
Wilmington .....	*29, 30, 44, 46
Wilson .....	42
Winston Salem .....	29, 31, *32
<b>NORTH DAKOTA</b>	
Bismarck .....	12, 16, *22, 26, 31
Devils Lake .....	8, *25
Dickinson .....	7, *9, 19
Ellendale .....	*20
Fargo .....	*13, 19, 21, 44
Grand Forks .....	*15, 27
Jamestown .....	7
Minot .....	10, 13, 14, 24, *40
Pembina .....	12
Valley City .....	38
Williston .....	8, 14, *51
<b>OHIO</b>	
Akron .....	23, 30, *50
Alliance .....	*45
Athens .....	*27
Bowling Green .....	*27
Cambridge .....	*35
Canton .....	39, 47
Chillicothe .....	46
Cincinnati .....	10, 12, 33, *34, 35
Cleveland .....	8, 15, 17, *26, 34
Columbus .....	13, 14, 21, 36, *38
Dayton .....	*16, 30, 41, 50, 51
Lima .....	8, 44
Lorain .....	28
Mansfield .....	12
Newark .....	24
Oxford .....	*28
Portsmouth .....	17, *43
Sandusky .....	42
Shaker Heights .....	10
Springfield .....	26
Stuebenville .....	9
Toledo .....	5, 11, 13, *29, 46, 49
Youngstown .....	20, 36, 41
Zanesville .....	40

Community	Channel No.
<b>OKLAHOMA</b>	
Ada .....	26
Bartlesville .....	17
Cheyenne .....	*8
Claremore .....	*36
Eufaula .....	*31
Lawton .....	11
Muskogee .....	20
Norman .....	46
Oklahoma City .....	7, 9, *13, 15, 24, 27, 33, 40, 50, 51
Okmulgee .....	28
Shawnee .....	29
Tulsa .....	8, 10, *11, 22, 42, 45, 47, 49
Woodward .....	35
<b>OREGON</b>	
Bend .....	*11, 21, 51
Coos Bay .....	11, 22
Corvallis .....	*7
Eugene .....	9, 13, 17, *29, 31
Grants Pass .....	30
Klamath Falls .....	13, 29, *33
La Grande .....	*13, 29
Medford .....	5, *8, 10, 12, 26
Pendleton .....	11
Portland .....	8, *10, 12, 40, 43, 45
Roseburg .....	18, 19, 45
Salem .....	22, 33
<b>PENNSYLVANIA</b>	
Allentown .....	*39, 46
Altoona .....	24, 32, 46
Bethlehem .....	9
Clearfield .....	*15
Erie .....	12, 16, 22, 24, *50
Greensburg .....	50
Harrisburg .....	10, 21, *36
Hazleton .....	45
Jeannette .....	11
Johnstown .....	8, 34
Lancaster .....	8, 23



Community	Channel No.
Philadelphia .....	6, 17, 26, 32, 34, *35, 42
Pittsburgh .....	*13, 25, 38, 42, 43, 48, 51
Reading .....	25
Red Lion .....	30
Scranton .....	13, 32, 38, *41, 49
Wilkes Barre .....	11
Williamsport .....	29
York .....	47

**RHODE ISLAND**

Block Island .....	17
Providence .....	12, 13, *21, 51

**SOUTH CAROLINA**

Allendale .....	*33
Anderson .....	14
Beaufort .....	*44
Charleston .....	*7, 24, 34, 36, 47, 50
Columbia .....	8, 10, 17, *32, 47, 48
Conway .....	*9
Florence .....	13, 16, 21, *45
Georgetown .....	*38
Greenville .....	*9, 16, 21, 36
Greenwood .....	*18
Hardeeville .....	28
Myrtle Beach .....	18, 32
Rock Hill .....	15, 39
Spartanburg .....	7, 43
Sumter .....	*28, 39

**SOUTH DAKOTA**

Aberdeen .....	9, *17
Brookings .....	*8
Eagle Butte .....	*13
Florence .....	3
Huron .....	12
Lead .....	5, 10
Lowry .....	*11
Martin .....	*8
Mitchell .....	26
Pierre .....	*10, 19
Rapid City .....	2, 7, 16, 21, *26
Reliance .....	13

Community	Channel No.
Sioux Falls .....	7, 11, 13, *24, 36, 47
Vermillion .....	*34

**TENNESSEE**

Chattanooga .....	9, 12, 13, *29, 40
Cleveland .....	42
Cookeville .....	*22, 36
Crossville .....	20
Greeneville .....	38
Hendersonville .....	51
Jackson .....	39, 43
Jellico .....	23
Johnson City .....	11
Kingsport .....	27
Knoxville .....	7, 10, *17, 26, 30, 34
Lebanon .....	44
Lexington .....	*47
Memphis .....	5, *10, 13, *23, 25, 28, *29, 31, 51
Murfreesboro .....	38
Nashville .....	5, *8, 10, 15, 21, 23, 27
Sneedville .....	*41
Tazewell .....	48

**TEXAS**

Abilene .....	15, 24, 29
Alvin .....	36
Amarillo .....	7, *8, 10, 15, 19
Arlington .....	42
Austin .....	7, 21, *22, 33, 43, 49
Baytown .....	41
Beaumont .....	12, 21, *33
Belton .....	46
Big Spring .....	33
Blanco .....	18
Borger .....	31
Brownsville .....	24
Bryan .....	28, 50
College Station .....	*12
Conroe .....	32, 42
Corpus Christi .....	8, 10, 13, *23, 27, 38

# Federal Communications Commission

\$ 73.622

Community	Channel No.	Community	Channel No.
Dallas .....	8, *14, 32, 35, 36, 40, 45	Uvalde .....	26
Decatur .....	30	Victoria .....	11, 15
Del Rio .....	28	Waco .....	10, *20, 26, 44
Denton .....	*43	Weslaco .....	13
Eagle Pass .....	24	Wichita Falls .....	15, 22, 28
El Paso .....	7, 9, *13, 15, 18, 25, *39, 51	Wolfforth .....	43
Farwell .....	18	<b>UTAH</b>	
Fort Worth .....	9, 11, 18, 41	Cedar City .....	14
Fredericksburg .....	5	Logan .....	12
Galveston .....	*23, 48	Ogden .....	24, *36, 48
Garland .....	23	Price .....	11
Greenville .....	46	Provo .....	29, 32, *44
Harlingen .....	31, *34, 38	Richfield .....	*19
Houston .....	*8, 11, 13, 19, *24, 26, 35, 38, 44	Salt Lake City .....	13, 20, 34, 38, 40, *42, 46
Irving .....	48	St. George .....	9, *18
Jacksonville .....	22	Vernal .....	16
Katy .....	47	<b>VERMONT</b>	
Kerrville .....	32	Burlington .....	13, 22, *32, 43
Killeen .....	13	Hartford .....	25
Lake Dallas .....	39	Rutland .....	*9
Laredo .....	8, 13, 19	St. Johnsbury .....	*18
Llano .....	27	Windsor .....	*24
Longview .....	31, 38	<b>VIRGINIA</b>	
Lubbock .....	11, 16, 27, 35, *39, 40	Arlington .....	15
Lufkin .....	9	Ashland .....	47
Mcallen .....	49	Bristol .....	5
Midland .....	18, 26	Charlottesville .....	19, 32, *46
Nacogdoches .....	18	Danville .....	24
Odessa .....	7, 9, 23, 30, *38, 42	Fairfax .....	*24
Port Arthur .....	40	Front Royal .....	*21
Rio Grande City .....	20	Goldvein .....	*30
Rosenberg .....	45	Grundy .....	49
San Angelo .....	11, 16, 19	Hampton .....	13
San Antonio .....	*9, 12, *16, 30, 38, 39, 41, 48	Hampton Norfolk .....	*16
Sherman .....	12	Harrisonburg .....	49
Snyder .....	17	Lynchburg .....	13, 20
Sweetwater .....	20	Manassas .....	34
Temple .....	9	Marion .....	*42
Texarkana .....	15	Norfolk .....	33, 40, 46
Tyler .....	7	Norton .....	*32
		Petersburg .....	22
		Portsmouth .....	31, 50
		Richmond .....	12, 25, 26, *42, *44
		Roanoke .....	*3, 17, 18, 30, 36
		Staunton .....	*11
		Virginia Beach .....	7, 29
		<b>WASHINGTON</b>	
		Bellevue .....	33, 50

§ 73.622

47 CFR Ch. I (10–1–08 Edition)

Community	Channel No.
Bellingham .....	19, 35
Centralia .....	*19
Everett .....	31
Kennewick .....	44
Pasco .....	18
Pullman .....	*10, 24
Richland .....	26, *38
Seattle .....	*9, 25,
	38,
	39,
	44, 48
Spokane .....	7, *8,
	13,
	20,
	28,
	34, 36
Tacoma .....	11, 13,
	14,
	*27,
	*42
Vancouver .....	30
Walla Walla .....	9
Yakima .....	14, 16,
	*21,
	33
<b>WEST VIRGINIA</b>	
Bluefield .....	40, 46
Charleston .....	19, 39,
	41
Clarksburg .....	10, 12
Grandview .....	*10
Huntington .....	13, 23,
	*34
Lewisburg .....	8
Martinsburg .....	12
Morgantown .....	*33
Oak Hill .....	50
Parkersburg .....	49
Weston .....	5
Wheeling .....	7
<b>WISCONSIN</b>	
Antigo .....	46
Appleton .....	27
Chippewa Falls .....	49
Crandon .....	12
Eagle River .....	28
Eau Claire .....	13, 15
Fond Du Lac .....	44
Green Bay .....	11, 23,
	39,
	41,
	*42
Janesville .....	32
Kenosha .....	40
La Crosse .....	8, 14,
	17,
	*30
Madison .....	11, 19,
	*20,
	26, 50
Mayville .....	43
Menomonee .....	*27
Milwaukee .....	*8, 18,
	22,
	25,
	28,
	33,
	34,
	*35,
	46

Community	Channel No.
Park Falls .....	*36
Racine .....	48
Rhineland .....	16
Superior .....	19
Suring .....	21
Wausau .....	7, 9, *24
Wittenberg .....	50
<b>WYOMING</b>	
Casper .....	*6, 12,
	14,
	17, 20
Cheyenne .....	11, 27,
	30
Jackson .....	2, 11
Lander .....	7, *8
Laramie .....	*8
Rawlins .....	9
Riverton .....	10
Rock Springs .....	13
Sheridan .....	7, 13
<b>GUAM</b>	
Agana .....	8, 12
Tamuning .....	14
<b>PUERTO RICO</b>	
Aguada .....	50
Aguadilla .....	12, 17,
	*34
Arecibo .....	14, 46
Bayamon .....	30
Caguas .....	11, *48
Carolina .....	51
Fajardo .....	13, *16,
	33
Guayama .....	45
Humacao .....	49
Mayaguez .....	22, 23,
	29, 35
Naranjito .....	18
Ponce .....	7, 9, 15,
	19,
	*25,
	47
San Juan .....	21, 27,
	28,
	31,
	32,
	*43
San Sebastian .....	39
Yauco .....	41
<b>VIRGIN ISLANDS</b>	
Charlotte Amalie .....	17, 43,
	*44
Christiansted .....	15, 20,
	23

[62 FR 26712, May 14, 1997]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 73.622, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and on GPO Access.

EFFECTIVE DATE NOTE 1: At 67 FR 70018, Nov. 20, 2002, § 73.622 was amended in the

## Federal Communications Commission

## § 73.623

Table of Allotments in paragraph (b) under California by adding Avalon, DTV channel 47c. This amendment will become effective 60 days after the concurrence of the Mexican government is obtained. The FCC will publish a document announcing when the concurrence has been obtained and giving the effective date.

EFFECTIVE DATE NOTE 2: At 73 FR 54324, Sept. 19, 2008, in § 73.622(i), the Post-Transition Table of DTV Allotments under Colorado was amended by adding channel 45 and removing channel 46 at Castle Rock, effective Oct. 20, 2008.

### § 73.623 DTV applications and changes to DTV allotments.

(a) *General.* This section contains the technical criteria for evaluating applications requesting DTV facilities that do not conform to the provisions of § 73.622 and petitions for rule making to amend the pre-transition DTV Table of Allotments (§ 73.622(b)). Petitions to amend the DTV Table (other than those also expressly requesting amendment of this section) and applications for new DTV broadcast stations or for changes in authorized DTV stations filed pursuant to this section will not be accepted for filing if they fail to comply with the requirements of this section. Petitions for rule making and applications seeking facilities that will operate after the end of the DTV transition must also comply with § 73.616.

(b) In considering petitions to amend the DTV Table and applications filed pursuant to this section, the Commission will use geographic coordinates defined in § 73.622(d) as reference points in determining allotment separations and evaluating interference potential.

(c) *Minimum technical criteria for modification of DTV allotments included in the initial DTV Table of Allotments and for applications filed pursuant to this section.* No petition to modify a channel allotment included in the initial DTV Table of Allotments or application for authority to construct or modify a DTV station assigned to such an allotment, filed pursuant to this section, will be accepted unless it shows compliance with the requirements of this paragraph.

(1) Requests filed pursuant to this paragraph must demonstrate compliance with the principal community

coverage requirements of section 73.625(a).

(2) Requests filed pursuant to this paragraph must demonstrate that the requested change would not result in more than an additional 2 percent the population served by another station being subject to interference; provided, however, that no new interference may be caused to any station that already experiences interference to 10 percent or more of its population or that would result in a station receiving interference in excess of 10 percent of its population. The station population values for existing NTSC service and DTV service contained in Appendix B of the *Memorandum Opinion and Order on Reconsideration of the Sixth Report and Order* in MM Docket No. 87-268, FCC 98-24, adopted January 29, 1998, referenced in § 73.622(c), are to be used for the purposes of determining whether a power increase or other change is permissible under this de minimis standard. For evaluating compliance with this requirement, interference to populations served is to be predicted based on the procedure set forth in *OET Bulletin No. 69*, including population served within service areas determined in accordance with section 73.622(e), consideration of whether F(50,10) undesired signals will exceed the following desired-to-undesired (D/U) signal ratios, assumed use of a directional receiving antenna, and use of the terrain dependent Longley-Rice point-to-point propagation model. Copies of *OET Bulletin No. 69* may be inspected during normal business hours at the: Federal Communications Commission, Room CY-C203, 445 12th Street, SW., Reference Information Center, Washington, DC 20554. These documents are also available through the Internet on the *FCC Home Page* at <http://www.fcc.gov>. The threshold levels at which interference is considered to occur are:

	D/U Ratio
Co-channel:	
DTV-into-analog TV .....	+34
Analog TV-into-DTV .....	+2
DTV-into-DTV .....	+15
First Adjacent Channel:	
Lower DTV-into-analog TV .....	-14
Upper DTV-into-analog TV .....	-17
Lower analog TV-into-DTV .....	-48
Upper analog TV-into-DTV .....	-49
Lower DTV-into-DTV .....	-28

	D/U Ratio
Upper DTV-into-DTV .....	-26
Other Adjacent Channel (Channels 14–69 only)	
DTV-into-analog TV, where N = analog TV channel and DTV Channel:	
N-2 .....	-24
N+2 .....	-28
N-3 .....	-30
N+3 .....	-34
N-4 .....	-34
N+4 .....	-25
N-7 .....	-35
N+7 .....	-43
N-8 .....	-32
N+8 .....	-43
N+14 .....	-33
N+15 .....	-31

(3) The values in paragraph (c)(2) of this section for co-channel interference to DTV service are only valid at locations where the signal-to-noise ratio is 28 dB or greater for interference from DTV and 25 dB or greater for interference from analog TV service. At the edge of the noise-limited service area, where the signal-to-noise (S/N) ratio is 16 dB, these values are 21 dB and 23 dB for interference from analog TV and DTV, respectively. At locations where the S/N ratio is greater than 16 dB but less than 28 dB, D/U values for co-channel interference to DTV are as follows:

(i) For DTV-to-DTV interference, the minimum D/U ratios are computed from the following formula:

$$D/U = 15 + 10 \log_{10} [1.0 / (1.0 - 10^{-x/10})]$$

Where  $x = S/N - 15.19$  (minimum signal to noise ratio)

(ii) For analog-to-DTV interference, the minimum D/U ratios are found from the following Table (for values between measured values, linear interpolation can be used):

Signal-to-noise ratio (dB)	Desired-to-undesired ratio (dB)
16.00 .....	21.00
16.35 .....	19.94
17.35 .....	17.69
18.35 .....	16.44
19.35 .....	7.19
20.35 .....	4.69
21.35 .....	3.69
22.35 .....	2.94
23.35 .....	2.44
25.00 .....	2.00

(4) Due to the frequency spacing that exists between Channels 4 and 5, between Channels 6 and 7, and between

Channels 13 and 14, the minimum adjacent channel technical criteria specified in paragraph (c)(2) of this section shall not be applicable to these pairs of channels (see § 73.603(a)).

(5) A DTV station application that proposes to expand the DTV station's allotted or authorized coverage area in any direction will not be accepted if it is predicted to cause interference to a Class A TV station or to a digital Class A TV station authorized pursuant to Subpart J of this part, within the protected contour defined in § 73.6010 of this part. This paragraph applies to all DTV applications filed after May 1, 2000, and to DTV applications filed between December 31, 1999 and April 30, 2000 unless the DTV station licensee or permittee notified the Commission of its intent to "maximize" by December 31, 1999.

(i) Interference is predicted to occur if the ratio in dB of the field strength of a Class A TV station at its protected contour to the field strength resulting from the facilities proposed in the DTV application (calculated using the appropriate F(50,10) chart from Figure 9a, 10a, or 10c of § 73.699 of this part) fails to meet the D/U signal ratios for "DTV-into-analog TV" specified in paragraph (c)(2) of this section.

(ii) Interference is predicted to occur if the ratio in dB of the field strength of a digital Class A TV station at its protected contour to the field strength resulting from the facilities proposed in the DTV application (calculated using the appropriate F(50,10) chart from Figure 9a, 10a, or 10c of § 73.699 of this part) fails to meet the D/U signal ratios for "DTV-into-DTV" specified in paragraphs (c)(2) and (c)(3) of this section.

(iii) In support of a request for waiver of the interference protection requirements of this section, an applicant for a DTV broadcast station may make full use of terrain shielding and Longley-Rice terrain dependent propagation methods to demonstrate that the proposed facility would not be likely to cause interference to Class A TV stations. Guidance on using the Longley-Rice methodology is provided in *OET Bulletin No. 69*, which is available through the Internet at <http://>

## Federal Communications Commission

## § 73.623

[www.fcc.gov/oet/info/documents/bulletins/#69](http://www.fcc.gov/oet/info/documents/bulletins/#69).

(d) *Minimum geographic spacing requirements for DTV allotments not included in the initial DTV Table of Allotments.* No petition to add a new channel to the DTV Table of Allotments or modify an allotment not included in the initial DTV Table will be accepted unless it shows compliance with the requirements of this paragraph.

(1) Requests filed pursuant to this paragraph must demonstrate compliance with the principle community coverage requirements of section 73.625(a).

(2) Requests filed pursuant to this paragraph must meet the following requirements for geographic spacing with regard to all other DTV stations, DTV allotments and analog TV stations:

Channel relationship	Separation requirement
VHF Channels 2–13: Co-channel, DTV to DTV	Zone I: 244.6 km. Zones II & III: 273.6 km.
Co-channel, DTV to analog TV	Zone I: 244.6 km. Zone II & III: 273.6 km.
Adjacent Channel: DTV to DTV .....	No allotments permitted between: Zone I: 20 km and 110 km. Zones II & III: 23 km and 110 km.
DTV to analog TV .....	No allotments permitted between: Zone I: 9 km and 125 km. Zone II & III: 11 km and 125 km.
UHF Channels: Co-channel, DTV to DTV	Zone I: 196.3 km. Zone II & III: 223.7 km.
Co-channel, DTV to analog TV	Zone I: 217.3 km. Zone II & III: 244.6 km.
Adjacent Channel: DTV to DTV .....	No allotments permitted between: All Zones: 24 km and 110 km.
DTV to analog TV .....	No allotments permitted between: All Zones: 12 km and 106 km.
Taboo Channels, DTV to analog TV only (DTV channels $\pm 2$ , $\pm 3$ , $\pm 4$ , $\pm 7$ , $\pm 8$ , and 14 or 15 channels above the analog TV channel).	No allotments permitted between: Zone I: 24.1 km and 80.5 km. Zone II & III: 24.1 km and 96.6 km.

(3) Zones are defined in § 73.609. The minimum distance separation between a DTV station in one zone and an analog TV or DTV station in another zone shall be that of the zone requiring the lower separation.

(4) Due to the frequency spacing that exists between Channels 4 and 5, between Channels 6 and 7, and between Channels 13 and 14, the minimum geographic spacing requirements specified in paragraph (d)(3) of this section shall not be applicable to these pairs of channels (§ 73.603(a)).

(e) *Protection of land mobile operations on channels 14–20.* The Commission will not accept petitions to amend the DTV Table of Allotments, applications for new DTV stations, or applications to

change the channel or location of authorized DTV stations that would use channels 14–20 where the distance between the DTV reference point as defined in section 73.622(d), would be located less than 250 km from the city center of a co-channel land mobile operation or 176 km from the city center of an adjacent channel land mobile operation. Petitions to amend the DTV Table, applications for new DTV stations, or requests to modify the DTV Table that do not meet the minimum DTV-to-land mobile spacing standards will, however, be considered where all affected land mobile licensees consent to the requested action. Land mobile operations are authorized on these channels in the following markets:

City	Channels	Latitude	Longitude
Boston, MA .....	14, 16 .....	42°21'24"	71°03'25"
Chicago, IL .....	14, 15 .....	41°52'28"	87°38'22"
Cleveland, OH .....	14, 15 .....	41°29'51.2"	81°41'49.5"
Dallas, TX .....	16 .....	32°47'09"	96°47'37"
Detroit, MI .....	15, 16 .....	42°19'48.1"	83°02'56.7"
Houston, TX .....	17 .....	29°45'26"	95°21'37"
Los Angeles, CA .....	14, 16, 20 .....	34°03'15"	118°14'28"
Miami, FL .....	14 .....	25°46'37"	80°11'32"
New York, NY .....	14, 15, 16 .....	40°45'06"	73°59'39"
Philadelphia, PA .....	19, 20 .....	39°56'58"	75°09'21"
Pittsburgh, PA .....	14, 18 .....	40°26'19"	80°00'00"
San Francisco, CA .....	16, 17 .....	37°46'39"	122°24'40"
Washington, DC .....	17, 18 .....	38°53'51"	77°00'33"

(f) Parties requesting new allotments on channel 6 be added to the DTV Table must submit an engineering study demonstrating that no interference would be caused to existing FM radio stations on FM channels 200–220.

(g) *Negotiated agreements on interference.* Notwithstanding the minimum technical criteria for DTV allotments specified above, DTV stations operating on allotments that are included in the initial DTV Table may: operate with increased ERP and/or antenna HAAT that would result in additional interference to another DTV station or an analog TV station if that station agrees, in writing, to accept the additional interference; and/or implement an exchange of channel allotments between two or more licensees or permittees of TV stations in the same community, the same market, or in adjacent markets provided, however, that the other requirements of this section and of section 73.622 are met with respect to each such application. Such agreements must be submitted with the application for authority to construct or modify the affected DTV station or stations. The larger service area resulting from a negotiated change in ERP and/or antenna HAAT will be protected in accordance with the provisions of paragraph (c) of this section. Negotiated agreements under this paragraph can include the exchange of money or other considerations from one station to another, including payments to and from non-commercial television stations assigned reserved channels. Applications submitted pursuant to the provisions of this paragraph will be granted only if the Commission finds that such ac-

tion is consistent with the public interest.

(h) *DTV application processing.* (1) DTV applications for a construction permit or a modified construction permit pending as of January 18, 2001:

(i) Shall be afforded the interference protection set forth in paragraph (c) or (d) of this section, as applicable:

(A) By all NTSC minor change applications;

(B) By NTSC new station applications, except those covered by paragraphs (h)(1)(ii)(G) and (h)(1)(iii)(D) of this section;

(C) By all rulemaking petitions to amend the NTSC TV table of allotments;

(D) By DTV applications filed after January 18, 2001; and

(E) By rulemaking petitions to amend the DTV table of allotments filed after January 18, 2001;

(ii) Must demonstrate the requisite interference protection set forth in paragraph (c) or (d) of this section, as applicable, to:

(A) DTV licensed stations;

(B) DTV construction permits;

(C) Existing DTV allotments;

(D) Rulemaking petitions to amend the DTV table of allotments for which a Notice of Proposed Rule Making has been released and the comment deadline specified therein has passed prior to the filing date of the DTV application;

(E) NTSC stations with licenses covering construction permits that were granted before the DTV application was filed;

(F) NTSC construction permits that were granted before the DTV application was filed;

(G) Applications for new NTSC television stations that were in groups of mutually exclusive applications on file prior to July 1, 1997, regardless of whether they are the only applications that remain pending from their group.

(iii) That do not provide the requisite interference protection set forth in paragraph (c) or (d) of this section, as applicable, to the following applications and petitions will be deemed mutually exclusive with those applications and petitions:

(A) Other DTV applications pending as of January 18, 2001;

(B) Rulemaking petitions to amend the DTV table of allotments filed on or before January 18, 2001 for which a Notice of Proposed Rule Making had been released and the comment deadline specified therein had not passed prior to the filing date of the DTV application;

(C) Rulemaking petitions to amend the DTV table of allotments filed on or before January 18, 2001 for which a Notice of Proposed Rule Making had not been released; and

(D) Applications for new NTSC stations that are not covered by paragraph (h)(1)(ii)(G) of this section and were filed and accepted for filing on or before January 18, 2001 that:

(1) Were filed by post-auction winners pursuant to § 73.5005.

(2) Are part of a settlement agreement on-file with the Commission that would result in the grant of the NTSC application; or

(3) Are cut-off singletons.

(2) DTV applications for a construction permit or a modified construction permit filed after January 18, 2001:

(i) Shall be afforded the interference protection set forth in paragraph (c) or (d) of this section, as applicable:

(A) By all NTSC minor change applications;

(B) By NTSC new station applications, except those covered by paragraph (h)(2)(ii)(H) and (I) of this section;

(C) By all rulemaking petitions to amend the NTSC TV table of allotments except those filed by NTSC applicants in those groups defined in (h)(2)(ii)(I) of this section for which a Notice of Proposed Rule Making has been released and the comment dead-

line specified therein has passed prior to the filing date of the DTV application;

(D) By later-filed DTV applications; and

(E) By later-filed rulemaking petitions to amend the DTV table of allotments;

(ii) Must demonstrate the requisite interference protection set forth in paragraph (c) or (d) of this section, as applicable, to:

(A) DTV licensed stations;

(B) DTV construction permits;

(C) Earlier-filed DTV applications;

(D) Existing DTV allotments;

(E) Rulemaking petitions to amend the DTV table of allotments for which a Notice of Proposed Rule Making has been released and the comment deadline specified therein has passed prior to the filing date of the DTV application;

(F) NTSC stations with licenses covering construction permits that were granted before the DTV application was filed;

(G) NTSC construction permits that were granted before the DTV application was filed; and

(H) Earlier-filed and accepted for filing applications for new NTSC stations that are not covered by paragraph (h)(2)(ii)(I) of this section, and that:

(1) Were filed by post-auction winners pursuant to § 73.5005.

(2) Are part of a settlement agreement on-file with the Commission that would result in the grant of the NTSC application; or

(3) Are cut-off singletons;

(I) Applications for new NTSC television stations that were in groups of mutually exclusive applications on file prior to July 1, 1997, regardless of whether they are the only applications that remain pending from their group;

(J) Rulemaking petitions to amend the NTSC table of allotments filed by applicants defined in (h)(2)(ii)(I) of this section for which a Notice of Proposed Rule Making has been released and the comment deadline specified therein has passed prior to the filing of the DTV application.

(iii) That do not provide the requisite interference protection set forth in paragraph (c) or (d) of this section, as



applicable, to the following applications and petitions will be deemed mutually exclusive with those applications and petitions:

(A) Other DTV applications filed the same day;

(B) Rulemaking petitions to amend the DTV table of allotments for which a Notice of Proposed Rule Making had been released and the comment deadline specified therein had not passed prior to the filing date of the DTV application; and

(C) Earlier-filed rulemaking petitions to amend the DTV table of allotments for which a Notice of Proposed Rule Making had not been released.

(3) DTV applicants, DTV applicants and NTSC applicants, or DTV applicants and DTV rulemaking petitioners that are mutually exclusive pursuant to this section will be notified by Public Notice and provided with a 90-day period of time to resolve their mutual exclusivity via engineering amendment or settlement. Those applications and petitions that remain mutually exclusive upon conclusion of the 90-day settlement period will be dismissed.

[62 FR 26719, May 14, 1997, as amended at 63 FR 13560, Mar. 20, 1998; 64 FR 4327, Jan. 28, 1999; 65 FR 30002, May 10, 2000; 65 FR 58467, Sept. 29, 2000; 66 FR 9984, Feb. 13, 2001; 66 FR 65134, Dec. 18, 2001; 69 FR 31906, June 8, 2004; 73 FR 5683, Jan. 30, 2008]

**§ 73.624 Digital television broadcast stations.**

(a) Digital television (“DTV”) broadcast stations are assigned channels 6 MHz wide. Initial eligibility for licenses for DTV broadcast stations is limited to persons that, as of April 3, 1997, are licensed to operate a full power television broadcast station or hold a permit to construct such a station (or both).

(b) DTV broadcast station permittees or licensees must transmit at least one over-the-air video program signal at no direct charge to viewers on the DTV channel. Until such time as a DTV station permittee or licensee ceases analog transmissions and returns that spectrum to the Commission, and except as provided in paragraph (b)(1) of this section, at any time that a DTV broadcast station permittee or licensee transmits a video program signal on its

analog television channel, it must also transmit at least one over-the-air video program signal on the DTV channel. The DTV service that is provided pursuant to this paragraph must be at least comparable in resolution to the analog television station programming transmitted to viewers on the analog channel.

(1) DTV broadcast station permittees and licensees required to construct and operate a DTV station by May 1, 2002, or May 1, 2003, pursuant to paragraph (d) of this section must, at a minimum, beginning on the date on which the DTV station is required to be constructed, provide a digital video program signal, of the quality described in paragraph (b) of this section, during prime time hours as defined in § 79.3(a)(6) of this chapter. These licensees and permittees must also comply with the minimum operating hours requirements in paragraph (f) of this section.

(2) DTV licensees or permittees that choose to commence digital operation before the construction deadline set forth in paragraph (d) of this section are not subject to any minimum schedule for operation on the DTV channel.

(c) Provided that DTV broadcast stations comply with paragraph (b) of this section, DTV broadcast stations are permitted to offer services of any nature, consistent with the public interest, convenience, and necessity, on an ancillary or supplementary basis. The kinds of services that may be provided include, but are not limited to computer software distribution, data transmissions, teletext, interactive materials, aural messages, paging services, audio signals, subscription video, and any other services that do not derogate DTV broadcast stations’ obligations under paragraph (b) of this section. Such services may be provided on a broadcast, point-to-point or point-to-multipoint basis, provided, however, that any video broadcast signal provided at no direct charge to viewers shall not be considered ancillary or supplementary.

(1) DTV licensees that provide ancillary or supplementary services that are analogous to other services subject to regulation by the Commission must

comply with the Commission regulations that apply to those services, provided, however, that no ancillary or supplementary service shall have any rights to carriage under §§ 614 or 615 of the Communications Act of 1934, as amended, or be deemed a multichannel video programming distributor for purposes of section 628 of the Communications Act of 1934, as amended.

(2) In all arrangements entered into with outside parties affecting service operation, the DTV licensee or permittee must retain control over all material transmitted in a broadcast mode via the station's facilities, with the right to reject any material in the sole judgement of the permittee or licensee. The licensee or permittee is also responsible for all aspects of technical operation involving such telecommunications services.

(3) In any application for renewal of a broadcast license for a television station that provides ancillary or supplementary services, a licensee shall establish that all of its program services on the analog and the DTV spectrum are in the public interest. Any violation of the Commission's rules applicable to ancillary or supplementary services will reflect on the licensee's qualifications for renewal of its license.

(d) Digital television broadcast facilities that comply with the FCC DTV Standard (section 73.682(d)), shall be constructed in the following markets by the following dates:

(1)(i) May 1, 1999: all network-affiliated television stations in the top ten television markets;

(ii) November 1, 1999: all network-affiliated television stations not included in category (1)(i) and in the top 30 television markets;

(iii) May 1, 2002: all remaining commercial television stations;

(iv) May 1, 2003: all noncommercial television stations.

(v) May 18, 2008 in all markets for completion of construction of post-transition (DTV) facilities for all commercial and noncommercial television stations that will use the same channel used for pre-transition operation for post-transition operation and that, as of December 31, 2007, have a construction permit for facilities that conform to the facilities defined by the new

DTV Table of Allotments and accompanying Appendix B, established by the Seventh Report and Order in MB Docket No. 87-268 and codified at 47 CFR 73.622(i).

(vi) August 18, 2008 in all markets for completion of construction of post-transition (DTV) facilities for all commercial and noncommercial television stations that will use the same channel used for pre-transition operation for post-transition operation but which, as of December 31, 2007, do not have a construction permit for facilities that conform to the facilities defined by the new DTV Table of Allotments and accompanying Appendix B, established by the Seventh Report and Order in MB Docket No. 87-268 and codified at 47 CFR 73.622(i).

(vii) February 17, 2009 in all markets for completion of construction of post-transition (DTV) facilities for all commercial and noncommercial television stations whose post-transition digital channel is different from their pre-transition digital channel and for those stations whose post-transition channel is the same as their pre-transition channel but that are subject to a unique technical challenge that has been specifically recognized as such by the Commission.

(2) For the purposes of paragraph (d)(1):

(i) The term, "network," is defined to include the ABC, CBS, NBC, and Fox television networks;

(ii) The term, "television market," is defined as the Designated Market Area or DMA as defined by Nielsen Media Research as of April 3, 1997; and

(iii) The terms, "network-affiliated" or "network-affiliate," are defined to include those television stations affiliated with at least one of the four networks designated in paragraph (d)(2)(i) as of April 3, 1997. In those DMAs in which a network has more than one network affiliate, paragraphs (d)(1) (i) and (ii) of this section shall apply to its network affiliate with the largest audience share for the 9 a.m. to midnight time period as measured by Nielsen Media Research in its Nielsen Station Index, Viewers in Profile, as of February, 1997.

(3) *Authority delegated.* (i) Authority is delegated to the Chief, Media Bureau

to grant an extension of time of up to six months beyond the relevant construction deadline specified in paragraph (d)(1) of this section upon demonstration by the DTV licensee or permittee that failure to meet that construction deadline is due to circumstances that are either unforeseeable or beyond the licensee's control where the licensee has taken all reasonable steps to resolve the problem expeditiously.

(ii) For construction deadlines occurring prior to February 18, 2009, the following circumstances may include, but shall not be limited to:

(A) Inability to construct and place in operation a facility necessary for transmitting digital television, such as a tower, because of delays in obtaining zoning or FAA approvals, or similar constraints; or

(B) Where the licensee or permittee is currently the subject of a bankruptcy or receivership proceeding, or is experiencing severe financial hardship as defined by negative cash flow for the past three years.

(iii) For construction deadlines occurring after February 17, 2009, the tolling provisions of § 73.3598 shall apply.

(iv) The Bureau may grant no more than two extension requests upon delegated authority. Subsequent extension requests shall be referred to the Commission. The Bureau may deny extension requests upon delegated authority.

(v) Applications for extension of time shall be filed no earlier than 90 and no later than 60 days prior to the relevant construction deadline, absent a showing of sufficient reasons for filing within less than 60 days of the relevant construction deadline.

(e) The application for construction permit must be filed on Form 301 (except for noncommercial stations, which must file on Form 340) on or before the date on which half of the construction period has elapsed. Thus, for example, for applicants in category (d)(1)(i), the application for construction period must be filed by May 1, 1998.

(f)(1) Commencing on April 1, 2003, DTV television licensees and permittees required to construct and operate a DTV station by May 1, 2002, or May 1, 2003, must transmit at least one over-

the-air video program signal at no direct charge to viewers on their DTV channel at least 50 percent of the time they are transmitting a video program signal on their analog channel.

(2) Commencing on April 1, 2004, DTV licensees and permittees described in paragraph (f)(1) of this section must transmit a video program signal as described in paragraph (f)(1) of this section on the DTV channel at least 75 percent of the time they are transmitting a video program signal on the analog channel.

(3) Commencing on April 1, 2005, DTV licensees and permittees described in paragraph (f)(1) of this section must transmit a video program signal as described in paragraph (f)(1) of this section on the DTV channel at least 100 percent of the time they are transmitting a video program signal on the analog channel.

(4) The minimum operating hours requirements imposed in paragraphs (f)(1) through (3) of this section will terminate when the analog channel terminates operation and a 6 MHz channel is returned by the DTV licensee or permittee to the Commission.

(g) Commercial and noncommercial DTV licensees and permittees must annually remit a fee of five percent of the gross revenues derived from all ancillary or supplementary services, as defined by paragraph (b) of this section, which are *feeable*, as defined in paragraphs (g)(2)(i) through (ii) of this section.

(1)(i) All ancillary or supplementary services for which payment of a subscription fee or charge is required in order to receive the service are feeable. The fee required by this provision shall be imposed on any and all revenues from such services, including revenues derived from subscription fees and from any commercial advertisements transmitted on the service.

(ii) Any ancillary or supplementary service for which no payment is required from consumers in order to receive the service is feeable if the DTV licensee directly or indirectly receives compensation from a third party in return for the transmission of material provided by that third party (other than commercial advertisements used to support broadcasting for which a

## Federal Communications Commission

## § 73.625

subscription fee is not required). The fee required by this provision shall be imposed on any and all revenues from such services, other than revenues received from a third party in return for the transmission of commercial advertisements used to support broadcasting for which a subscription fee is not required.

(2) *Payment of fees.* (i) Each December 1, all commercial and noncommercial DTV licensees and permittees will electronically report whether they provided ancillary or supplementary services in the 12-month period ending on the preceding September 30. Licensees and permittees will further report, for the applicable period:

(A) A brief description of the services provided;

(B) Which services were feeable ancillary or supplementary services;

(C) Whether any ancillary or supplementary services provided were not subject to a fee;

(D) Gross revenues received from all feeable ancillary and supplementary services provided during the applicable period; and

(E) The amount of bitstream used to provide ancillary or supplementary services during the applicable period. Licensees and permittees will certify under penalty of perjury the accuracy of the information reported. Failure to file regardless of revenues from ancillary or supplementary services or provision of such services may result in appropriate sanctions.

(ii) If a commercial or noncommercial DTV licensee or permittee has provided feeable ancillary or supplementary services at any point during a 12-month period ending on September 30, the licensee or permittee must additionally file the FCC's standard remittance form (Form 159) on the subsequent December 1. Licensees and permittees will certify the amount of gross revenues received from feeable ancillary or supplementary services for the applicable 12-month period and will remit the payment of the required fee.

(iii) The Commission reserves the right to audit each licensee's or permittee's records which support the calculation of the amount specified on line 23A of Form 159. Each licensee or permittee, therefore, is required to re-

tain such records for three years from the date of remittance of fees.

[62 FR 26989, May 16, 1997, as amended at 63 FR 15784, Apr. 1, 1998; 63 FR 69216, Dec. 16, 1998; 64 FR 4327, Jan. 28, 1999; 66 FR 58982, Nov. 26, 2001; 66 FR 65135, Dec. 18, 2001; 67 FR 13232, Mar. 21, 2002; 67 FR 38423, June 4, 2002; 69 FR 59535, Oct. 4, 2004; 73 FR 5683, Jan. 30, 2008]

EFFECTIVE DATE NOTE: At 73 FR 5683, Jan. 30, 2008, § 73.624 was amended by revising paragraphs (g) introductory text and (g)(2). These paragraphs contain information collection and recordkeeping requirements and will not become effective until approval has been given by the Office of Management and Budget.

### § 73.625 DTV coverage of principal community and antenna system.

(a) *Transmitter location.* (1) The DTV transmitter location shall be chosen so that, on the basis of the effective radiated power and antenna height above average terrain employed, the following minimum F(50,90) field strength in dB above one uV/m will be provided over the entire principal community to be served:

Channels 2-6 .....	35 dBu
Channels 7-13 .....	43 dBu
Channels 14-69 .....	48 dBu

NOTE TO PARAGRAPH (a)(1): These requirements above do not become effective until December 31, 2004 for commercial television licensees and December 31, 2005 for non-commercial television licensees. Prior to those dates, the following minimum F(50,90) field strength in dB above one uV/m must be provided over the entire principal community to be served:

Channels 2-6 .....	28 dBu
Channels 7-13 .....	36 dBu
Channels 14-69 .....	41 dBu

(2) The location of the antenna must be so chosen that there is not a major obstruction in the path over the principal community to be served.

(3) For the purposes of this section, coverage is to be determined in accordance with paragraph (b) of this section. Under actual conditions, the true coverage may vary from these estimates because the terrain over any specific path is expected to be different from the average terrain on which the field strength charts were based. Further,

the actual extent of service will usually be less than indicated by these estimates due to interference from other stations. Because of these factors, the predicted field strength contours give no assurance of service to any specific percentage of receiver locations within the distances indicated.

(b) *Determining coverage.* (1) In predicting the distance to the field strength contours, the F (50,50) field strength charts (Figures 9, 10 and 10b of § 73.699 of this part) and the F (50,10) field strength charts (Figures 9a, 10a and 10c of § 73.699 of this part) shall be used. To use the charts to predict the distance to a given F (50,90) contour, the following procedure is used: Convert the effective radiated power in kilowatts for the appropriate azimuth into decibel value referenced to 1 kW (dBk). Subtract the power value in dBk from the contour value in dBu. Note that for power less than 1 kW, the difference value will be greater than the contour value because the power in dBk is negative. Locate the difference value obtained on the vertical scale at the left edge of the appropriate F (50,50) chart for the DTV station's channel. Follow the horizontal line for that value into the chart to the point of intersection with the vertical line above the height of the antenna above average terrain for the appropriate azimuth located on the scale at the bottom of the chart. If the point of intersection does not fall exactly on a distance curve, interpolate between the distance curves below and above the intersection point. The distance values for the curves are located along the right edge of the chart. Using the appropriate F (50,10) chart for the DTV station's channel, locate the point where the distance coincides with the vertical line above the height of the antenna above average terrain for the appropriate azimuth located on the scale at the bottom of the chart. Follow a horizontal line from that point to the left edge of the chart to determine the F (50,10) difference value. Add the power value in dBk to this difference value to determine the F (50,10) contour value in dBu. Subtract the F (50,50) contour value in dBu from this F (50,10) contour value in dBu. Subtract this difference from the F (50,50) con-

tour value in dBu to determine the F (50,90) contour value in dBu at the pertinent distance along the pertinent radial.

(2) The effective radiated power to be used is that radiated at the vertical angle corresponding to the depression angle between the transmitting antenna center of radiation and the radio horizon as determined individually for each azimuthal direction concerned. In cases where the relative field strength at this depression angle is 90% or more of the maximum field strength developed in the vertical plane containing the pertaining radial, the maximum radiation shall be used. The depression angle is based on the difference in elevation of the antenna center of radiation above the average terrain and the radio horizon, assuming a smooth spherical earth with a radius of 8,495.5 kilometers (5,280 miles) and shall be determined by the following equation:

$$A = 0.0277 \text{ square root of } H$$

Where:

A is the depression angle in degrees.

H is the height in meters of the transmitting antenna radiation center above average terrain of the 3.2–16.1 kilometers (2–10 miles) sector of the pertinent radial.

This formula is empirically derived for the limited purpose specified here. Its use for any other purpose may be inappropriate.

(3) Applicants for new DTV stations or changes in the facilities of existing DTV stations must submit to the FCC a showing as to the location of their stations' or proposed stations' contour. This showing is to include a map showing this contour, except where applicants have previously submitted material to the FCC containing such information and it is found upon careful examination that the contour locations indicated therein would not change, on any radial, when the locations are determined under this section. In the latter cases, a statement by a qualified engineer to this effect will satisfy this requirement and no contour maps need be submitted.

(4) The antenna height to be used with these charts is the height of the radiation center of the antenna above the average terrain along the radial in question. In determining the average

elevation of the terrain, the elevations between 3.2–16.1 kilometers (2–10 miles) from the antenna site are employed. Profile graphs shall be drawn for 8 radials beginning at the antenna site and extending 16.1 kilometers (10 miles) therefrom. The radials should be drawn for each 45 degrees of azimuth starting with True North. At least one radial must include the principal community to be served even though such community may be more than 16.1 kilometers (10 miles) from the antenna site. However, in the event none of the evenly spaced radials include the principal community to be served and one or more such radials are drawn in addition to the 8 evenly spaced radials, such additional radials shall not be employed in computing the antenna height above average terrain. Where the 3.2–16.1 kilometers (2–10 mile) portion of a radial extends in whole or in part over large bodies of water (such as ocean areas, gulfs, sounds, bays, large lakes, etc., but not rivers) or extends over foreign territory but the contour encompasses land area within the United States beyond the 16.1 kilometers (10 mile) portion of the radial, the entire 3.2–16.1 kilometers (2–10 mile) portion of the radial shall be included in the computation of antenna height above average terrain. However, where the contour does not so encompass United States land area and (1) the entire 3.2–16.1 kilometers (2–10 mile) portion of the radial extends over large bodies of water or foreign territory, such radial shall be completely omitted from the computation of antenna height above average terrain, and (2) where a part of the 3.2–16.1 kilometers (2–10 mile) portion of a radial extends over large bodies of water or over foreign territory, only that part of the radial extending from the 3.2 kilometer (2 mile) sector to the outermost portion of land area within the United States covered by the radial shall be employed in the computation of antenna height above average terrain. The profile graph for each radial should be plotted by contour intervals of from 12.2–30.5 meters (40–100 feet) and, where the data permits, at least 50 points of elevation (generally uniformly spaced) should be used for each radial. In instances of very rugged terrain where

the use of contour intervals of 30.5 meters (100 feet) would result in several points in a short distance, 61.0–122.0 meter (200–400 foot) contour intervals may be used for such distances. On the other hand, where the terrain is uniform or gently sloping the smallest contour interval indicated on the topographic map (see paragraph (b)(5) of this section) should be used, although only relatively few points may be available. The profile graphs should indicate the topography accurately for each radial, and the graphs should be plotted with the distance in kilometers as the abscissa and the elevation in meters above mean sea level as the ordinate. The profile graphs should indicate the source of the topographical data employed. The graph should also show the elevation of the center of the radiating system. The graph may be plotted either on rectangular coordinate paper or on special paper which shows the curvature of the earth. It is not necessary to take the curvature of the earth into consideration in this procedure, as this factor is taken care of in the charts showing signal strengths. The average elevation of the 12.9 kilometer (8 miles) distance between 3.2–16.1 kilometers (2–10 miles) from the antenna site should then be determined from the profile graph for each radial. This may be obtained by averaging a large number of equally spaced points, by using a planimeter, or by obtaining the median elevation (that exceeded for 50% of the distance) in sectors and averaging those values. In directions where the terrain is such that negative antenna heights or heights below 30.5 meters (100 feet) for the 3.2 to 16.1 kilometers (2 to 10 mile) sector are obtained, an assumed height of 30.5 meters (100 feet) shall be used for the prediction of coverage. However, where the actual contour distances are critical factors, a supplemental showing of expected coverage must be included together with a description of the method employed in predicting such coverage. In special cases, the Commission may require additional information as to terrain and coverage.

(5) In the preparation of the profile graph previously described, and in determining the location and height

above sea level of the antenna site, the elevation or contour intervals shall be taken from the United States Geological Survey Topographic Quadrangle Maps, United States Army Corps of Engineers' maps or Tennessee Valley Authority maps, whichever is the latest, for all areas for which such maps are available. If such maps are not published for the area in question, the next best topographic information should be used. Topographic data may sometimes be obtained from State and Municipal agencies. Data from Sectional Aeronautical Charts (including bench marks) or railroad depot elevations and highway elevations from road maps may be used where no better information is available. In cases where limited topographic data is available, use may be made of an altimeter in a car driven along roads extending generally radially from the transmitter site. United States Geological Survey Topographic Quadrangle Maps may be obtained from the United States Geological Survey, Department of the Interior, Washington, D.C. 20240. Sectional Aeronautical Charts are available from the United States Coast and Geodetic Survey, Department of Commerce, Washington, D.C. 20235. In lieu of maps, the average terrain elevation may be computer generated, except in the cases of dispute, using elevations from a 30 second point or better topographic data file. The file must be identified and the data processed for intermediate points along each radial using linear interpolation techniques. The height above mean sea level of the antenna site must be obtained manually using appropriate topographic maps.

(c) *Antenna system.* (1) The antenna system shall be designed so that the effective radiated power at any angle above the horizontal shall be as low as the state of the art permits, and in the same vertical plane may not exceed the effective radiated power in either the horizontal direction or below the horizontal, whichever is greater.

(2) An antenna designed or altered to produce a noncircular radiation pattern in the horizontal plane is considered to be a directional antenna. Antennas purposely installed in such a manner as to result in the mechanical beam tilting of the major vertical radi-

ation lobe are included in this category.

(3) Applications proposing the use of directional antenna systems must be accompanied by the following:

(i) Complete description of the proposed antenna system, including the manufacturer and model number of the proposed directional antenna.

(ii) Relative field horizontal plane pattern (horizontal polarization only) of the proposed directional antenna. A value of 1.0 should be used for the maximum radiation. The plot of the pattern should be oriented so that 0 degrees corresponds to true North. Where mechanical beam tilt is intended, the amount of tilt in degrees of the antenna vertical axis and the orientation of the downward tilt with respect to true North must be specified, and the horizontal plane pattern must reflect the use of mechanical beam tilt.

(iii) A tabulation of the relative field pattern required in paragraph (c)(3)(ii) of this section. The tabulation should use the same zero degree reference as the plotted pattern, and be tabulated at least every 10 degrees. In addition, tabulated values of all maxima and minima, with their corresponding azimuths, should be submitted.

(iv) Horizontal and vertical plane radiation patterns showing the effective radiated power, in dBk, for each direction. Sufficient vertical plane patterns must be included to indicate clearly the radiation characteristics of the antenna above and below the horizontal plane. In cases where the angles at which the maximum vertical radiation varies with azimuth, a separate vertical radiation pattern must be provided for each pertinent radial direction.

(v) All horizontal plane patterns must be plotted to the largest scale possible on unglazed letter-size polar coordinate paper (main engraving approximately 18 cm×25 cm (7 inches×10 inches)) using only scale divisions and subdivisions of 1, 2, 2.5, or 5 times 10<sup>−n</sup>th. All vertical plane patterns must be plotted on unglazed letter-size rectangular coordinate paper. Values of field strength on any pattern less than 10 percent of the maximum field strength plotted on that pattern must be shown on an enlarged scale.

(vi) The horizontal and vertical plane patterns that are required are the patterns for the complete directional antenna system. In the case of a composite antenna composed of two or more individual antennas, this means that the patterns for the composite antenna, not the patterns for each of the individual antennas, must be submitted.

(4) Where simultaneous use of antennas or antenna structures is proposed, the following provisions shall apply:

(i) In cases where it is proposed to use a tower of an AM broadcast station as a supporting structure for a DTV broadcast antenna, an appropriate application for changes in the radiating system of the AM broadcast station must be filed by the licensee thereof. A formal application (FCC Form 301, or FCC Form 340 for a noncommercial educational station) will be required if the proposal involves substantial change in the physical height or radiation characteristics of the AM broadcast antennas; otherwise an informal application will be acceptable. (In case of doubt, an informal application (letter) together with complete engineering data should be submitted.) An application may be required for other classes of stations when the tower is to be used in connection with a DTV station.

(ii) When the proposed DTV antenna is to be mounted on a tower in the vicinity of an AM station directional antenna system and it appears that the operation of the directional antenna system may be affected, an engineering study must be filed with the DTV application concerning the effect of the DTV antenna on the AM directional radiation pattern. Field measurements of the AM stations may be required prior to and following construction of the DTV station antenna, and readjustments made as necessary.

(5) Applications proposing the use of electrical beam tilt pursuant to section 73.622(f)(4) must be accompanied by the following:

(i) Complete description of the proposed antenna system, including the manufacturer and model number. Vertical plane radiation patterns conforming with paragraphs (c)(3)(iv), (c)(3)(v) and (c)(3)(vi) of this section.

(ii) For at least 36 evenly spaced radials, including 0 degrees corresponding to true North, a determination of the depression angle between the transmitting antenna center of radiation and the radio horizon using the formula in paragraph (b)(2) of this section.

(iii) For each such radial direction, the ERP at the depression angle, taking into account the effect of the electrical beam tilt, mechanical beam tilt, if used, and directional antenna pattern if a directional antenna is specified.

(iv) The maximum ERP toward the radio horizon determined by this process must be clearly indicated. In addition, a tabulation of the relative fields representing the effective radiation pattern toward the radio horizon in the 36 radial directions must be submitted. A value of 1.0 should be used for the maximum radiation.

[62 FR 26990, May 16, 1997, as amended at 63 FR 13562, Mar. 20, 1998; 66 FR 9985, Feb. 13, 2001; 66 FR 65135, Dec. 18, 2001]

#### § 73.635 Use of common antenna site.

No television license or renewal of a television license will be granted to any person who owns, leases, or controls a particular site which is peculiarly suitable for television broadcasting in a particular area and (a) which is not available for use by other television licensees; and (b) no other comparable site is available in the area; and (c) where the exclusive use of such site by the applicant or licensee would unduly limit the number of television stations that can be authorized in a particular area or would unduly restrict competition among television stations.

[28 FR 13660, Dec. 14, 1963]

#### § 73.641 Subscription TV definitions.

(a) *Subscription television.* A system whereby subscription television programs are transmitted and received.

(b) *Subscription television program.* A television broadcast program intended to be received in intelligible form for a fee or charge.

[52 FR 6154, Mar. 2, 1987]



**§ 73.642 Subscription TV service.**

(a) Subscription TV service may be provided by:

(1) Licensees and permittees of commercial and noncommercial TV stations, and

(2) Licensees and permittees of low power TV stations.

(b) A licensee or permittee of a commercial or noncommercial TV station or a low power TV station may begin subscription TV service upon installation of encoding equipment having advance FCC approval. However, the licensee or permittee of a TV broadcast station (not applicable to low power TV stations) must send a letter to the FCC in Washington, DC, that subscription TV service will commence at least 30 days prior to commencement of such service. In that letter, to be entitled "Notice of Commencement of STV Operations," the licensee or permittee is to state that it will comply with the provisions of paragraphs (e)(1) through (e)(3) and § 73.644(c) of this chapter and identify the make and type of encoding system to be used. A similar notice must be submitted if the licensee or permittee commences using another type of encoding system. (See section 644(h).) A notice must also be submitted to the FCC in Washington, DC, if encoded subscription TV service is to be discontinued, at least 30 days prior to such discontinuance.

(c) The station proof of system compliance measurement data (see § 73.644(c)) need not be submitted to the FCC, however, the measurement data must be available to the FCC upon request.

(d) The use of the visual vertical blanking interval or an aural subcarrier for transmitting subscriber decoder control code signals during periods of normal non-encoded programming may be used only upon specific FCC authorization. Letter requests to use either the video blanking intervals or aural subcarriers during periods of non-subscription programming are to be sent to the FCC in Washington, D.C.

(e) A licensee or permittee of a commercial or noncommercial TV broadcast or low power TV station may not transmit a subscription service if it has a contract, arrangement, or understanding expressed or implied, that:

(1) Prevents or hinders it from rejecting or refusing any subscription TV broadcast program that it reasonably believes to be unsatisfactory or unsuitable or contrary to the public interests; or substituting a subscription or conventional program that, in its opinion, is of greater local or national importance; or

(2) Delegates to any other person the right to schedule the hours of transmission of subscription programs. However, this rule does not prevent a licensee or permittee from entering into an agreement or arrangement whereby it agrees to schedule a specific subscription TV broadcast program at a specific time or to schedule a specific number of hours of subscription programs during the broadcast day (or segments thereof) or weeks; or

(3) Deprives it of the right of ultimate decision concerning the maximum amount of any subscription program charge or fee.

(4) Has provisions that do not comply with the following policies of the FCC:

(i) Unless a satisfactory signal is unavailable at the location where service is desired, subscription TV service must be provided to all persons desiring it within the Grade A contour of the station broadcasting subscription programs. Geographic or other reasonable patterns of installation for new subscription services is permitted and, for good cause, service may be terminated.

(ii) Charges, terms and conditions of service to subscribers must be applied uniformly. However, subscribers may be divided into reasonable classifications approved by the FCC, and the impositions of different sets of terms and conditions may be applied to subscribers in different classifications. Further, for good cause, within such classification, deposits may be required from some subscribers and not of others; and, also for good cause, if a subscription system generally uses a credit-type decoder, cash operated decoders may be installed for some subscribers.

[48 FR 56392, Dec. 21, 1983, as amended at 52 FR 6154, Mar. 2, 1987; 66 FR 58982, Nov. 26, 2001]

**§ 73.643 Subscription TV operating requirements.**

The non-technical rules and policies applicable to regular TV broadcast stations are applicable to subscription TV operations, except where specifically exempted in the provisions of those rules and policies.

[48 FR 56392, Dec. 21, 1983]

**§ 73.644 Subscription TV transmission systems.**

(a) Licensees and permittees of commercial and noncommercial TV broadcast and low power TV stations may conduct subscription operations only by using an encoding system that has been approved in advance by the FCC. Such advance approval may be applied for and granted in accordance with the procedures given in Subpart M Part 2 of the Rules.

(b) The criteria for advance approval of subscription TV transmitting systems by the FCC are as follows:

(1) Spectral energy in the transmitted signal must not exceed the limitations given in § 73.687(e).

(2) No increase in width of the television broadcast channel (6 MHz.) is permitted.

(3) The technical system must enable stations to transmit encoded subscription TV programs without increasing the RMS output power from either the video or audio transmitters over that required to transmit the same program material using normal transmission standards.

(4) Modification of a type accepted TV broadcast or low power TV transmitter for encoded transmissions must not render transmitter incapable of operating in accordance with the operating specifications upon which type acceptance was granted. (See § 2.1001 (b), (k))

(5) Interference to reception of conventional television either of co-channel or adjacent channel stations must not increase over that resulting from the transmission of programming with normal transmission standards.

(6) Subscriber decoder devices must meet the provisions, where required, of Subpart H of Part 15 of the FCC Rules for TV Interface Devices.

(c) Prior to commencing the transmission of encoded subscription programming, the licensee or permittee of a TV broadcast or low power TV station must perform such tests and measurements to determine that the transmitted encoded signal conforms to the radiated radio frequency and demodulated baseband and waveforms, transmitter operating power determination, and the occupied bandwidth limitations specified in the application for advance FCC approval of the system being used. A copy of the measurement data is to be maintained in the station files and made available to the FCC upon request.

(d) The licensee of a station transmitting an encoded subscription service must have at the transmitter control point the technical specifications for the system being used of both the aural and visual baseband signals and the transmitted radiofrequency signals, and have the necessary measuring and monitoring equipment, including transmitter output power measuring equipment, to determine that the transmissions conform to the advance approval specifications on file with the FCC. Full operating specifications for the system must be available to representatives of the FCC upon request.

(e) The operating power of the transmitters during encoded operations must be determined and maintained according to the procedures given in the application for advance approval.

(f) A station using an encoding system in accordance with the specifications filed with the application for advance approval is deemed to be exempted from those technical regulations of this Subpart and Subpart H to the extent they are specifically detailed in the application.

(g) No protection from interference of any kind will be afforded to reception of encoded subscription programming over that afforded reception of non-encoded signals.

(h) A licensee or permittee may make no modifications on a subscription encoding system that would alter the characteristics of the transmitted aural or visual signal from those specified in the application for advance approval. A licensee or permittee of a station replacing its encoding system

must perform the measurements required by paragraph (c) of this section. A TV broadcast station licensee or permittee must also send a letter advising the FCC of the new system being used as required by § 73.642(b) of this chapter.

(i) The station licensee is fully responsible for all technical operations of the station during transmissions of encoded subscription programming, regardless of the supplier of the encoding equipment or subscription program service.

NOTE: Stations transmitting encoded subscription programming prior to October 1, 1983, must comply with all technical and operating requirements of this Section no later than April 1, 1984. Stations not having the information to comply with this Section must obtain such information from the manufacturer of the encoding system being used, and if necessary, by measurements of the station's transmission system.

(j) Upon request by an authorized representative of the FCC, the licensee of a TV station transmitting encoded programming must make available a receiving decoder to the Commission to carry out its regulatory responsibilities.

[48 FR 56392, Dec. 21, 1983, as amended at 57 FR 48333, Oct. 23, 1992; 66 FR 58982, Nov. 26, 2001]

**§ 73.646 Telecommunications Service on the Vertical Blanking Interval and in the Visual Signal.**

(a) Telecommunications services permitted on the vertical blanking interval (VBI) and in the visual signal include the transmission of data, processed information, or any other communication in either a digital or analog mode.

(b) Telecommunications service on the VBI and in the visual signal is of an ancillary nature and as such is an elective, subsidiary activity. No service guidelines, limitations, or performance standards are applied to it. The kinds of service that may be provided include, but are not limited to, teletext, paging, computer software and bulk data distribution, and aural messages. Such services may be provided on a broadcast, point-to-point, or point to multipoint basis.

(c) Telecommunications services that are common carrier in nature are subject to common carrier regulation. Licensees operating such services are required to apply to the Commission for the appropriate authorization and to comply with all policies and rules applicable to the particular service.

(d) Television licensees are authorized to lease their VBI and visual signal telecommunications facilities to outside parties. In all arrangements entered into with outside parties affecting telecommunications service operation, the licensee or permittee must retain control over all material transmitted in a broadcast mode via the station's facilities, with the right to reject any material that it deems inappropriate or undesirable. The licensee or permittee is also responsible for all aspects of technical operation involving such telecommunications services.

(e) The grant or renewal of a TV station license or permit will not be furthered or promoted by proposed or past VBI or visual signal telecommunications service operation; the licensee must establish that its broadcast operation serves the public interest wholly apart from such telecommunications service activities. (Violation of rules applicable to VBI and visual signal telecommunications services could, of course, reflect on a licensee's qualifications to hold its license or permit.)

(f) TV broadcast stations are authorized to transmit VBI and visual telecommunications service signals during any time period, including portions of the day when normal programming is not broadcast. Such transmissions must be in accordance with the technical provisions of § 73.682.

[50 FR 4663, Feb. 1, 1985, as amended at 50 FR 9035, Mar. 6, 1985; 61 FR 36304, July 10, 1996]

**§ 73.653 Operation of TV aural and visual transmitters.**

The aural and visual transmitters may be operated independently of each other or, if operated simultaneously, may be used with different and unrelated program material.

[54 FR 9806, Mar. 8, 1989]

**§ 73.658 Affiliation agreements and network program practices; territorial exclusivity in non-network program arrangements.**

(a) *Exclusive affiliation of station.* No license shall be granted to a television broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization under which the station is prevented or hindered from, or penalized for, broadcasting the programs of any other network organization. (The term “network organization” as used in this section includes national and regional network organizations. See ch. VII, J, of Report on Chain Broadcasting.)

(b) *Territorial exclusivity.* No license shall be granted to a television broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization which prevents or hinders another broadcast station located in the same community from broadcasting the network’s programs not taken by the former station, or which prevents or hinders another broadcast station located in a different community from broadcasting any program of the network organization. This section shall not be construed to prohibit any contract, arrangement, or understanding between a station and a network organization pursuant to which the station is granted the first call in its community upon the programs of the network organization. As employed in this paragraph, the term “community” is defined as the community specified in the instrument of authorization as the location of the station.

(c) [Reserved]

(d) *Station commitment of broadcast time.* No license shall be granted to a television broadcast station having any contract, arrangement, or understanding, express or implied, with any network organization, which provides for optioning of the station’s time to the network organization, or which has the same restraining effect as time optioning. As used in this section, time optioning is any contract, arrangement, or understanding, express or implied, between a station and a network organization which prevents or hinders the station from scheduling programs before the network agrees to utilize the

time during which such programs are scheduled, or which requires the station to clear time already scheduled when the network organization seeks to utilize the time.

(e) *Right to reject programs.* No license shall be granted to a television broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization which, with respect to programs offered or already contracted for pursuant to an affiliation contract, prevents or hinders the station from:

(1) Rejecting or refusing network programs which the station reasonably believes to be unsatisfactory or unsuitable or contrary to the public interest, or

(2) Substituting a program which, in the station’s opinion, is of greater local or national importance.

(f) [Reserved]

(g) *Dual network operation.* A television broadcast station may affiliate with a person or entity that maintains two or more networks of television broadcast stations *unless* such dual or multiple networks are composed of two or more persons or entities that, on February 8, 1996, were “networks” as defined in § 73.3613(a)(1) of the Commission’s regulations (that is, ABC, CBS, Fox, and NBC).

(h) *Control by networks of station rates.* No license shall be granted to a television broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization under which the station is prevented or hindered from, or penalized for, fixing or altering its rates for the sale of broadcast time for other than the network’s programs.

(i) No license shall be granted to a television broadcast station which is represented for the sale of non-network time by a network organization or by an organization directly or indirectly controlled by or under common control with a network organization, if the station has any contract, arrangement or understanding, express or implied, which provides for the affiliation of the station with such network organization: *Provided, however,* That this rule shall not be applicable to stations licensed to a network organization or to a subsidiary of a network organization.

(j)–(l) [Reserved]

(m) *Territorial exclusivity in non-network arrangements.* (1) No television station shall enter into any contract, arrangement, or understanding, expressed or implied; with a non-network program producer, distributor, or supplier, or other person; which prevents or hinders another television station located in a community over 56.3 kilometers (35 miles) away, as determined by the reference points contained in § 76.53 of this chapter, (if reference points for a community are not listed in § 76.53, the location of the main post office will be used) from broadcasting any program purchased by the former station from such non-network program producer, distributor, supplier, or other person, except that a television station may secure exclusivity against a television station licensed to another designated community in a hyphenated market specified in the market listing as contained in § 76.51 of this chapter for those 100 markets listed, and for markets not listed in § 76.51 of this chapter, the listing as contained in the Nielsen Media Research DMA Rankings for the most recent year at the time that the exclusivity contract, arrangement or understanding is complete under practices of the industry. As used in this paragraph, the term “community” is defined as the community specified in the instrument of authorization as the location of the station.

(2) Notwithstanding paragraph (m)(1) of this section, a television station may enter into a contract, arrangement, or understanding with a producer, supplier, or distributor of a non-network program if that contract, arrangement, or understanding provides that the broadcast station has exclusive national rights such that no other television station in the United States may broadcast the program.

NOTE 1: Contracts, arrangements, or understandings that are complete under the practices of the industry prior to August 7, 1973, will not be disturbed. Extensions or renewals of such agreements are not permitted because they would in effect be new agreements without competitive bidding. However, such agreements that were based on the broadcaster’s advancing “seed money” for the production of a specific program or series that specify two time periods—a try-

out period and period thereafter for general exhibition—may be extended or renewed as contemplated in the basic agreement.

NOTE 2: It is intended that the top 100 major television markets listed in § 76.51 of this chapter shall be used for the purposes of this rule and that the listing of the top 100 television markets appearing in the ARB Television Market Analysis shall not be used. The reference in this rule to the listing of markets in the ARB Television Market Analysis refers to hyphenated markets below the top-100 markets contained in the ARB Television Market Analysis. If a community is listed in a hyphenated market in § 76.51 and is also listed in one of the markets in the ARB listing, the listing in § 76.51 shall govern.

NOTE 3: The provisions of this paragraph apply only to U.S. commercial television broadcast stations in the 50 states, and not to stations in Puerto Rico or the Virgin Islands, foreign stations or noncommercial educational television or “public” television stations (either by way of restrictions on their exclusivity or on exclusivity against them).

NOTE 4: New stations authorized in any community of a hyphenated market listed in § 76.51 of this chapter or in any community of a hyphenated market listed in the ARB Television Market Analysis (for markets below the top-100 markets) are subject to the same rules as previously existing stations therein. New stations authorized in other communities are considered stations in separate markets unless and until § 76.51 is amended by Commission action, or the ARB listing is changed.

(Sec. 5, 48 Stat. 1068 (47 U.S.C. 155))

[28 FR 13660, Dec. 14, 1963]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 73.658, see the List of CFR Sections Affected which appears in the Finding Aids section of the printed volume and on GPO Access.

§§ 73.659–73.663 [Reserved]

**§ 73.664 Determining operating power.**

(a) The operating power of each TV visual transmitter shall normally be determined by the direct method.

(b) *Direct method, visual transmitter.* The direct method of power determination for a TV visual transmitter uses the indications of a calibrated transmission line meter (responsive to peak power) located at the RF output terminals of the transmitter. The indications of the calibrated meter are used to observe and maintain the authorized

operating power of the visual transmitter. This meter must be calibrated whenever any component in the metering circuit is repaired or replaced and as often as necessary to ensure operation in accordance with the provisions of § 73.1560 of this part. The following calibration procedures are to be used:

(1) The transmission line meter is calibrated by measuring the average power at the output terminals of the transmitter, including any vestigial sideband and harmonic filters which may be used in normal operation. For this determination the average power output is measured while operating into a dummy load of substantially zero reactance and a resistance equal to the transmission line characteristic impedance. During this measurement the transmitter is to be modulated only by a standard synchronizing signal with blanking level set at 75% of peak amplitude as observed in an output waveform monitor, and with this blanketing level amplitude maintained throughout the time interval between synchronizing pulses.

(2) If electrical devices are used to determine the output power, such devices must permit determination of this power to within an accuracy of  $\pm 5\%$  of the power indicated by the full scale reading of the electrical indicating instrument of the device. If temperature and coolant flow indicating devices are used to determine the power output, such devices must permit determination of this power to within an accuracy of  $\pm 4\%$  of measured average power output. The peak power output is the power so measured in the dummy load multiplied by the factor 1.68. During this measurement the input voltage and current to the final radio frequency amplifier stage and the transmission line meter are to be read and compared with similar readings taken with the dummy load replaced by the antenna. These readings must be in substantial agreement.

(3) The meter must be calibrated with the transmitter operating at 80%, 100%, and 110% of the authorized power as often as may be necessary to maintain its accuracy and ensure correct transmitter operating power. In cases where the transmitter is incapable of operating at 110% of the authorized

power output, the calibration may be made at a power output between 100% and 110% of the authorized power output. However, where this is done, the output meter must be marked at the point of calibration of maximum power output, and the station will be deemed to be in violation of this rule if that power is exceeded. The upper and lower limits of permissible power deviation as determined by the prescribed calibration, must be shown upon the meter either by means of adjustable red markers incorporated in the meter or by red marks placed upon the meter scale or glass face. These markings must be checked and changed, if necessary, each time the meter is calibrated.

(c) *Indirect method, visual transmitter.* The operating power is determined by the indirect method by applying an appropriate factor to the input power to the final radio-frequency amplifier stage of the transmitter using the following formula:

Transmitter output power =  $E_p \times I_p \times F$

Where:

$E_p$  = DC input voltage of the final radio-frequency amplifier stage.

$I_p$  = DC input current of the final radio-frequency amplifier stage.

$F$  = Efficiency factor.

(1) If the above formula is not appropriate for the design of the transmitter final amplifier, use a formula specified by the transmitter manufacturer with other appropriate operating parameters.

(2) The value of the efficiency factor,  $F$  established for the authorized transmitter output power is to be used for maintaining the operating power, even though there may be some variation in  $F$  over the power operating range of the transmitter.

(3) The value of  $F$  is to be determined and a record kept thereof by one of the following procedures listed in order of preference:

(i) Using the most recent measurement data for calibration of the transmission line meter according to the procedures described in paragraph (b) of this section or the most recent measurements made by the licensee establishing the value of  $F$ . In the case of composite transmitters or those in

which the final amplifier stages have been modified pursuant to FCC approval, the licensee must furnish the FCC and also retain with the station records the measurement data used as a basis for determining the value of F.

(ii) Using measurement data shown on the transmitter manufacturer's test data supplied to the licensee, provided that measurements were made at the authorized carrier frequency and transmitter output power.

(iii) Using the transmitter manufacturer's measurement data submitted to the FCC for type acceptance as shown in the instruction book supplied to the licensee.

NOTE: Refer to § 73.1560 for aural transmitter output power levels.

[44 FR 58732, Oct. 11, 1979, as amended at 48 FR 44805, Sept. 30, 1983; 49 FR 4210, Feb. 3, 1984; 49 FR 22092, May 25, 1984; 49 FR 49851, Dec. 24, 1984; 50 FR 26568, June 27, 1985; 54 FR 9806, Mar. 8, 1989. Redesignated at 58 FR 62555, Nov. 29, 1993]

**§ 73.665 Use of TV aural baseband sub-carriers.**

Licensees of TV broadcast stations may transmit, without further authorization from the FCC, subcarriers and signals within the composite baseband for the following purposes:

(a) Stereophonic (biphonic, quadrasonic, etc.) sound programs under the provisions of §§ 73.667 and 73.669.

(b) Transmission of signals relating to the operation of TV stations, such as relaying broadcast materials to other stations, remote cueing and order messages, and control and telemetry signals for the transmitting system.

(c) Transmission of pilot or control signals to enhance the station's program service such as (but not restricted to) activation of noise reduction decoders in receivers, for any other receiver control purpose, or for program alerting and program identification.

(d) Subsidiary communications services.

[49 FR 18105, Apr. 27, 1984]

**§ 73.667 TV subsidiary communications services.**

(a) Subsidiary communications services are those transmitted within the

TV aural baseband signal, but do not include services which enhance the main program broadcast service or exclusively relate to station operations (see § 73.665(a), (b), and (c)). Subsidiary communications include, but are not limited to, services such as functional music, specialized foreign language programs, radio reading services, utility load management, market and financial data and news, paging and calling, traffic control signal switching, and point-to-point or multipoint messages.

(b) TV subsidiary communications services that are common carrier or private radio in nature are subject to common carrier or private radio regulation. Licensees operating such services are required to apply to the FCC for the appropriate authorization and to comply with all policies and rules applicable to the service. Responsibility for making the initial determinations of whether a particular activity requires separate authority rests with the TV station licensee or permittee. Initial determinations by licensees or permittees are subject to FCC examination and may be reviewed at the FCC's discretion.

(c) Subsidiary communications services are of a secondary nature under the authority of the TV station authorization, and the authority to provide such communications services may not be retained or transferred in any manner separate from the station's authorization. The grant or renewal of a TV station permit or license is not furthered or promoted by proposed or past subsidiary communications services. The permittee or licensee must establish that the broadcast operation is in the public interest wholly apart from the subsidiary communications services provided.

(d) The station identification, delayed recording, and sponsor identification announcement required by §§ 73.1201, 73.1208, and 73.1212 are not applicable to leased communications services transmitted via services that are not of a general broadcast nature.

(e) The licensee or permittee must retain control over all material transmitted in a broadcast mode via the station's facilities, with the right to reject any material that it deems inappropriate or undesirable.

[49 FR 18105, Apr. 27, 1984, as amended at 49 FR 27147, July 2, 1984; 56 FR 49707, Oct. 1, 1991]

**§ 73.669 TV stereophonic aural and multiplex subcarrier operation.**

(a) A TV broadcast station may without specific authority from the FCC, transmit multichannel aural programs upon installation of multichannel sound equipment. Prior to commencement of multichannel broadcasting, the equipment shall be measured in accordance with § 73.1690(e).

(b) Multiplex subcarriers may be used by a TV station pursuant to the provisions of § 73.665 and may be transmitted on a secondary, non-interference basis to broadcast programming without specific authority from the FCC. Transmissions must be conducted in accordance with the technical standards given in § 73.682(c).

(c) In all arrangements entered into with outside parties affecting non-common carrier subcarrier operation, the licensee or permittee must retain control over all material transmitted over the station's facilities, with the right to reject any material which is deemed inappropriate or undesirable. Subchannel leasing arrangements must be kept in writing at the station and made available to the FCC upon request.

[49 FR 18106, Apr. 27, 1984]

**§ 73.670 Commercial limits in children's programs.**

(a) No commercial television broadcast station licensee shall air more than 10.5 minutes of commercial matter per hour during children's programming on weekends, or more than 12 minutes of commercial matter per hour on weekdays.

(b) The display of Internet Web site addresses during program material or promotional material not counted as commercial time is permitted only if the Web site:

(1) Offers a substantial amount of bona fide program-related or other noncommercial content;

(2) Is not primarily intended for commercial purposes, including either e-commerce or advertising;

(3) The Web site's home page and other menu pages are clearly labeled to distinguish the noncommercial from the commercial sections; and

(4) The page of the Web site to which viewers are directed by the Web site address is not used for e-commerce, advertising, or other commercial purposes (e.g., contains no links labeled "store" and no links to another page with commercial material).

(c) If an Internet address for a Web site that does not meet the test in paragraph (b) of this section is displayed during a promotion in a children's program, in addition to counting against the commercial time limits in paragraph (a) of this section the promotion must be clearly separated from program material.

(d)(1) Entities subject to commercial time limits under the Children's Television Act shall not display a Web site address during or adjacent to a program if, at that time, on pages that are primarily devoted to free noncommercial content regarding that specific program or a character appearing in that program:

(i) Products are sold that feature a character appearing in that program; or

(ii) A character appearing in that program is used to actively sell products.

(2) The requirements of this paragraph do not apply to:

(i) Third-party sites linked from the companies' Web pages;

(ii) On-air third-party advertisements with Web site references to third-party Web sites; or

(iii) Pages that are primarily devoted to multiple characters from multiple programs.

NOTE 1: *Commercial matter* means air time sold for purposes of selling a product or service and promotions of television programs or video programming services other than children's or other age-appropriate programming appearing on the same channel or promotions for children's educational and informational programming on any channel.



## § 73.671

## 47 CFR Ch. I (10–1–08 Edition)

NOTE 2: For purposes of this section, children's programming refers to programs originally produced and broadcast primarily for an audience of children 12 years old and younger.

[70 FR 36, Jan. 3, 2005, as amended at 71 FR 64164, Nov. 1, 2006]

### § 73.671 Educational and informational programming for children.

(a) Each commercial and non-commercial educational television broadcast station licensee has an obligation to serve, over the term of its license, the educational and informational needs of children through both the licensee's overall programming and programming specifically designed to serve such needs.

(b) Any special nonbroadcast efforts which enhance the value of children's educational and informational television programming, and any special effort to produce or support educational and informational television programming by another station in the licensee's marketplace, may also contribute to meeting the licensee's obligation to serve, over the term of its license, the educational and informational needs of children.

(c) For purposes of this section, educational and informational television programming is any television programming that furthers the educational and informational needs of children 16 years of age and under in any respect, including the child's intellectual/cognitive or social/emotional needs. Programming specifically designed to serve the educational and informational needs of children ("Core Programming") is educational and informational programming that satisfies the following additional criteria:

(1) It has serving the educational and informational needs of children ages 16 and under as a significant purpose;

(2) It is aired between the hours of 7:00 a.m. and 10:00 p.m.;

(3) It is a regularly scheduled weekly program;

(4) It is at least 30 minutes in length;

(5) The program is identified as specifically designed to educate and inform children by the display on the television screen throughout the program of the symbol E/I;

(6) The educational and informational objective and the target child

audience are specified in writing in the licensee's Children's Television Programming Report, as described in § 73.3526(e)(11)(iii); and

(7) Instructions for listing the program as educational/informational, including an indication of the age group for which the program is intended, are provided by the licensee to publishers of program guides, as described in § 73.673.

(d) Until analog channels are returned to the Commission, the Commission will apply the following processing guideline to analog stations in assessing whether a television broadcast licensee has complied with the Children's Television Act of 1990 ("CTA") on its analog channel. A licensee that has aired at least three hours per week of Core Programming (as defined in paragraph (c) of this section and as averaged over a six month period) will be deemed to have satisfied its obligation to air such programming and shall have the CTA portion of its license renewal application approved by the Commission staff. A licensee will also be deemed to have satisfied this obligation and be eligible for such staff approval if the licensee demonstrates that it has aired a package of different types of educational and informational programming that, while containing somewhat less than three hours per week of Core Programming, demonstrates a level of commitment to educating and informing children that is at least equivalent to airing three hours per week of Core Programming. In this regard, specials, PSAs, short-form programs, and regularly scheduled non-weekly programs with a significant purpose of educating and informing children can count toward the three hour per week processing guideline. Licensees that do not meet these processing guidelines will be referred to the Commission, where they will have full opportunity to demonstrate compliance with the CTA (e.g., by relying in part on sponsorship of Core educational/informational programs on other stations in the market that increases the amount of Core educational and informational programming on the station airing the sponsored program and/or on special nonbroadcast efforts which enhance the value of children's

educational and informational television programming).

(e) The Commission will apply the following processing guideline to digital stations in assessing whether a television broadcast licensee has complied with the Children's Television Act of 1990 ("CTA") on its digital channel(s).

(1) A digital television licensee providing only one stream of free digital video programming will be subject to the 3 hour/week Core Programming processing guideline discussed in paragraph (d) of this section on that channel; *i.e.*, a licensee that has aired at least three hours per week of Core Programming (as defined in paragraph (c) of this section and as averaged over a six month period) on its main program stream will be deemed to have satisfied its obligation to air such programming and shall have the CTA portion of its license renewal application approved by the Commission staff. A licensee will also be deemed to have satisfied this obligation and be eligible for such staff approval if the licensee demonstrates that it has aired a package of different types of educational and informational programming that, while containing somewhat less than three hours per week of Core Programming, demonstrates a level of commitment to educating and informing children that is at least equivalent to airing three hours per week of Core Programming. In this regard, specials, PSAs, short-form programs, and regularly scheduled non-weekly programs with a significant purpose of educating and informing children can count toward the three hour per week processing guideline. Licensees that do not meet these processing guidelines will be referred to the Commission, where they will have full opportunity to demonstrate compliance with the CTA (e.g., by relying in part on sponsorship of Core educational/informational programs on other stations in the market that increases the amount of Core educational and informational programming on the station airing the sponsored program and/or on special nonbroadcast efforts which enhance the value of children's educational and informational television programming).

(2)(i) A digital television licensee providing streams of free digital video

programming in addition to its main program stream will be subject to the processing guideline described in paragraph (e)(1) of this section on its main program stream and to the following guideline applied to the additional programming: ½ hour per week of additional Core Programming (as defined in paragraph (c) of this section and as averaged over a six month period) for every increment of 1 to 28 hours of free video programming provided in addition to the main program stream. Thus, digital broadcasters providing between 1 and 28 hours per week of free video programming in addition to their main program stream will have a guideline of ½ hour per week of core programming in addition to the 3 hours per week on the main program stream. Digital broadcasters providing between 29 and 56 hours per week of free video programming in addition to their main program stream will have a guideline of 1 hour per week of core programming in addition to the 3 hours per week on the main program stream. Digital broadcasters providing between 57 and 84 hours per week of free video programming in addition to their main program stream will have a guideline of 1½ hours per week of core programming in addition to the 3 hours per week on the main program stream. The guideline will continue to increase in this manner for additional hours of free video programming.

(ii) Broadcasters providing more than one stream of free digital video programming may air all of their additional core programming, apart from the 3 hours of core programming that must be aired on the main program stream, on one free video channel, or distribute it across multiple free video channels, at their discretion, as long as the stream on which the core programming is aired has comparable MVPD carriage as the stream whose programming generates the core programming obligation under the processing guideline described in paragraph (e)(2)(i) of this section.

(3) For purposes of the guideline described in paragraph (e)(2) of this section, at least 50 percent of the core programming counted toward meeting the additional programming guideline cannot consist of program episodes that

had already aired within the previous seven days on either the station's main program stream or on another of the station's free digital program streams. This requirement does not apply to any program stream that merely time shifts the entire programming line-up of another program stream and, during the digital transition, to core programs aired on both the analog station and a digital program stream.

NOTE 1 TO § 73.671: For purposes of determining under this section whether programming has a significant purpose of serving the educational and informational needs of children, the Commission will ordinarily rely on the good faith judgments of the licensee. Commission review of compliance with that element of the definition will be done only as a last resort.

[56 FR 19616, Apr. 29, 1991. Redesignated at 56 FR 28825, June 25, 1991, as amended at 61 FR 43997, Aug. 27, 1996; 70 FR 37, Jan. 3, 2005; 71 FR 64165, Nov. 1, 2006]

EFFECTIVE DATE NOTE: At 70 FR 37, Jan. 3, 2005, in § 73.671, paragraph (c)(5) was revised, effective Jan. 1, 2006. This paragraph contains information collection and record-keeping requirements and will not become effective until approval has been given by the Office of Management and Budget.

**§ 73.672 [Reserved]**

**§ 73.673 Public information initiatives regarding educational and informational programming for children.**

Each commercial television broadcast station licensee shall provide information identifying programming specifically designed to educate and inform children to publishers of program guides. Such information shall include an indication of the age group for which the program is intended.

[70 FR 9877, Mar. 1, 2005]

**§ 73.674 Digital television transition notices by broadcasters.**

(a) Each full-power commercial and noncommercial educational television broadcast station licensee or permittee must air an educational campaign about the transition from analog broadcasting to digital television (DTV). For each such commercial station, a licensee or permittee must elect, by March 27, 2008 to comply with either paragraph (c) or (d) of this section. For each such noncommercial

station, a licensee or permittee must elect March 27, 2008 to comply with paragraph (c), (d), or (e) of this section. A licensee or permittee must note their election via the filing of Form 388 as required by §§ 73.3526 and 73.3527.

(b) The following requirements apply to paragraphs (c), (d), and (e) of this section:

(1) The station must comply with the requirements of the paragraph it elects with respect to its analog channel and its primary digital stream.

(2) Any Public Service Announcement aired to comply with these requirements must be closed-captioned, notwithstanding § 79.1(d)(6) of this chapter.

(3) The campaign must begin no later than March 27, 2008 and continue at least through March 31, 2009. After March 31, 2009, any station that has filed a request for an extension to serve its full operating area or is operating under such an extension must continue its education campaign until the request is withdrawn or denied or, if granted, until it expires.

(c) *Consumer Education Campaign Option One:* (1) From March 27, 2008 through March 31, 2008, a licensee or permittee must, at a minimum, air one transition-related public service announcement (PSA), and one transition-related informative text crawl, in every quarter of every broadcast day. This minimum will increase to two of each, per quarter, from April 1, 2008 through September 30, 2008, and to three of each, per quarter, from October 1, 2008 through the conclusion of the campaign. At least one PSA and one informative text crawl per day must be aired between 8 p.m. and 11 p.m. in the Eastern and Pacific time zones, and between 7 p.m. and 10 p.m. in the Mountain and Central time zones.

(2) For the purposes of this section, each broadcast day consists of four quarters; 6:01 a.m. to 12 p.m., 12:01 p.m. to 6 p.m., 6:01 p.m. to 12 a.m., and 12:01 a.m. to 6 a.m.

(3) Informative text crawls must:

- (i) Air during programming;
- (ii) Air for no fewer than 60 consecutive seconds;
- (iii) Be displayed so that the text travels across the bottom or top of the

viewing area at the same speed used for other informative text crawls concerning news, sports, and entertainment information;

(iv) Be presented in the same language as a majority of the programming carried by the station;

(v) Be displayed so that they do not block and are not blocked by closed-captioning or emergency information; and

(vi) Contain at least the following information, but may contain more, provided they contain no misleading or inaccurate statements:

(A) After February 17, 2009, a television receiver with only an analog broadcast tuner will require a converter box to receive full power over-the-air broadcasts with an antenna because of the Nation's transition to digital broadcasting. Analog-only TVs should continue to work as before to receive low power, Class A or translator television stations and with cable and satellite TV services, gaming consoles, VCRs, DVD players, and similar products.

(B) More information is available by phone and online, and provide appropriate contact information, including means of contacting the station or the network.

(4) Public service announcements must have a duration of no fewer than 15 consecutive seconds, and contain, at a minimum, the information described in paragraph (c)(3)(vi) of this section. They must also address the following topics at least once each during every calendar week:

(i) The steps necessary for an over-the-air viewer or a subscriber to a multichannel video programming distributor to continue viewing the station after the transition;

(ii) Changes in the geographic area or population served by the station during or after the transition;

(iii) The channel on which the station can be viewed after the transition;

(iv) Whether the station will be providing multiple streams of free video programming during or after the transition;

(v) Whether the station will be providing a High Definition signal during or after the transition;

(vi) The exact date and time that the station will cease analog broadcasting, if it has not already done so; and

(vii) The exact date and time that the station will begin digital broadcasting on its post-transition channel, if it has not already done so.

(d) *Consumer Education Campaign Option Two:* (1) A licensee or permittee must, at a minimum, air an average of sixteen transition-related PSAs per week, and an average of sixteen transition-related crawls, snipes, and/or tickers per week, over a calendar quarter.

(2) For the purposes of calculating the average number of PSAs aired, a 30-second PSA qualifies as a single PSA, and two 15-second PSAs count as a single PSA.

(3) PSAs, crawls, snipes, and/or tickers aired between the hours of 1 a.m. and 5 a.m. do not conform to the requirements of this section and will not count toward calculating the average number of transition-related education pieces aired.

(4) Over the course of each calendar quarter, 25 percent of all PSAs, and 25 percent of all crawls, snipes, and/or tickers, must air between 6 p.m. and 11:35 p.m. (Eastern and Pacific time zones) or between 5 p.m. and 10:35 p.m. (Central and Mountain time zones).

(5) Stations must also air a 30-minute informational program on the digital television (DTV) transition between 8 a.m.-11:35 p.m. on at least one day prior to February 17, 2009.

(6) Beginning on November 10, 2008, all stations will begin a 100-Day Countdown to the transition. During this period, each station must air at least one of the following per day:

(i) *Graphic display.* A graphic superimposed during programming content that reminds viewers graphically there are "x number of days" until the transition. They will be visually instructed to call a toll-free number and/or visit a Web site for details. The length of time will vary from 5 to 15 seconds, at the discretion of the station.

(ii) *Animated graphic.* A moving or animated graphic that ends up as a countdown reminder. It would remind viewers that there are "x number of days" until the transition. They will be visually instructed to call a toll-free

number and/or visit a Web site for details. The length of time will vary from 5 to 15 seconds, at the discretion of the station.

(iii) *Graphic and audio display.* Option #1 or option #2 with an added audio component. The length of time will vary from 5 to 15 seconds, at the discretion of the station.

(iv) *Longer form reminders.* Stations can choose from a variety of longer form options to communicate the countdown message. Examples might include an “Ask the Expert” segment where viewers can call in to a phone bank and ask knowledgeable people their questions about the transition. The length of these segments will vary from 2 minutes to 5 minutes, at the discretion of the station (some stations may also choose to include during newscasts DTV “experts” who may be asked questions by the anchor or reporter about the impending February 17, 2009 deadline).

(e) *Consumer Education Campaign Option Three:* (1) Only a licensee or permittee of a noncommercial television station may elect this option. Under this option, from March 27, 2008 through April 30, 2008, a noncommercial broadcaster must, at a minimum, air 60 seconds per day of transition-related education (PSAs), in variable timeslots, including at least 7.5 minutes per month between 6 p.m. and 12 a.m. From May 1, 2008, through October 31, 2008, a broadcaster must, at a minimum, air 120 seconds per day of transition-related education (PSAs), in variable timeslots, including at least 15 minutes per month between 6 p.m. and 12 a.m. From November 1, 2008, through March 31, 2009, a broadcaster must, at a minimum, air 180 seconds per day of transition-related education (PSAs), in variable timeslots, including at least 22.5 minutes per month between 6 p.m. and midnight.

(2) Noncommercial stations must also air a 30-minute informational program on the digital television (DTV) transition between 8 a.m.–11:35 p.m. on at least one day prior to February 17, 2009.

[73 FR 15449, Mar. 24, 2008]

#### § 73.681 Definitions.

*Amplitude modulation (AM).* A system of modulation in which the envelope of the transmitted wave contains a component similar to the wave form of the signal to be transmitted.

*Antenna electrical beam tilt.* The shaping of the radiation pattern in the vertical plane of a transmitting antenna by electrical means so that maximum radiation occurs at an angle below the horizontal plane.

*Antenna height above average terrain.* The average of the antenna heights above the terrain from approximately 3.2 (2 miles) to 16.1 kilometers (10 miles) from the antenna for the eight directions spaced evenly for each 45 degrees of azimuth starting with True North. (In general, a different antenna height will be determined in each direction from the antenna. The average of these various heights is considered the antenna height above the average terrain. In some cases less than 8 directions may be used. See § 73.684(d)). Where circular or elliptical polarization is employed, the antenna height above average terrain shall be based upon the height of the radiation center of the antenna which transmits the horizontal component of radiation.

*Antenna mechanical beam tilt.* The intentional installation of a transmitting antenna so that its axis is not vertical, in order to change the normal angle of maximum radiation in the vertical plane.

*Antenna power gain.* The square of the ratio of the root-mean-square free space field strength produced at 1 kilometer in the horizontal plane, in millivolts per meter for one kW antenna input power to 221.4 mV/m. This ratio should be expressed in decibels (dB). (If specified for a particular direction, antenna power gain is based on the field strength in that direction only.)

*Aspect ratio.* The ratio of picture width to picture height as transmitted.

*Aural center frequency.* (1) The average frequency of the emitted wave when modulated by a sinusoidal signal; (2) the frequency of the emitted wave without modulation.

*Aural transmitter.* The radio equipment for the transmission of the aural signal only.

*Auxiliary facility.* An auxiliary facility is an antenna separate from the main facility's antenna, permanently installed on the same tower or at a different location, from which a station may broadcast for short periods without prior Commission authorization or notice to the Commission while the main facility is not in operation (e.g., where tower work necessitates turning off the main antenna or where lightning has caused damage to the main antenna or transmission system) (See § 73.1675).

*BTSC.* Broadcast Television systems committee recommendation for multichannel television sound transmission and audio processing as defined in FCC Bulletin OET 60.

*Baseband.* Aural transmitter input signals between 0 and 120 kHz.

*Blanking level.* The level of the signal during the blanking interval, except the interval during the scanning synchronizing pulse and the chrominance subcarrier synchronizing burst.

*Chrominance.* The colorimetric difference between any color and a reference color of equal luminance, the reference color having a specific chromaticity.

*Chrominance subcarrier.* The carrier which is modulated by the chrominance information.

*Color transmission.* The transmission of color television signals which can be reproduced with different values of hue, saturation, and luminance.

*Effective radiated power.* The product of the antenna input power and the antenna power gain. This product should be expressed in kW and in dB above 1 kW (dBk). (If specified for a particular direction, effective radiated power is based on the antenna power gain in that direction only. The licensed effective radiated power is based on the maximum antenna power gain. When a station is authorized to use a directional antenna or an antenna beam tilt, the direction of the maximum effective radiated power will be specified.) Where circular or elliptical polarization is employed, the term effective radiated power is applied separately to the horizontally and vertically polarized components of radiation. For assignment purposes, only the effective radiated power authorized for the hori-

zontally polarized component will be considered.

*Equivalent isotropically radiated power (EIRP).* The term "equivalent isotropically radiated power" (also known as "effective radiated power above isotropic") means the product of the antenna input power and the antenna gain in a given direction relative to an isotropic antenna.

*Field.* Scanning through the picture area once in the chosen scanning pattern. In the line interlaced scanning pattern of two to one, the scanning of the alternate lines of the picture area once.

*Frame.* Scanning all of the picture area once. In the line interlaced scanning pattern of two to one, a frame consists of two fields.

*Free space field strength.* The field strength that would exist at a point in the absence of waves reflected from the earth or other reflecting objects.

*Frequency departure.* The amount of variation of a carrier frequency or center frequency from its assigned value.

*Frequency deviation.* The peak difference between the instantaneous frequency of the modulated wave and the carrier frequency.

*Frequency modulation (FM).* A system of modulation where the instantaneous radio frequency varies in proportion to the instantaneous amplitude of the modulating signal (amplitude of modulating signal to be measured after pre-emphasis, if used) and the instantaneous radio frequency is independent of the frequency of the modulating signal.

*Frequency swing.* The peak difference between the maximum and the minimum values of the instantaneous frequency of the carrier wave during modulation.

*Interlaced scanning.* A scanning process in which successively scanned lines are spaced an integral number of line widths, and in which the adjacent lines are scanned during successive cycles of the field frequency.

*IRE standard scale.* A linear scale for measuring, in IRE units, the relative amplitudes of the components of a television signal from a zero reference at blanking level, with picture information falling in the positive, and synchronizing information in the negative domain.

NOTE: When a carrier is amplitude modulated by a television signal in accordance with § 73.682, the relationship of the IRE standard scale to the conventional measure of modulation is as follows:

Level	IRE standard scale (units)	Modulation percentage
Zero carrier .....	120	0
Reference white .....	100	12.5
Blanking .....	0	75
Synchronizing peaks (maximum carrier level) .....	–40	100

**Luminance.** Luminous flux emitted, reflected, or transmitted per unit solid angle per unit projected area of the source.

**Main channel.** The band of frequencies from 50 to 15,000 Hertz which frequency modulate the main aural carrier.

**Monochrome transmission.** The transmission of television signals which can be reproduced in gradations of a single color only.

**Multichannel Television Sound (MTS).** Any system of aural transmission that utilizes aural baseband operation between 15 kHz and 120 kHz to convey information or that encodes digital information in the video portion of the television signal that is intended to be decoded as audio information.

**Multiplex Transmission (Aural).** A subchannel added to the regular aural carrier of a television broadcast station by means of frequency modulated subcarriers.

**Negative transmission.** Where a decrease in initial light intensity causes an increase in the transmitted power.

**Peak power.** The power over a radio frequency cycle corresponding in amplitude to synchronizing peaks.

**Percentage modulation.** As applied to frequency modulation, the ratio of the actual frequency deviation to the frequency deviation defined as 100% modulation expressed in percentage. For the aural transmitter of TV broadcast stations, a frequency deviation of  $\pm 25$  kHz is defined as 100% modulation.

**Pilot subcarrier.** A subcarrier used in the reception of TV stereophonic aural or other subchannel broadcasts.

**Polarization.** The direction of the electric field as radiated from the transmitting antenna.

**Program related data signal.** A signal, consisting of a series of pulses representing data, which is transmitted simultaneously with and directly related to the accompanying television program.

**Reference black level.** The level corresponding to the specified maximum excursion of the luminance signal in the black direction.

**Reference white level of the luminance signal.** The level corresponding to the specified maximum excursion of the luminance signal in the white direction.

**Scanning.** The process of analyzing successively, according to a predetermined method, the light values of picture elements constituting the total picture area.

**Scanning line.** A single continuous narrow strip of the picture area containing highlights, shadows, and half-tones, determined by the process of scanning.

**Standard television signal.** A signal which conforms to the television transmission standards.

**Synchronization.** The maintenance of one operation in step with another.

**Television broadcast band.** The frequencies in the band extending from 54 to 806 megahertz which are assignable to television broadcast stations. These frequencies are 54 to 72 megahertz (channels 2 through 4), 76 to 88 megahertz (channels 5 and 6), 174 to 216 megahertz (channels 7 through 13), and 470 to 806 megahertz (channels 14 through 69).

**Television broadcast station.** A station in the television broadcast band transmitting simultaneous visual and aural signals intended to be received by the general public.

**Television channel.** A band of frequencies 6 MHz wide in the television broadcast band and designated either by number or by the extreme lower and upper frequencies.

**Television transmission standards.** The standards which determine the characteristics of a television signal as radiated by a television broadcast station.

**Television transmitter.** The radio transmitter or transmitters for the transmission of both visual and aural signals.

**Vestigial sideband transmission.** A system of transmission wherein one of the

generated sidebands is partially attenuated at the transmitter and radiated only in part.

*Visual carrier frequency.* The frequency of the carrier which is modulated by the picture information.

*Visual transmitter.* The radio equipment for the transmission of the visual signal only.

*Visual transmitter power.* The peak power output when transmitting a standard television signal.

[28 FR 13660, Dec. 14, 1963, as amended at 35 FR 5692, Apr. 8, 1970; 36 FR 5505, Mar. 24, 1971; 36 FR 17429, Aug. 31, 1971; 41 FR 56325, Dec. 28, 1976; 42 FR 20823, Apr. 22, 1977; 44 FR 36039, June 20, 1979; 47 FR 35990, Aug. 18, 1982; 49 FR 18106, Apr. 27, 1984; 49 FR 38131, Sept. 27, 1984; 49 FR 50048, Dec. 26, 1984; 50 FR 23699, June 5, 1985; 51 FR 12616, Apr. 14, 1986; 56 FR 49707, Oct. 1, 1991; 58 FR 44951, Aug. 25, 1993; 62 FR 51059, Sept. 30, 1997]

#### § 73.682 TV transmission standards.

(a) *Transmission standards.* (1) The width of the television broadcast channel shall be 6 MHz.

(2) The visual carrier frequency shall be nominally 1.25 MHz above the lower boundary of the channel.

(3) The aural center frequency shall be 4.5 MHz higher than the visual carrier frequency.

(4) The visual transmission amplitude characteristic shall be in accordance with the chart designated as Figure 5 of § 73.699: *Provided, however,* That for stations operating on Channel 15 through 69 and employing a transmitter with maximum peak visual power output of 1 kW or less the visual transmission amplitude characteristic may be in accordance with the chart designated as Figure 5a of § 73.699.

(5) The chrominance subcarrier frequency is 63/88 times precisely 5 MHz (3.57954545 . . . MHz). The tolerance is  $\pm 10$  Hz and the rate of frequency drift must not exceed 0.1 Hz per second (cycles per second squared).

(6) For monochrome and color transmissions the number of scanning lines per frame shall be 525, interlaced two to one in successive fields. The horizontal scanning frequency shall be 2/455 times the chrominance subcarrier frequency; this corresponds nominally to 15,750 Hz with an actual value of 15,734.264  $\pm 0.044$  Hz). The vertical scanning frequency is 2/525 times the hori-

zontal scanning frequency; this corresponds nominally to 60 Hz (the actual value is 59.94 Hz). For monochrome transmissions only, the nominal values of line and field frequencies may be used.

(7) The aspect ratio of the transmitted television picture shall be 4 units horizontally to 3 units vertically.

(8) During active scanning intervals, the scene shall be scanned from left to right horizontally and from top to bottom vertically, at uniform velocities.

(9) A carrier shall be modulated within a single television channel for both picture and synchronizing signals. The two signals comprise different modulation ranges in amplitude in accordance with the following:

(i) Monochrome transmissions shall comply with synchronizing waveform specifications in Figure 7 of § 73.699.

(ii) Color transmissions shall comply with the synchronizing waveform specifications in Figure 6 of § 73.699.

(iii) All stations operating on Channels 2 through 14 and those stations operating on Channels 15 through 69 licensed for a peak visual transmitter output power greater than one kW shall comply with the picture transmission amplitude characteristics shown in Figure 5 of § 73.699.

(iv) Stations operating on Channels 15 through 69 licensed for a peak visual transmitter output power of one kW or less shall comply with the picture transmission amplitude characteristic shown in Figure 5 or 5a of § 73.699.

(10) A decrease in initial light intensity shall cause an increase in radiated power (negative transmission).

(11) The reference black level shall be represented by a definite carrier level, independent of light and shade in the picture.

(12) The blanking level shall be transmitted at  $75 \pm 2.5$  percent of the peak carrier level.

(13) The reference white level of the luminance signal shall be  $12.5 \pm 2.5$  percent of the peak carrier level.

(14) It shall be standard to employ horizontal polarization. However, circular or elliptical polarization may be employed if desired, in which case clockwise (right hand) rotation, as defined in the IEEE Standard Definition



42A65–3E2, and transmission of the horizontal and vertical components in time and space quadrature shall be used. For either omnidirectional or directional antennas the licensed effective radiated power of the vertically polarized component may not exceed the licensed effective radiated power of the horizontally polarized component. For directional antennas, the maximum effective radiated power of the vertically polarized component shall not exceed the maximum effective radiated power of the horizontally polarized component in any specified horizontal or vertical direction.

(15) The effective radiated power of the aural transmitter must not exceed 22% of the peak radiated power of the visual transmitter.

(16) The peak-to-peak variation of transmitter output within one frame of video signal due to all causes, including hum, noise, and low-frequency response, measured at both scanning synchronizing peak and blanking level, shall not exceed 5 percent of the average scanning synchronizing peak signal amplitude. This provision is subject to change but is considered the best practice under the present state of the art. It will not be enforced pending a further determination thereof.

(17) The reference black level shall be separated from the blanking level by the setup interval, which shall be  $7.5 \pm 2.5$  percent of the video range from blanking level to the reference white level.

(18) For monochrome transmission, the transmitter output shall vary in substantially inverse logarithmic relation to the brightness of the subject. No tolerances are set at this time. This provision is subject to change but is considered the best practice under the present state of the art. It will not be enforced pending a further determination thereof.

(19) The color picture signal shall correspond to a luminance component transmitted as amplitude modulation of the picture carrier and a simultaneous pair of chrominance components transmitted as the amplitude modulation sidebands of a pair of suppressed subcarriers in quadrature.

(20) Equation of complete color signal.

(i) The color picture signal has the following composition:

$$E_M = E_Y' + [E_Q' \sin(\omega t + 33^\circ) + E_I' \cos(\omega t + 33^\circ)]$$

Where:

$$E_Q' = 0.41(E_B' - E_Y') + 0.48(E_R' - E_Y')$$

$$E_I' = -0.27(E_B' - E_Y') + 0.74(E_R' - E_Y')$$

$$E_Y' = 0.30E_R' + 0.59E_G' + 0.1E_B'$$

For color-difference frequencies below 500 kHz (see (iii) below), the signal can be represented by:

$$E_M = E_Y' + [(1/1.14)][(1/1.78)(E_B' - E_Y') \sin \omega t + (E_R' - E_Y') \cos \omega t]$$

(ii) The symbols in paragraph (a)(20)(i) of this section have the following significance:

$E_M$  is the total video voltage, corresponding to the scanning of a particular picture element, applied to the modulator of the picture transmitter.

$E_Y'$  is the gamma-corrected voltage of the monochrome (black-and-white) portion of the color picture signal, corresponding to the given picture element.

NOTE: Forming of the high frequency portion of the monochrome signal in a different manner is permissible and may in fact be desirable in order to improve the sharpness on saturated colors.

$E_Q'$  and  $E_I'$  are the amplitudes of two orthogonal components of the chrominance signal corresponding respectively to narrow-band and wide-band axes.

$E_R'$ ,  $E_G'$ , and  $E_B'$  are the gamma-corrected voltages corresponding to red, green, and blue signals during the scanning of the given picture element.

$\omega$  is the angular frequency and is 2 times the frequency of the chrominance subcarrier.

The portion of each expression between brackets in (i) represents the chrominance subcarrier signal which carries the chrominance information.

The phase reference in the  $E_M$  equation in (i) is the phase of the burst  $+180^\circ$ , as shown in Figure 8 of § 73.699. The burst corresponds to amplitude modulation of a continuous sine wave.

(iii) The equivalent bandwidth assigned prior to modulation to the color difference signals  $E_Q'$  and  $E_I'$  are as follows:

Q-channel bandwidth:

At 400 kHz less than 2 dB down.

At 500 kHz less than 6 dB down.

At 600 kHz at least 6 dB down.

I-channel bandwidth:

At 1.3 MHz less than 2 dB down.

At 3.6 MHz at least 20 dB down.

(iv) The gamma corrected voltages  $E_R'$ ,  $E_G'$ , and  $E_B'$  are suitable for a color picture tube having primary colors with the following chromaticities in the CIE system of specification:

	<i>x</i>	<i>y</i>
Red (R) .....	0.67	0.33
Green (G) .....	0.21	0.71
Blue (B) .....	0.14	0.08

and having a transfer gradient (gamma exponent) of 2.2 associated with each primary color. The voltages  $E_R'$ ,  $E_G'$ , and  $E_B'$  may be respectively of the form  $E_R'^{1/\gamma}$ ,  $E_G'^{1/\gamma}$ , and  $E_B'^{1/\gamma}$  although other forms may be used with advances in the state of the art.

NOTE: At the present state of the art it is considered inadvisable to set a tolerance on the value of gamma and correspondingly this portion of the specification will not be enforced.

(v) The radiated chrominance subcarrier shall vanish on the reference white of the scene.

NOTE: The numerical values of the signal specification assume that this condition will be reproduced as CIE Illuminant C ( $x=0.310$ ,  $y=0.316$ ).

(vi)  $E_Y'$ ,  $E_Q'$ ,  $E_I'$ , and the components of these signals shall match each other in time to 0.05  $\mu$ secs.

(vii) The angles of the subcarrier measured with respect to the burst phase, when reproducing saturated primaries and their complements at 75 percent of full amplitude, shall be within  $\pm 10^\circ$  and their amplitudes shall be within  $\pm 20$  percent of the values specified above. The ratios of the measured amplitudes of the subcarrier to the luminance signal for the same saturated primaries and their complements shall fall between the limits of 0.8 and 1.2 of the values specified for their ratios. Closer tolerances may prove to be practicable and desirable with advance in the art.

(21) The interval beginning with line 17 and continuing through line 20 of the vertical blanking interval of each field may be used for the transmission of test signals, cue and control signals, and identification signals, subject to the conditions and restrictions set forth below. Test signals may include signals designed to check the performance of the overall transmission sys-

tem or its individual components. Cue and control signals shall be related to the operation of the TV broadcast station. Identification signals may be transmitted to identify the broadcast material or its source, and the date and time of its origination. Figures 6 and 7 of § 73.699 identify the numbered lines referred to in this paragraph.

(i) Modulation of the television transmitter by such signals shall be confined to the area between the reference white level and the blanking level, except where test signals include chrominance subcarrier frequencies, in which case positive excursions of chrominance components may exceed reference white, and negative excursions may extend into the synchronizing area. In no case may the modulation excursions produced by test signals extend beyond peak-of-sync, or to zero carrier level.

(ii) The use of such signals shall not result in significant degradation of the program transmission of the television broadcast station, nor produce emission outside of the frequency band occupied for normal program transmissions.

(iii) Such signals may not be transmitted during that portion of each line devoted to horizontal blanking.

(iv) Regardless of other provisions of this paragraph, after June 30, 1994, Line 19, in each field, may be used only for the transmission of the ghost-canceling reference signal described in OET Bulletin No. 68, which is available from the FCC Warehouse, 9300 East Hampton Drive, Capitol Heights, MD 20743. Notwithstanding the modulation limits contained in paragraph (a)(23)(i) of this section, the vertical interval reference signal formerly permitted on Line 19 and described in Figure 16 of § 73.699, may be transmitted on any of lines 10 through 16 without specific Commission authorization, subject to the conditions contained in paragraphs (a)(21)(ii) and (a)(22)(ii) of this section.

(22)(i) Line 21, in each field, may be used for the transmission of a program-related data signal which, when decoded, provides a visual depiction of information simultaneously being presented on the aural channel (captions).

Line 21, field 2 may be used for transmission of a program-related data signal which, when decoded, identifies a rating level associated with the current program. Such data signals shall conform to the format described in figure 17 of § 73.699 of this chapter, and may be transmitted during all periods of regular operation. On a space available basis, line 21 field 2 may also be used for text-mode data and extended data service information.

NOTE: The signals on Fields 1 and 2 shall be distinct data streams, for example, to supply captions in different languages or at different reading levels.

(ii) At times when Line 21 is not being used to transmit a program related data signal, data signals which are not program related may be transmitted, *Provided:* the same data format is used and the information to be displayed is of a broadcast nature.

(iii) The use of Line 21 for transmission of other data signals conforming to other formats may be used subject to prior authorization by the Commission.

(iv) The data signal shall cause no significant degradation to any portion of the visual signal nor produce emissions outside the authorized television channel.

(v) Transmission of visual emergency messages pursuant to § 73.1250 shall take precedence and shall be cause for interrupting transmission of data signals permitted under this paragraph.

(23) Specific scanning lines in the vertical blanking interval may be used for the purpose of transmitting telecommunications signals in accordance with § 73.646, subject to certain conditions:

(i) Telecommunications may be transmitted on Lines 10–18 and 20, all of Field 2 and Field 1. Modulation level shall not exceed 70 IRE on lines 10, 11, and 12; and, 80 IRE on lines 13–18 and 20.

(ii) No observable degradation may be caused to any portion of the visual or aural signals.

(iii) Telecommunications signals must not produce emissions outside the authorized television channel bandwidth. Digital data pulses must be shaped to limit spectral energy to the nominal video baseband.

(iv) Transmission of emergency visual messages pursuant to § 73.1250 must take precedence over, and shall be cause for interrupting, a service such as teletext that provides a visual depiction of information simultaneously transmitted on the aural channel.

(v) A reference pulse for a decoder associated adaptive equalizer filter designed to improve the decoding of telecommunications signals may be inserted on any portion of the vertical blanking interval authorized for data service, in accordance with the signal levels set forth in paragraph (a)(23)(i) of this section.

(vi) All lines authorized for telecommunications transmissions may be used for other purposes upon prior approval by the Commission.

(24) Licensees and permittees of TV broadcast and low power TV stations may insert non-video data into the active video portion of their TV transmission, subject to certain conditions:

(i) The active video portion of the visual signal begins with line 22 and continues through the end of each field, except it does not include that portion of each line devoted to horizontal blanking. Figures 6 and 7 of § 73.699 identify the numbered line referred to in this paragraph;

(ii) Inserted non-video data may be used for the purpose of transmitting a telecommunications service in accordance with § 73.646. In addition to a telecommunications service, non-video data can be used to enhance the station's broadcast program service or for purposes related to station operations. Signals relating to the operation of TV stations include, but are not limited to program or source identification, relay of broadcast materials to other stations, remote cueing and order messages, and control and telemetry signals for the transmitting system; and

(iii) A station may only use systems for inserting non-video information that have been approved in advance by the Commission. The criteria for advance approval of systems are as follows:

(A) The use of such signals shall not result in significant degradation to any portion of the visual, aural, or program-related data signals of the television broadcast station;

(B) No increase in width of the television broadcast channel (6 MHz) is permitted. Emissions outside the authorized television channel must not exceed the limitations given in § 73.687(e). Interference to reception of television service either of co-channel or adjacent channel stations must not increase over that resulting from the transmission of programming without inserted data; and

(C) Where required, system receiving or decoding devices must meet the TV interface device provisions of Part 15, Subpart H of this chapter.

(iv) No protection from interference of any kind will be afforded to reception of inserted non-video data.

(v) Upon request by an authorized representative of the Commission, the licensee of a TV station transmitting encoded programming must make available a receiving decoder to the Commission to carry out its regulatory responsibilities.

(b) *Subscription TV technical systems.* The FCC may specify, as part of the advance approval of the technical system for transmitting encoded subscription programming, deviations from the power determination procedures, operating power levels, aural or video baseband signals, modulation levels or other characteristics of the transmitted signal as otherwise specified in this Subpart. Any decision to approve such operating deviations shall be solely at the discretion of the FCC.

(c) TV multiplex subcarrier/stereophonic aural transmission standards.

(1) The modulating signal for the main channel shall consist of the sum of the stereophonic (biphonic, quadraphonic, etc.) input signals.

(2) The instantaneous frequency of the baseband stereophonic subcarrier must at all times be within the range 15 kHz to 120 kHz. Either amplitude or frequency modulation of the stereophonic subcarrier may be used.

(3) One or more pilot subcarriers between 16 kHz and 120 kHz may be used to switch a TV receiver between the stereophonic and monophonic reception modes or to activate a stereophonic audio indicator light, and one or more subcarriers between 15 kHz and 120 kHz may be used for any other authorized purpose; except that stations

employing the BTSC system of stereophonic sound transmission and audio processing may transmit a pilot subcarrier at 15,734 Hz,  $\pm 2$  Hz. Other methods of multiplex subcarrier or stereophonic aural transmission systems must limit energy at 15,734 Hz,  $\pm 20$  Hz, to no more than  $\pm 0.125$  kHz aural carrier deviation.

(4) Aural baseband information above 120 kHz must be attenuated 40 dB referenced to 25 kHz main channel deviation of the aural carrier.

(5) For required transmitter performance, all of the requirements of § 73.687(b) shall apply to the main channel, with the transmitter in the multiplex subcarrier or stereophonic aural mode.

(6) For electrical performance standards of the transmitter, the requirements of § 73.687(b) apply to the main channel.

(7) Multiplex subcarrier or stereophonic aural transmission systems must be capable of producing and must not exceed  $\pm 25$  kHz main channel deviation of the aural carrier.

(8) The arithmetic sum of non-multiplex baseband signals between 15 kHz and 120 kHz must not exceed  $\pm 50$  kHz deviation of the aural carrier.

(9) Total modulation of the aural carrier must not exceed  $\pm 75$  kHz.

(d) *Digital broadcast television transmission standard.* Effective May 29, 2008 transmission of digital broadcast television (DTV) signals shall comply with the standards for such transmissions set forth in ATSC A/52: "ATSC Standard Digital Audio Compression (AC-3)" (incorporated by reference, see § 73.8000), ATSC A/53, Parts 1-6: 2007 "ATSC Digital Television Standard," (January 3, 2007), except for section 6.1.2 ("Compression Format Constraints") of A/53 Part 4: 2007 ("MPEG-2 Video Systems Characteristics") and the phrase "see Table 6.2" in section 6.1.1 Table 6.1 and section 6.1.3 Table 6.3 (incorporated by reference, see § 73.8000), and ATSC A/65C: "ATSC Program and System Information Protocol for Terrestrial Broadcast and Cable, Revision C With Amendment No. 1 dated May 9, 2006," (January 2, 2006) (incorporated by reference, see § 73.8000). Although not incorporated by reference, licensees may also consult

ATSC A/54A: “Recommended Practice: Guide to Use of the ATSC Digital Television Standard, including Corrigendum No. 1,” (December 4, 2003, Corrigendum No. 1 dated December 20, 2006, and ATSC A/69: “Recommended Practice PSIP Implementation Guidelines for Broadcasters,” (June 25, 2002) (Secs. 4, 5, 303, 48 Stat., as amended, 1066, 1068, 1082 (47 U.S.C. 154, 155, 303)). ATSC A/54A and ATSC A/69 are available from Advanced Television Systems Committee (ATSC), 1750 K Street, NW., Suite 1200, Washington, DC 20006, or at the ATSC Web site: <http://www.atsc.org/standards.html>.

(Secs. 4, 5, 303, 48 Stat., as amended, 1066, 1068, 1082 (47 U.S.C. 154, 155, 303))

[28 FR 13660, Dec. 14, 1963]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 73.682, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and on GPO Access.

**§ 73.683 Field strength contours and presumptive determination of field strength at individual locations.**

(a) In the authorization of TV stations, two field strength contours are considered. These are specified as Grade A and Grade B and indicate the approximate extent of coverage over average terrain in the absence of interference from other television stations. Under actual conditions, the true coverage may vary greatly from these estimates because the terrain over any specific path is expected to be different from the average terrain on which the field strength charts were based. The required field strength,  $F(50,50)$ , in dB above one micro-volt per meter (dBu) for the Grade A and Grade B contours are as follows:

	Grade A (dBu)	Grade B (dBu)
Channels 2–6 .....	68	47
Channels 7–13 .....	71	56
Channels 14–69 .....	74	64

(b) It should be realized that the  $F(50,50)$  curves when used for Channels 14–69 are not based on measured data at distances beyond about 48.3 kilometers (30 miles). Theory would indicate that the field strengths for Channels 14–69 should decrease more rapidly with distance beyond the horizon than for

Channels 2–6, and modification of the curves for Channels 14–69 may be expected as a result of measurements to be made at a later date. For these reasons, the curves should be used with appreciation of their limitations in estimating levels of field strength. Further, the actual extent of service will usually be less than indicated by these estimates due to interference from other stations. Because of these factors, the predicted field strength contours give no assurance of service to any specific percentage of receiver locations within the distances indicated. In licensing proceedings these variations will not be considered.

(c) The field strength contours will be considered for the following purposes only:

(1) In the estimation of coverage resulting from the selection of a particular transmitter site by an applicant for a TV station.

(2) In connection with problems of coverage arising out of application of § 73.3555.

(3) In determining compliance with § 73.685(a) concerning the minimum field strength to be provided over the principal community to be served.

(d) For purposes of determining the eligibility of individual households for satellite retransmission of distant network signals under the copyright law provisions of 17 U.S.C. 119(d)(10)(A), field strength shall be determined by the Individual Location Longley-Rice (ILLR) propagation prediction model. Guidance for use of the ILLR model for these purposes is provided in OET Bulletin No. 72. This document is available through the Internet on the FCC Home Page at <http://www.fcc.gov>.

(e) In the case of measurements to determine the eligibility of individual households to receive satellite retransmission of distant network signals under the copyright law provisions of 17 U.S.C. 119(d)(10), if a satellite carrier and the network station or stations asserting that the retransmission of a signal of a distant network station is prohibited are unable to agree on a person to conduct the test, the American Radio Relay League, Inc., 225 Main Street, Newington, CT 06111-1494, shall designate the person or organization to conduct measurements based on the

technical qualifications and independence of proposed testers. The satellite carrier and network station shall propose testers and provide their qualifications in writing to the American Radio Relay League (ARRL). Individuals may also volunteer themselves as testers by submitting their qualifications to the ARRL. The ARRL can be reached by telephone at 860-594-0200, or email at [hq@arrl.org](mailto:hq@arrl.org).

(f) A satellite carrier is exempt from the verification requirements of 47 U.S.C. 339(c)(4)(A) with respect to a test requested by a satellite subscriber to whom the retransmission of the signals of local broadcast stations is available under 47 U.S.C. 338 from such carrier. The definitions of satellite carrier, subscriber, and local market contained in 47 CFR 76.66(a) apply to this paragraph (f).

[44 FR 36039, June 20, 1979, as amended at 47 FR 35990, Aug. 18, 1982; 50 FR 23699, June 5, 1985; 50 FR 32416, Aug. 12, 1985; 65 FR 36641, June 9, 2000; 70 FR 21670, Apr. 27, 2005]

#### § 73.684 Prediction of coverage.

(a) All predictions of coverage made pursuant to this section shall be made without regard to interference and shall be made only on the basis of estimated field strengths. The peak power of the visual signal is used in making predictions of coverage.

(b) Predictions of coverage shall be made only for the same purposes as relate to the use of field strength contours as specified in § 73.683(c).

(c) In predicting the distance to the field strength contours, the F (50,50) field strength charts (Figures 9 and 10 of § 73.699) shall be used. If the 50% field strength is defined as that value exceeded for 50% of the time, these F (50,50) charts give the estimated 50% field strengths exceeded at 50% of the locations in dB above 1 uV/m. The charts are based on an effective power of 1 kW radiated from a half-wave dipole in free space, which produces an unattenuated field strength at 1.61 kilometers (1 mile) of about 103 dB above 1 uV/m. To use the charts to predict the distance to a given contour, the following procedure is used: Convert the effective radiated power in kilowatts for the appropriate azimuth into decibel value referenced to 1 kW (dBu).

If necessary, convert the selected contour to the decibel value (dBu) above 1 microvolt per meter (1 uV/m). Subtract the power value in dBk from the contour value in dBu. Note that for power less than 1 kW, the difference value will be greater than the contour value because the power in dBk is negative. Locate the difference value obtained on the vertical scale at the left edge of the chart. Follow the horizontal line for that value into the chart to the point of intersection with the vertical line above the height of the antenna above average terrain for the appropriate azimuth located on the scale at the bottom of the chart. If the point of intersection does not fall exactly on a distance curve, interpolate between the distance curves below and above the intersection point. The distance values for the curves are located along the right edge of the chart.

(1) In predicting the distance to the Grade A and Grade B field strength contours, the effective radiated power to be used is that radiated at the vertical angle corresponding to the depression angle between the transmitting antenna center of radiation and the radio horizon as determined individually for each azimuthal direction concerned. The depression angle is based on the difference in elevation of the antenna center of radiation above the average terrain and the radio horizon, assuming a smooth spherical earth with a radius of 8,495.5 kilometers (5,280 miles) and shall be determined by the following equation:

$$A = 0.0277\sqrt{H}$$

Where:

A is the depression angle in degrees.

H is the height in meters of the transmitting antenna radiation center above average terrain of the 3.2-16.1 kilometers (2-10 miles) sector of the pertinent radial.

This formula is empirically derived for the limited purpose specified here. Its use for any other purpose may be inappropriate.

(2) In case where the relative field strength at the depression angle determined by the above formula is 90% or more of the maximum field strength developed in the vertical plane containing the pertaining radial, the maximum radiation shall be used.

(3) In predicting field strengths for other than the Grade A and Grade B contours, the effective radiated power to be used is to be based on the appropriate antenna vertical plane radiation pattern for the azimuthal direction concerned.

(4) Applicants for new TV stations or changes in the facilities of existing TV stations must submit to the FCC a showing as to the location of their stations' or proposed stations' predicted Grade A and Grade B contours, determined in accordance with § 73.684. This showing is to include maps showing these contours, except where applicants have previously submitted material to the FCC containing such information and it is found upon careful examination that the contour locations indicated therein would not change, on any radial, when the locations are determined under this Section. In the latter cases, a statement by a qualified engineer to this effect will satisfy this requirement and no contour maps need be submitted.

(d) The antenna height to be used with these charts is the height of the radiation center of the antenna above the average terrain along the radial in question. In determining the average elevation of the terrain, the elevations between 3.2–16.1 kilometers (2–10 miles) from the antenna site are employed. Profile graphs shall be drawn for 8 radials beginning at the antenna site and extending 16.1 kilometers (10 miles) therefrom. The radials should be drawn for each 45 degrees of azimuth starting with the True North. At least one radial must include the principal community to be served even though such community may be more than 16.1 kilometers (10 miles) from the antenna site. However, in the event none of the evenly spaced radials include the principal community to be served and one or more such radials are drawn in addition to the 8 evenly spaced radials, such additional radials shall not be employed in computing the antenna height above average terrain. Where the 3.2–16.1 kilometers (2–10 mile) portion of a radial extends in whole or in part over large bodies of water as specified in paragraph (e) of this section or extends over foreign territory but the Grade B strength contour encompasses

land area within the United States beyond the 16.1 kilometers (10 mile) portion of the radial, the entire 3.2–16.1 kilometers (2–10 mile) portion of the radial shall be included in the computation of antenna height above average terrain. However, where the Grade B contour does not so encompass United States land area and (1) the entire 3.2–16.1 kilometers (2–10 mile) portion of the radial extends over large bodies of water or foreign territory, such radial shall be completely omitted from the computation of antenna height above average terrain, and (2) where a part of the 3.2–16.1 kilometers (2–10 mile) portion of a radial extends over large bodies of water or over foreign territory, only that part of the radial extending from the 3.2 kilometer (2 mile) sector to the outermost portion of land area within the United States covered by the radial shall be employed in the computation of antenna height above average terrain. The profile graph for each radial should be plotted by contour intervals of from 12.2–30.5 meters (40–100 feet) and, where the data permits, at least 50 points of elevation (generally uniformly spaced) should be used for each radial. In instances of very rugged terrain where the use of contour intervals of 30.5 meters (100 feet) would result in several points in a short distance, 61.0–122.0 meter (200–400 foot) contour intervals may be used for such distances. On the other hand, where the terrain is uniform or gently sloping the smallest contour interval indicated on the topographic map (see paragraph (g) of this section) should be used, although only relatively few points may be available. The profile graphs should indicate the topography accurately for each radial, and the graphs should be plotted with the distance in kilometers as the abscissa and the elevation in meters above mean sea level as the ordinate. The profile graphs should indicate the source of the topographical data employed. The graph should also show the elevation of the center of the radiating system. The graph may be plotted either on rectangular coordinate paper or on special paper which shows the curvature of the earth. It is not necessary to take the curvature of the earth into consideration in this procedure, as this factor

is taken care of in the charts showing signal strengths. The average elevation of the 12.9 kilometer (8 miles) distance between 3.2–16.1 kilometers (2–10 miles) from the antenna site should then be determined from the profile graph for each radial. This may be obtained by averaging a large number of equally spaced points, by using a planimeter, or by obtaining the median elevation (that exceeded for 50% of the distance) in sectors and averaging those values.

NOTE: The Commission will, upon a proper showing by an existing station that the application of this rule will result in an unreasonable power reduction in relation to other stations in close proximity, consider requests for adjustment in power on the basis of a common average terrain figure for the stations in question as determined by the FCC.

(e) In instance where it is desired to determine the area in square kilometers within the Grade A and Grade B field strength contours, the area may be determined from the coverage map by planimeter or other approximate means; in computing such areas, excluded (1) areas beyond the borders of the United States, and (2) large bodies of water, such as ocean areas, gulfs, sounds, bays, large lakes, etc., but not rivers.

(f) In cases where terrain in one or more directions from the antenna site departs widely from the average elevation of the 3.2 to 16.1 kilometers (2 to 10 mile) sector, the prediction method may indicate contour distances that are different from what may be expected in practice. For example, a mountain ridge may indicate the practical limit of service although the prediction method may indicate otherwise. In such case the prediction method should be followed, but a supplemental showing may be made concerning the contour distances as determined by other means. Such supplemental showing should describe the procedure employed and should include sample calculations. Maps of predicted coverage should include both the coverage as predicted by the regular method and as predicted by a supplemental method. When measurements of area are required, these should include the area obtained by the regular predicted method and the area obtained by the

supplemental method. In directions where the terrain is such that negative antenna heights or heights below 30.5 meters (100 feet) for the 3.2 to 16.1 kilometers (2 to 10 mile) sector are obtained, an assumed height of 30.5 meters (100 feet) shall be used for the prediction of coverage. However, where the actual contour distances are critical factors, a supplemental showing of expected coverage must be included together with a description of the method employed in predicting such coverage. In special cases, the Commission may require additional information as to terrain and coverage.

(g) In the preparation of the profile graph previously described, and in determining the location and height above sea level of the antenna site, the elevation or contour intervals shall be taken from the United States Geological Survey Topographic Quadrangle Maps, United States Army Corps of Engineers' maps or Tennessee Valley Authority maps, whichever is the latest, for all areas for which such maps are available. If such maps are not published for the area in question, the next best topographic information should be used. Topographic data may sometimes be obtained from State and Municipal agencies. Data from Sectional Aeronautical Charts (including bench marks) or railroad depot elevations and highway elevations from road maps may be used where no better information is available. In cases where limited topographic data is available, use may be made of an altimeter in a car driven along roads extending generally radially from the transmitter site. Ordinarily the Commission will not require the submission of topographical maps for areas beyond 24.1 kilometers (15 miles) from the antenna site, but the maps must include the principal community to be served. If it appears necessary, additional data may be requested. United States Geological Survey Topographic Quadrangle Maps may be obtained from the United States Geological Survey, Department of the Interior, Washington, DC 20240. Sectional Aeronautical Charts are available from the United States Coast and Geodetic Survey, Department of Commerce, Washington, DC 20235. In lieu of maps, the average terrain elevation may be



computer generated, except in the cases of dispute, using elevations from a 30 second point or better topographic data file. The file must be identified and the data processed for intermediate points along each radial using linear interpolation techniques. The height above mean sea level of the antenna site must be obtained manually using appropriate topographic maps.

(h) The effect of terrain roughness on the predicted field strength of a signal at points distant from a television broadcast station is assumed to depend on the magnitude of a terrain roughness factor ( $\Delta h$ ) which, for a specific propagation path, is determined by the characteristics of a segment of the terrain profile for that path 40.2 kilometers (25 miles) in length, located between 9.7 and 49.9 kilometers (6 and 31 miles) from the transmitter. The terrain roughness factor has a value equal to the difference, in meters, between elevations exceeded by all points on the profile for 10 percent and 90 percent, respectively, of the length of the profile segment (see § 73.699, Fig. 10d).

(i) If the lowest field strength value of interest is initially predicted to occur over a particular propagation path at a distance which is less than 49.9 kilometers (31 miles) from the transmitter, the terrain profile segment used in the determination of the terrain roughness factor over that path shall be that included between points 9.7 kilometers (6 miles) from the transmitter and such lesser distance. No terrain roughness correction need be applied when all field strength values of interest are predicted to occur 9.7 kilometers (6 miles) or less from the transmitter.

(j) Profile segments prepared for terrain roughness factor determinations should be plotted in rectangular coordinates, with no less than 50 points evenly spaced within the segment, using data obtained from topographic maps, if available, with contour intervals of 15.2 meters (50 feet), or less.

(k) The field strength charts (§ 73.699, Figs. 9–10c) were developed assuming a terrain roughness factor of 50 meters, which is considered to be representative of average terrain in the United States. Where the roughness factor for a particular propagation path is found

to depart appreciably from this value, a terrain roughness correction ( $\Delta F$ ) should be applied to field strength values along this path as predicted with the use of these charts. The magnitude and sign of this correction, for any value of  $\Delta h$ , may be determined from a chart included in § 73.699 as Figure 10e, with linear interpolation as necessary, for the frequency of the UHF signal under consideration.

(l) Alternatively, the terrain roughness correction may be computed using the following formula:

$$\Delta F = C - 0.03(\Delta h)(1 + f/300)$$

Where:

$\Delta F$ =terrain roughness correction in dB

$C$ =a constant having a specific value for use with each set of field strength charts:

1.9 for TV Channels 2–6

2.5 for TV Channels 7–13

4.8 for TV Channels 14–69

$\Delta h$ =terrain roughness factor in meters

$f$ =frequency of signal in megahertz (MHz)

[28 FR 13660, Dec. 13, 1963, as amended at 40 FR 27683, July 1, 1975; 44 FR 36039, June 20, 1979; 48 FR 44807, Sept. 30, 1983; 50 FR 23699, June 5, 1985; 51 FR 26251, July 22, 1986; 52 FR 36879, Oct. 1, 1987]

EFFECTIVE DATE NOTE: At 42 FR 25736, May 19, 1977, in § 73.684, paragraphs (k) and (l) were stayed indefinitely.

**§ 73.685 Transmitter location and antenna system.**

(a) The transmitter location shall be chosen so that, on the basis of the effective radiated power and antenna height above average terrain employed, the following minimum field strength in dB above one  $\mu\text{V/m}$  will be provided over the entire principal community to be served:

Channels 2–6	Channels 7–13	Channels 14–69
74 dBu	77 dBu	80 dBu

(b) Location of the antenna at a point of high elevation is necessary to reduce to a minimum the shadow effect on propagation due to hills and buildings which may reduce materially the strength of the station's signals. In general, the transmitting antenna of a station should be located at the most central point at the highest elevation available. To provide the best degree of service to an area, it is usually preferable to use a high antenna rather

than a low antenna with increased transmitter power. The location should be so chosen that line-of-sight can be obtained from the antenna over the principal community to be served; in no event should there be a major obstruction in this path. The antenna must be constructed so that it is as clear as possible of surrounding buildings or objects that would cause shadow problems. It is recognized that topography, shape of the desired service area, and population distribution may make the choice of a transmitter location difficult. In such cases, consideration may be given to the use of a directional antenna system, although it is generally preferable to choose a site where a nondirectional antenna may be employed.

(c) In cases of questionable antenna locations it is desirable to conduct propagation tests to indicate the field strength expected in the principal community to be served and in other areas, particularly where severe shadow problems may be expected. In considering applications proposing the use of such locations, the Commission may require site tests to be made. Such tests should be made in accordance with the measurement procedure in § 73.686, and full data thereon must be supplied to the Commission. Test transmitters should employ an antenna having a height as close as possible to the proposed antenna height, using a balloon or other support if necessary and feasible. Information concerning the authorization of site tests may be obtained from the Commission upon request.

(d) Present information is not sufficiently complete to establish "blanket areas" of television broadcast stations. A "blanket area" is that area adjacent to a transmitter in which the reception of other stations is subject to interference due to the strong signal from this station. The authorization of station construction in areas where blanketing is found to be excessive will be on the basis that the applicant will assume full responsibility for the adjustment of reasonable complaints arising from excessively strong signals of the applicant's station or take other corrective action.

(e) An antenna designed or altered to produce a noncircular radiation pat-

tern in the horizontal plane is considered to be a directional antenna. Antennas purposely installed in such a manner as to result in the mechanical beam tilting of the major vertical radiation lobe are included in this category. Directional antennas may be employed for the purpose of improving service upon an appropriate showing of need. Stations operating on Channels 2-13 will not be permitted to employ a directional antenna having a ratio of maximum to minimum radiation in the horizontal plane in excess of 10 dB. Stations operating on Channels 14-69 with transmitters delivering a peak visual power output of more than 1 kW may employ directive transmitting antennas with a maximum to minimum radiation in the horizontal plane of not more than 15 dB. Stations operating on Channels 14-69 and employing transmitters delivering a peak visual power output of 1 kW or less are not limited as to the ratio of maximum to minimum radiation.

(f) Applications proposing the use of directional antenna systems must be accompanied by the following:

(1) Complete description of the proposed antenna system, including the manufacturer and model number of the proposed directional antenna.

(2) Relative field horizontal plane pattern (horizontal polarization only) of the proposed directional antenna. A value of 1.0 should be used for the maximum radiation. The plot of the pattern should be oriented so that 0° corresponds to true North. Where mechanical beam tilt is intended, the amount of tilt in degrees of the antenna vertical axis and the orientation of the downward tilt with respect to true North must be specified, and the horizontal plane pattern must reflect the use of mechanical beam tilt.

(3) A tabulation of the relative field pattern required in paragraph (b)(2), of this section. The tabulation should use the same zero degree reference as the plotted pattern, and be tabulated at least every 10°. In addition, tabulated values of all maxima and minima, with their corresponding azimuths, should be submitted.

(4) Horizontal and vertical plane radiation patterns showing the effective radiated power, in dBk, for each direction. Sufficient vertical plane patterns must be included to indicate clearly the radiation characteristics of the antenna above and below the horizontal plane. In cases where the angles at which the maximum vertical radiation varies with azimuth, a separate vertical radiation pattern must be provided for each pertinent radial direction.

(5) All horizontal plane patterns must be plotted to the largest scale possible on unglazed letter-size polar coordinate paper (main engraving approximately 18 cm × 25 cm (7 inches × 10 inches)) using only scale divisions and subdivisions of 1, 2, 2.5 or 5 times 10<sup>nth</sup>. All vertical plane patterns must be plotted on unglazed letter-size rectangular coordinate paper. Values of field strength on any pattern less than 10% of the maximum field strength plotted on that pattern must be shown on an enlarged scale.

(6) The horizontal and vertical plane patterns that are required are the patterns for the complete directional antenna system. In the case of a composite antenna composed of two or more individual antennas, this means that the patterns for the composite antenna, not the patterns for each of the individual antennas, must be submitted.

(g) Applications proposing the use of television broadcast antennas within 61.0 meters (200 feet) of other television broadcast antennas operating on a channel within 20 percent in frequency of the proposed channel, or proposing the use of television broadcast antennas on Channels 5 or 6 within 61.0 meters (200 feet) of FM broadcast antennas, must include a showing as to the expected effect, if any, of such proximate operation.

(h) Where a TV licensee or permittee proposes to mount an antenna on an AM antenna tower, or locate within 3.2 km of an AM antenna tower, the TV li-

censee or permittee must comply with § 73.1692.

(Secs. 4, 5, 303, 48 Stat., as amended, 1066, 1068, 1082 (47 U.S.C. 154, 155, 303))

[28 FR 13660, Dec. 14, 1963, as amended at 35 FR 5693, Apr. 8, 1970; 40 FR 25461, June 16, 1975; 43 FR 53740, Nov. 17, 1978; 44 FR 22740, Apr. 17, 1979; 45 FR 26065, Apr. 17, 1980; 47 FR 35990, Aug. 18, 1982; 48 FR 21486, May 12, 1983; 50 FR 23701, June 5, 1985; 58 FR 44951, Aug. 25, 1993; 62 FR 51059, Sept. 30, 1997]

**§ 73.686 Field strength measurements.**

(a) Except as provided for in § 73.612, television broadcast stations shall not be protected from any type of interference or propagation effect. Persons desiring to submit testimony, evidence or data to the Commission for the purpose of showing that the technical standards contained in this subpart do not properly reflect the levels of any given type of interference or propagation effect may do so only in appropriate rulemaking proceedings concerning the amendment of such technical standards. Persons making field strength measurements for formal submission to the Commission in rulemaking proceedings, or making such measurements upon the request of the Commission, shall follow the procedure for making and reporting such measurements outlined in paragraph (b) of this section. In instances where a showing of the measured level of a signal prevailing over a specific community is appropriate, the procedure for making and reporting field strength measurements for this purpose is set forth in paragraph (c) of this section.

(b) *Collection of field strength data for propagation analysis*—(1) *Preparation for measurements.* (i) On large scale topographic maps, eight or more radials are drawn from the transmitter location to the maximum distance at which measurements are to be made, with the angles included between adjacent radials of approximately equal size. Radials should be oriented so as to traverse representative types of terrain. The specific number of radials and their orientation should be such as to accomplish this objective.

(ii) At a point exactly 16.1 kilometers (10 miles) from the transmitter, each radial is marked, and at greater distances at successive 3.2 kilometer (2

mile) intervals. Where measurements are to be conducted at UHF, or over extremely rugged terrain, shorter intervals may be employed, but all such intervals shall be of equal length. Accessible roads intersecting each radial as nearly as possible at each 3.2 kilometer (2 mile) marker are selected. These intersections are the points on the radial at which measurements are to be made, and are referred to subsequently as measuring locations. The elevation of each measuring location should approach the elevation at the corresponding 3.2 kilometer (2 mile) marker as nearly as possible.

(2) *Measurement procedure.* The field strength of the visual carrier shall be measured with a voltmeter capable of indicating accurately the peak amplitude of the synchronizing signal. All measurements shall be made utilizing a receiving antenna designed for reception of the horizontally polarized signal component, elevated 9.1 meters (30 feet) above the roadbed. At each measuring location, the following procedure shall be employed.

(i) The instrument calibration is checked.

(ii) The antenna is elevated to a height of 30 feet.

(iii) The receiving antenna is rotated to determine if the strongest signal is arriving from the direction of the transmitter.

(iv) The antenna is oriented so that the sector of its response pattern over which maximum gain is realized is in the direction of the transmitter.

(v) A mobile run of at least 30.5 meters (100 feet) is made, which is centered on the intersection of the radial and the road, and the measured field strength is continuously recorded on a chart recorder over the length of the run.

(vi) The actual measuring location is marked exactly on the topographic map, and a written record, keyed to the specific location, is made of all factors which may affect the recorded field, such as topography, height and types of vegetation, buildings, obstacles, weather, and other local features.

(vii) If, during the test conducted as described in paragraph (b)(2)(iii) of this section, the strongest signal is found to come from a direction other than from

the transmitter, after the mobile run prescribed in paragraph (b)(2)(v) of this section is concluded, additional measurements shall be made in a "cluster" of at least five fixed points. At each such point, the field strengths with the antenna oriented toward the transmitter, and with the antenna oriented so as to receive the strongest field, are measured and recorded. Generally, all points should be within 61.0 meters (200 feet) of the center point of the mobile run.

(viii) If overhead obstacles preclude a mobile run of at least 30.5 meters (100 feet), a "cluster" of five spot measurements may be made in lieu of this run. The first measurement in the cluster is identified. Generally, the locations for other measurements shall be within 61.0 meters (200 feet) of the location of the first.

(3) *Method of reporting measurements.* A report of measurements to the Commission shall be submitted in affidavit form, in triplicate, and should contain the following information:

(i) Tables of field strength measurements, which, for each measuring location, set forth the following data:

(A) Distance from the transmitting antenna.

(B) Ground elevation at measuring location.

(C) Date, time of day, and weather.

(D) Median field in dBu for 0 dBk, for mobile run or for cluster, as well as maximum and minimum measured field strengths.

(E) Notes describing each measuring location.

(ii) U.S. Geological Survey topographic maps, on which is shown the exact location at which each measurement was made. The original plots shall be made on maps of the largest available scale. Copies may be reduced in size for convenient submission to the Commission, but not to the extent that important detail is lost. The original maps shall be made available, if requested. If a large number of maps is involved, an index map should be submitted.

(iii) All information necessary to determine the pertinent characteristics of the transmitting installation, including frequency, geographical coordinates of antenna site, rated and actual

power output of transmitter, measured transmission line loss, antenna power gain, height of antenna above ground, above mean sea level, and above average terrain. The effective radiated power should be computed, and horizontal and vertical plane patterns of the transmitting antenna should be submitted.

(iv) A list of calibrated equipment used in the field strength survey, which, for each instrument, specifies its manufacturer, type, serial number and rated accuracy, and the date of its most recent calibration by the manufacturer, or by a laboratory. Complete details of any instrument not of standard manufacture shall be submitted.

(v) A detailed description of the calibration of the measuring equipment, including field strength meters, measuring antenna, and connecting cable.

(vi) Terrain profiles in each direction in which measurements were made, drawn on curved earth paper for equivalent 4/3 earth radius, of the largest available scale.

(c) *Collection of field strength data to determine television service in specific communities*—(1) *Preparation for measurement.* (i) The population (P) of the community, and its suburbs, if any, is determined by reference to an appropriate source, e.g., the 1970 U.S. Census tables of population of cities and urbanized areas.

(ii) The number of locations at which measurements are to be made shall be at least 15, and shall be approximately equal to  $0.1 (P)^{1/2}$ , if this product is a number greater than 15.

(iii) A rectangular grid, of such size and shape as to encompass the boundaries of the community is drawn on an accurate map of the community. The number of line intersections on the grid included within the boundaries of the community shall be at least equal to the required number of measuring locations. The position of each intersection on the community map determines the location at which a measurement shall be made.

(2) *Measurement procedure.* The field strength of the visual carrier shall be measured, with a voltmeter capable of indicating accurately the peak amplitude of the synchronizing signal. All measurements shall be made utilizing

a receiving antenna designed for reception of the horizontally polarized signal component, elevated 9.1 meter (30 feet) above street level.

(i) Each measuring location shall be chosen as close as feasible to a point indicated on the map, as previously prepared, and at as nearly the same elevation as that point as possible.

(ii) At each measuring location, after equipment calibration and elevation of the antenna, a check is made to determine whether the strongest signal arrives from a direction other than from the transmitter.

(iii) At 20 percent or more of the measuring locations, mobile runs, as described in paragraph (b)(2) of this section shall be made, with no less than three such mobile runs in any case. The points at which mobile measurements are made shall be well separated. Spot measurements may be made at other measuring points.

(iv) Each actual measuring location is marked exactly on the map of the community, and suitably keyed. A written record shall be maintained, describing, for each location, factors which may affect the recorded field, such as the approximate time of measurement, weather, topography, overhead wiring, heights and types of vegetation, buildings and other structures. The orientation, with respect to the measuring location shall be indicated of objects of such shape and size as to be capable of causing shadows or reflections. If the strongest signal received was found to arrive from a direction other than that of the transmitter, this fact shall be recorded.

(3) *Method of reporting measurements.* A report of measurements to the Commission shall be submitted in affidavit form, in triplicate, and should contain the following information:

(i) A map of the community showing each actual measuring location, specifically identifying the points at which mobile runs were made.

(ii) A table keyed to the above map, showing the field strength at each measuring point, reduced to dBu for the actual effective radiated power of the station. Weather, date, and time of each measurement shall be indicated.

(iii) Notes describing each measuring location.

(iv) A topographic map of the largest available scale on which are marked the community and the transmitter site of the station whose signals have been measured, which includes all areas on or near the direct path of signal propagation.

(v) Computations of the mean and standard deviation of all measured field strengths, or a graph on which the distribution of measured field strength values is plotted.

(vi) A list of calibrated equipment used for the measurements, which for each instrument, specifies its manufacturer, type, serial number and rated accuracy, and the date of its most recent calibration by the manufacturer, or by a laboratory. Complete details of any instrument not of standard manufacture shall be submitted.

(vii) A detailed description of the procedure employed in the calibration of the measuring equipment, including field strength meters measuring antenna, and connecting cable.

(d) *Collection of field strength data to determine television signal intensity at an individual location—cluster measurements—(1) Preparation for measurements—(i) Testing antenna.* The test antenna shall be either a standard half-wave dipole tuned to the visual carrier frequency of the channel being measured or a gain antenna, provided its antenna factor for the channel(s) under test has been determined. Use the antenna factor supplied by the antenna manufacturer as determined on an antenna range.

(ii) *Testing locations.* At the location, choose a minimum of five locations as close as possible to the specific site where the site's receiving antenna is located. If there is no receiving antenna at the site, choose the minimum of five locations as close as possible to a reasonable and likely spot for the antenna. The locations shall be at least three meters apart, enough so that the testing is practical. If possible, the first testing point should be chosen as the center point of a square whose corners are the four other locations. Calculate the median of the five measurements (in units of dBu) and report it as the measurement result.

(iii) *Multiple signals.* If more than one signal is being measured (*i.e.*, signals

from different transmitters), use the same locations to measure each signal.

(2) *Measurement procedure.* Measurements shall be made in accordance with good engineering practice and in accordance with this section of the Rules. At each measuring location, the following procedure shall be employed:

(i) *Testing equipment.* Measure the field strength of the visual carrier with a calibrated instrument with an i.f. bandwidth of at least 200 kHz, but no greater than one megahertz (1,000 kHz). Perform an on-site calibration of the instrument in accordance with the manufacturer's specifications. The instrument must accurately indicate the peak amplitude of the synchronizing signal. Take all measurements with a horizontally polarized antenna. Use a shielded transmission line between the testing antenna and the field strength meter. Match the antenna impedance to the transmission line at all frequencies measured, and, if using an unbalanced line, employ a suitable balun. Take account of the transmission line loss for each frequency being measured.

(ii) *Weather.* Do not take measurements in inclement weather or when major weather fronts are moving through the measurement area.

(iii) *Antenna elevation.* When field strength is being measured for a one-story building, elevate the testing antenna to 6.1 meters (20 feet) above the ground. In situations where the field strength is being measured for a building taller than one-story, elevate the testing antenna 9.1 meters (30 feet) above the ground.

(iv) *Antenna orientation.* Orient the testing antenna in the direction which maximizes the value of field strength for the signal being measured. If more than one station's signal is being measured, orient the testing antenna separately for each station.

(3) Written record shall be made and shall include at least the following:

(i) A list of calibrated equipment used in the field strength survey, which for each instrument, specifies the manufacturer, type, serial number and rated accuracy, and the date of the most recent calibration by the manufacturer or by a laboratory. Include complete details of any instrument not of standard manufacture.

(ii) A detailed description of the calibration of the measuring equipment, including field strength meters, measuring antenna, and connecting cable.

(iii) For each spot at the measuring site, all factors which may affect the recorded field, such as topography, height and types of vegetation, buildings, obstacles, weather, and other local features.

(iv) A description of where the cluster measurements were made.

(v) Time and date of the measurements and signature of the person making the measurements.

(vi) For each channel being measured, a list of the measured value of field strength (in units of dBu and after adjustment for line loss and antenna factor) of the five readings made during the cluster measurement process, with the median value highlighted.

[40 FR 27683, July 1, 1975, as amended at 50 FR 23701, June 5, 1985; 64 FR 7127, Feb. 12, 1999; 64 FR 73433, Dec. 30, 1999]

**§ 73.687 Transmission system requirements.**

(a) *Visual transmitter.* (1) The field strength or voltage of the lower sideband, as radiated or dissipated and measured as described in paragraph (a)(2) of this section, shall not be greater than –20 dB for a modulating frequency of 1.25 MHz or greater and in addition, for color, shall not be greater than –42 dB for a modulating frequency of 3.579545 MHz (the color sub-carrier frequency). For both monochrome and color, the field strength or voltage of the upper sideband as radiated or dissipated and measured as described in paragraph (a)(2) of this section shall not be greater than –20 dB for a modulating frequency of 4.75 MHz or greater. For stations operating on Channels 15–69 and employing a transmitter delivering maximum peak visual power output of 1 kW or less, the field strength or voltage of the upper and lower sidebands, as radiated or dissipated and measured as described in paragraph (a)(2) of this section, shall depart from the visual amplitude characteristic (Figure 5a of § 73.699) by no more than the following amounts:

–2 dB at 0.5 MHz below visual carrier frequency;

–2 dB at 0.5 MHz above visual carrier frequency;  
–2 dB at 1.25 MHz above visual carrier frequency;  
–3 dB at 2.0 MHz above visual carrier frequency;  
–6 dB at 3.0 MHz above visual carrier frequency;  
–12 dB at 3.5 MHz above visual carrier frequency;  
–8 dB at 3.58 MHz above visual carrier frequency (for color transmission only).

The field strength or voltage of the upper and lower sidebands, as radiated or dissipated and measured as described in paragraph (a)(2) of this section, shall not exceed a level of –20 dB for a modulating frequency of 4.75 MHz or greater. If interference to the reception of other stations is caused by out-of-channel lower sideband emission, the technical requirements applicable to stations operating on Channels 2–13 shall be met.

(2) The attenuation characteristics of a visual transmitter shall be measured by application of a modulating signal to the transmitter input terminals in place of the normal composite television video signal. The signal applied shall be a composite signal composed of a synchronizing signal to establish peak output voltage plus a variable frequency sine wave voltage occupying the interval between synchronizing pulses. (The “synchronizing signal” referred to in this section means either a standard synchronizing wave form or any pulse that will properly set the peak.) The axis of the sine wave in the composite signal observed in the output monitor shall be maintained at an amplitude 0.5 of the voltage at synchronizing peaks. The amplitude of the sine wave input shall be held at a constant value. This constant value should be such that at no modulating frequency does the maximum excursion of the sine wave, observed in the composite output signal monitor, exceed the value 0.75 of peak output voltage. The amplitude of the 200 kHz sideband shall be measured and designated zero dB as a basis for comparison. The modulation signal frequency shall then be varied over the desired range and the field strength or signal voltage of the corresponding sidebands measured. As an alternate method of measuring, in those cases in which the automatic d-c

insertion can be replaced by manual control, the above characteristic may be taken by the use of a video sweep generator and without the use of pedestal synchronizing pulses. The d-c level shall be set for midcharacteristic operation.

(3) A sine wave, introduced at those terminals of the transmitter which are normally fed the composite color picture signal, shall produce a radiated signal having an envelope delay, relative to the average envelope delay between 0.05 and 0.20 MHz, of zero microseconds up to a frequency of 3.0 MHz; and then linearly decreasing to 4.18 MHz so as to be equal to  $-0.17$   $\mu$ secs at 3.58 MHz. The tolerance on the envelope delay shall be  $\pm 0.05$   $\mu$ secs at 3.58 MHz. The tolerance shall increase linearly to  $\pm 0.1$   $\mu$ sec down to 2.1 MHz, and remain at  $\pm 0.1$   $\mu$ sec down to 0.2 MHz. (Tolerances for the interval of 0.0 to 0.2 MHz are not specified at the present time.) The tolerance shall also increase linearly to  $\pm 0.1$   $\mu$ sec at 4.18 MHz.

(4) The radio frequency signal, as radiated, shall have an envelope as would be produced by a modulating signal in conformity with § 73.682 and Figure 6 or 7 of § 73.699, as modified by vestigial sideband operation specified in Figure 5 of § 73.699. For stations operating on Channels 15-69 the radio frequency signal as radiated, shall have an envelope as would be produced by a modulating signal in conformity with § 73.682 and Figure 6 or 7 of § 73.699.

(5) The time interval between the leading edges of successive horizontal pulses shall vary less than one half of one percent of the average interval. However, for color transmissions, § 73.682(a) (5) and (6) shall be controlling.

(6) The rate of change of the frequency of recurrence of the leading edges of the horizontal synchronizing signals shall be not greater than 0.15 percent per second, the frequency to be determined by an averaging process carried out over a period of not less than 20, nor more than 100 lines, such lines not to include any portion of the blanking interval. However, for color transmissions, § 73.682(a) (5) and (6) shall be controlling.

(b) *Aural transmitter.* (1) Pre-emphasis shall be employed as closely as prac-

ticable in accordance with the impedance-frequency characteristic of a series inductance-resistance network having a time constant of 75 microseconds. (See upper curve of Figure 12 § 73.699.)

(2) If a limiting or compression amplifier is employed, precaution should be maintained in its connection in the circuit due to the use of pre-emphasis in the transmitting system.

(3) Aural modulation levels are specified in § 73.1570.

(c) *Requirements applicable to both visual and aural transmitters.* (1) Automatic means shall be provided in the visual transmitter to maintain the carrier frequency within  $\pm 1$  kHz of the authorized frequency; automatic means shall be provided in the aural transmitter to maintain the carrier frequency 4.5 MHz above the actual visual carrier frequency within  $\pm 1$  kHz.

(2) The transmitters shall be equipped with suitable indicating instruments for the determination of operating power and with other instruments necessary for proper adjustment, operation, and maintenance of the equipment.

(3) Adequate provision shall be made for varying the output power of the transmitters to compensate for excessive variations in line voltage or for other factors affecting the output power.

(4) Adequate provisions shall be provided in all component parts to avoid overheating at the rated maximum output powers.

(d) The construction, installation, and operation of broadcast equipment is expected to conform with all applicable local, state, and federally imposed safety regulations and standards, enforcement of which is the responsibility of the issuing regulatory agency.

(e) *Operation.* (1) Spurious emissions, including radio frequency harmonics, shall be maintained at as low a level as the state of the art permits. As measured at the output terminals of the transmitter (including harmonic filters, if required) all emissions removed in frequency in excess of 3 MHz above or below the respective channel edge shall be attenuated no less than 60 dB. below the visual transmitted power.



(The 60 dB. value for television transmitters specified in this rule should be considered as a temporary requirement which may be increased at a later date, especially when more higher-powered equipment is utilized. Stations should, therefore, give consideration to the installation of equipment with greater attenuation than 60 dB.) In the event of interference caused to any service greater attenuation will be required.

(2) If a limiting or compression amplifier is used in conjunction with the aural transmitter, due operating precautions should be maintained because of pre-emphasis in the transmitting system.

(3) TV broadcast stations operating on Channel 14 and Channel 69 must take special precautions to avoid interference to adjacent spectrum land mobile radio service facilities. Where a TV station is authorized and operating prior to the authorization and operation of the land mobile facility, a Channel 14 station must attenuate its emissions within the frequency range 467 to 470 MHz and a Channel 69 station must attenuate its emissions within the frequency range 806 to 809 MHz if necessary to permit reasonable use of the adjacent frequencies by land mobile licensees.

(4) The requirements listed below apply to permittees authorized to construct a new station on TV Channel 14 or TV Channel 69, and to licensees authorized to change the channel of an existing station to Channel 14 or to Channel 69, to increase effective radiated power (ERP) (including any change in directional antenna characteristics that results in an increase in ERP in any direction), or to change the transmitting location of an existing station.

(i) For the purposes of this paragraph, a protected land mobile facility is a receiver that is intended to receive transmissions from licensed land mobile stations within the frequency band below 470 MHz (as relates to Channel 14) or above 806 MHz (as relates to Channel 69), and is associated with one or more land mobile stations for which a license has been issued by the Commission, or a proper application has been received by the Commission prior to the date of the filing of the TV con-

struction permit application. However, a land mobile facility will not be protected if it is proposed in an application that is denied or dismissed and that action is no longer subject to Commission review. Further, if the land mobile station is not operating when the TV facility commences operation and it does not commence operation within the time permitted by its authorization in accordance with part 90 of this chapter, it will not be protected.

(ii) A TV permittee must take steps before construction to identify potential interference to normal land mobile operation that could be caused by TV emissions outside the authorized channel, land mobile receiver desensitization or intermodulation. It must install filters and take other precautions as necessary, and submit evidence that no interference is being caused before it will be permitted to transmit programming on the new facilities pursuant to the provisions of § 73.1615 or § 73.1620 of this part. A TV permittee must reduce its emissions within the land mobile channel of a protected land mobile facility that is receiving interference caused by the TV emission producing a vertically polarized signal and a field strength in excess of 17 dBu at the land mobile receiver site on the land mobile frequency. The TV emission should be measured with equipment set to a 30 kHz measurement bandwidth including the entire applicable land mobile channel. A TV permittee must correct a desensitization problem if its occurrence can be directly linked to the start of the TV operation and the land mobile station is using facilities with typical desensitization rejection characteristics. A TV permittee must identify the source of an intermodulation product that is generated when the TV operation commences. If the intermodulation source is under its control, the TV permittee must correct the problem. If the intermodulation source is beyond the TV permittee's control, it must cooperate in the resolution of the problem and should provide whatever technical assistance it can.

(Secs. 4, 5, 303, 48 Stat., as amended, 1066, 1068, 1082 (47 U.S.C. 154, 155, 303))

[28 FR 13660, Dec. 14, 1963]

## Federal Communications Commission

## § 73.691

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 73.687, see the List of CFR Sections Affected which appears in the Finding Aids section of the printed volume and on GPO Access.

### § 73.688 Indicating instruments.

(a) Each TV broadcast station shall be equipped with indicating instruments which conform with the specifications described in § 73.1215 for measuring the operating parameters of the last radio stage of the visual transmitter, and with such other instruments as are necessary for the proper adjustment, operation, and maintenance of the visual transmitting system.

(b) The function of each instrument shall be clearly and permanently shown on the instrument itself or on the panel immediately adjacent thereto.

(c) In the event that any one of these indicating instruments becomes defective, when no substitute which conforms with the required specifications is available, the station may be operated without the defective instrument pending its repair or replacement for a period not in excess of 60 days without further authority of the FCC, provided that:

(1) If the defective instrument is the transmission line meter used for determining the output power by the direct method, the operating power shall be determined or maintained by the indirect method whenever possible or by using the operating parameters of the last radio stage of the transmitter during the time the station is operated without the transmission line meter.

(2) If conditions beyond the control of the licensee prevent the restoration of the meter to service within the above allowed period, informal request in accordance with § 73.3549 may be filed

with the Engineer in Charge of the radio district in which the station is located for such additional time as may be required to complete repairs of the defective instrument.

[41 FR 36818, Sept. 1, 1976, as amended at 48 FR 38480, Aug. 24, 1983; 49 FR 50048, Dec. 26, 1984; 50 FR 26568, June 27, 1985]

### § 73.691 Visual modulation monitoring.

(a) Each TV station must have measuring equipment for determining that the transmitted visual signal conforms to the provisions of this subpart. The licensee shall decide the monitoring and measurement methods or procedures for indicating and controlling the visual signal.

(b) In the event technical problems make it impossible to operate in accordance with the timing and carrier level tolerance requirements of § 73.682 (a)(9)(i), (a)(9)(ii), (a)(12), (a)(13), and (a)(17), a TV broadcast station may operate at variance for a period of not more than 30 days without specific authority from the FCC: *provided that*, the date and time of the initial out-of-tolerance condition has been entered in the station log. If the operation at variance will exceed 10 consecutive days, a notification must be sent to the FCC in Washington, D.C., not later than the 10th day of such operation. In the event normal operation is resumed prior to the end of the 30 day period, the licensee must notify the FCC upon restoration of normal operation. If causes beyond the control of the licensee prevent restoration of normal operation within 30 days, a written request must be made to the FCC in Washington, D.C., no later than the 30th day for such additional time as may be necessary.

[60 FR 55480, Nov. 1, 1995]

§ 73.698 Tables.

TABLE I [RESERVED]

TABLE II

(1)—Channel	(2)—31.4 kilometers (19.5 miles) If beat	(3)—31.4 kilo- meters (19.5 miles) inter- modulation	(4)—87.7 kilometers (54.5 miles) ad- jacent channel	(5)—95.7 kilometers (59.5 miles) os- cillator	(6)—95.7 kilometers (59.5 miles) sound image	(7)—119.9 kilometers (74.5 miles) pic- ture image
14 .....	22	16–19	15	21	28	29
15 .....	23	17–20	14, 16	22	29	30
16 .....	24	14, 18–21	15, 17	23	30	31
17 .....	25	14–15, 19–22	16, 18	24	31	32
18 .....	26	14–16, 20–23	17, 19	25	32	33
19 .....	27	14–17, 21–24	18, 20	26	33	34
20 .....	28	15–18, 22–25	19, 21	27	34	35
21 .....	29	16–19, 23–26	20, 22	28, 14	35	36
22 .....	30, 14	17–20, 24–27	21, 23	29, 15	36	37
23 .....	31, 15	18–21, 25–28	22, 24	30, 16	37	38
24 .....	32, 16	19–22, 26–29	23, 25	31, 17	38	39
25 .....	33, 17	20–23, 27–30	24, 26	32, 18	39	40
26 .....	34, 18	21–24, 28–31	25, 27	33, 19	40	41
27 .....	35, 19	22–25, 29–32	26, 28	34, 20	41	42
28 .....	36, 20	23–26, 30–33	27, 29	35, 21	42, 14	43
29 .....	37, 21	24–27, 31–34	28, 30	36, 22	43, 15	44, 14
30 .....	38, 22	25–28, 32–35	29, 31	37, 23	44, 16	45, 15
31 .....	39, 23	26–29, 33–36	30, 32	38, 24	45, 17	46, 16
32 .....	40, 24	27–30, 34–37	31, 33	39, 25	46, 18	47, 17
33 .....	41, 25	28–31, 35–38	32, 34	40, 26	47, 19	48, 18
34 .....	42, 26	29–32, 36–39	33, 35	41, 27	48, 20	49, 19
35 .....	43, 27	30–33, 37–40	34, 36	42, 28	49, 21	50, 20
36 .....	44, 28	31–34, 38–41	35, 37	43, 29	50, 22	51, 21
37 .....	45, 29	32–35, 39–42	36, 38	44, 30	51, 23	52, 22
38 .....	46, 30	33–36, 40–43	37, 39	45, 31	52, 24	53, 23
39 .....	47, 31	34–37, 41–44	38, 40	46, 32	53, 25	54, 24
40 .....	48, 32	35–38, 42–45	39, 41	47, 33	54, 26	55, 25
41 .....	49, 33	36–39, 43–46	40, 42	48, 34	55, 27	56, 26
42 .....	50, 34	37–40, 44–47	41, 43	49, 35	56, 28	57, 27
43 .....	51, 35	38–41, 45–48	42, 44	50, 36	57, 29	58, 28
44 .....	52, 36	39–42, 46–49	43, 45	51, 37	58, 30	59, 29
45 .....	53, 37	40–43, 47–50	44, 46	52, 38	59, 31	60, 30
46 .....	54, 38	41–44, 48–51	45, 47	53, 39	60, 32	61, 31
47 .....	55, 39	42–45, 49–52	46, 48	54, 40	61, 33	62, 32
48 .....	56, 40	43–46, 50–53	47, 49	55, 41	62, 34	63, 33
49 .....	57, 41	44–47, 51–54	48, 50	56, 42	63, 35	64, 34
50 .....	58, 42	45–48, 52–55	49, 51	57, 43	64, 36	65, 35
51 .....	59, 43	46–49, 53–56	50, 52	58, 44	65, 37	66, 36
52 .....	60, 44	47–50, 54–57	51, 53	59, 45	66, 38	67, 37
53 .....	61, 45	48–51, 55–58	52, 54	60, 46	67, 39	68, 38
54 .....	62, 46	49–52, 56–59	53, 55	61, 47	68, 40	69, 39
55 .....	63, 47	50–53, 57–60	54, 56	62, 48	69, 41	70, 40
56 .....	64, 48	51–54, 58–61	55, 57	63, 49	70, 42	71, 41
57 .....	65, 49	52–55, 59–62	56, 58	64, 50	71, 43	72, 42
58 .....	66, 50	53–56, 60–63	57, 59	65, 51	72, 44	73, 43
59 .....	67, 51	54–57, 61–64	58, 60	66, 52	73, 45	74, 44
60 .....	68, 52	55–58, 62–65	59, 61	67, 53	74, 46	75, 45
61 .....	69, 53	56–59, 63–66	60, 62	68, 54	75, 47	76, 46
62 .....	70, 54	57–60, 64–67	61, 63	69, 55	76, 48	77, 47
63 .....	71, 55	58–61, 65–68	62, 64	70, 56	77, 49	78, 48
64 .....	72, 56	59–62, 66–69	63, 65	71, 57	78, 50	79, 49
65 .....	73, 57	60–63, 67–70	64, 66	72, 58	79, 51	80, 50
66 .....	74, 58	61–64, 68–71	65, 67	73, 59	80, 52	81, 51
67 .....	75, 59	62–65, 69–72	66, 68	74, 60	81, 53	82, 52
68 .....	76, 60	63–66, 70–73	67, 69	75, 61	82, 54	83, 53
69 .....	77, 61	64–67, 71–74	68, 70	76, 62	83, 55	84

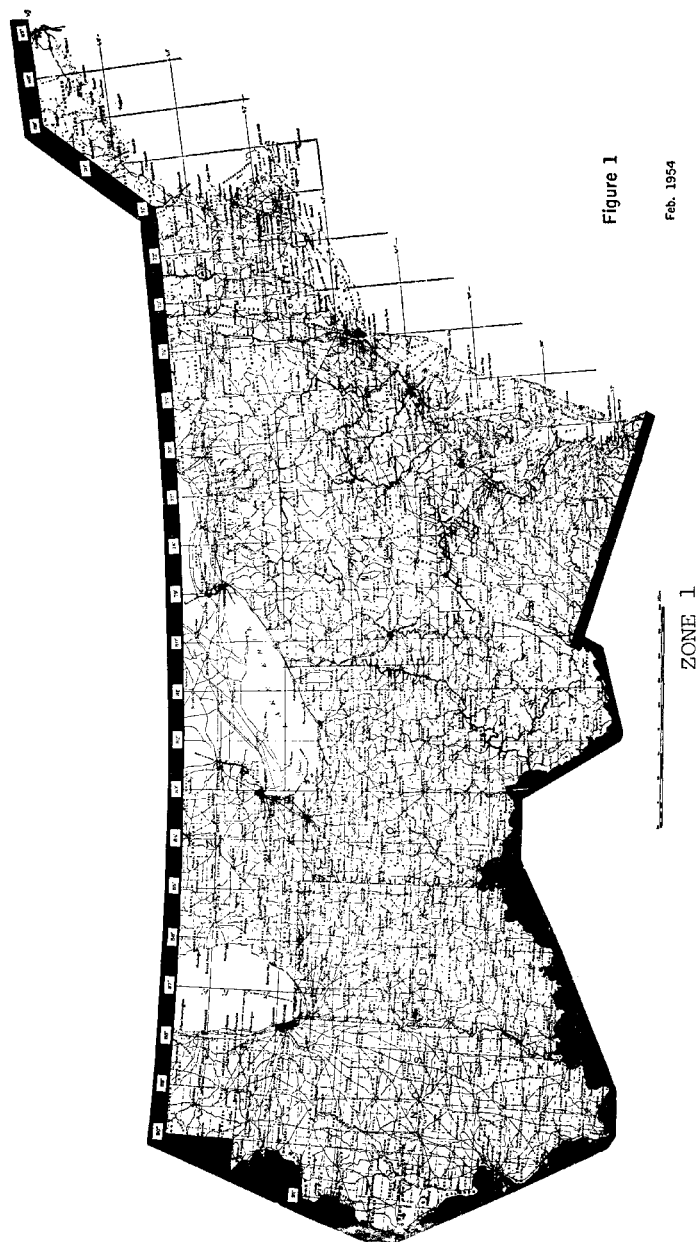
NOTE: The parenthetical reference beneath the mileage figures in columns 2 through 7, inclusive, indicate, in abbreviated form, the bases for the required mileage separations. For a discussion of these bases, see the "Sixth Report and Order" of the Commission (FCC 52–294; 17 FR 3905, May 2, 1952). The hyphenated numbers listed in column (3) are both inclusive.

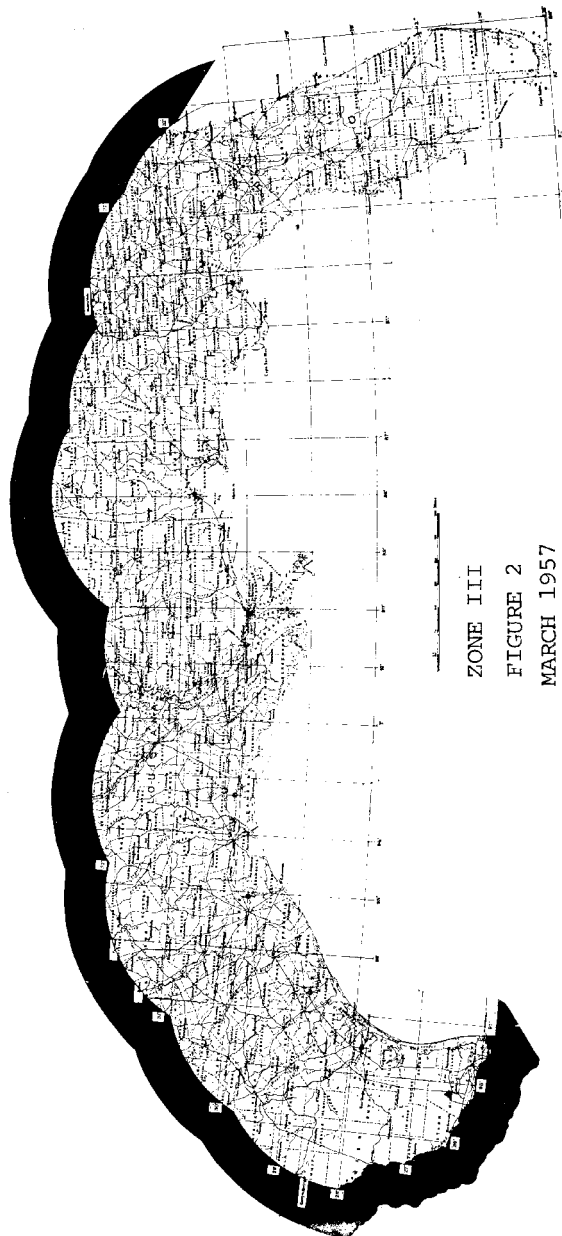
[28 FR 13660, Dec. 14, 1963, as amended at 39 FR 20377, June 10, 1974; 47 FR 35990, Aug. 18, 1982; 50 FR 23701, June 5, 1985; 54 FR 9807, Mar. 8, 1989]

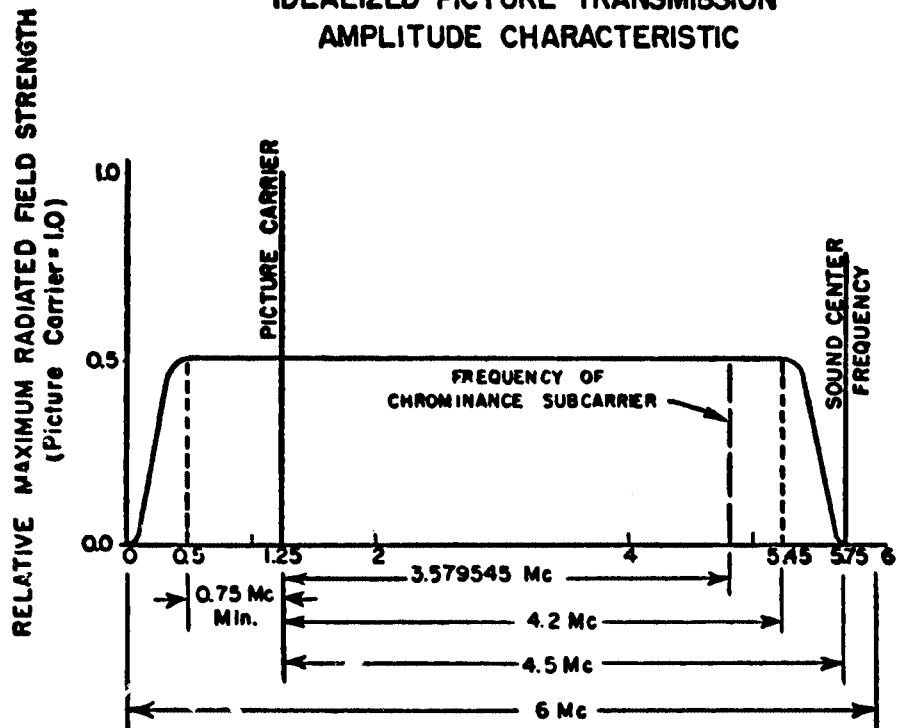
**§ 73.699 TV engineering charts.**

This section consists of the following Figures: 1-5, 5a, 6-10, 10a-10e, 11-12, 13-16.

NOTE: The charts as reproduced herein, due to their small scale, are not to be used in connection with material submitted to the F.C.C.





**IDEALIZED PICTURE TRANSMISSION  
AMPLITUDE CHARACTERISTIC**

Note: Not drawn to scale

**FIGURE 5**

# IDEALIZED PICTURE TRANSMISSION AMPLITUDE CHARACTERISTIC

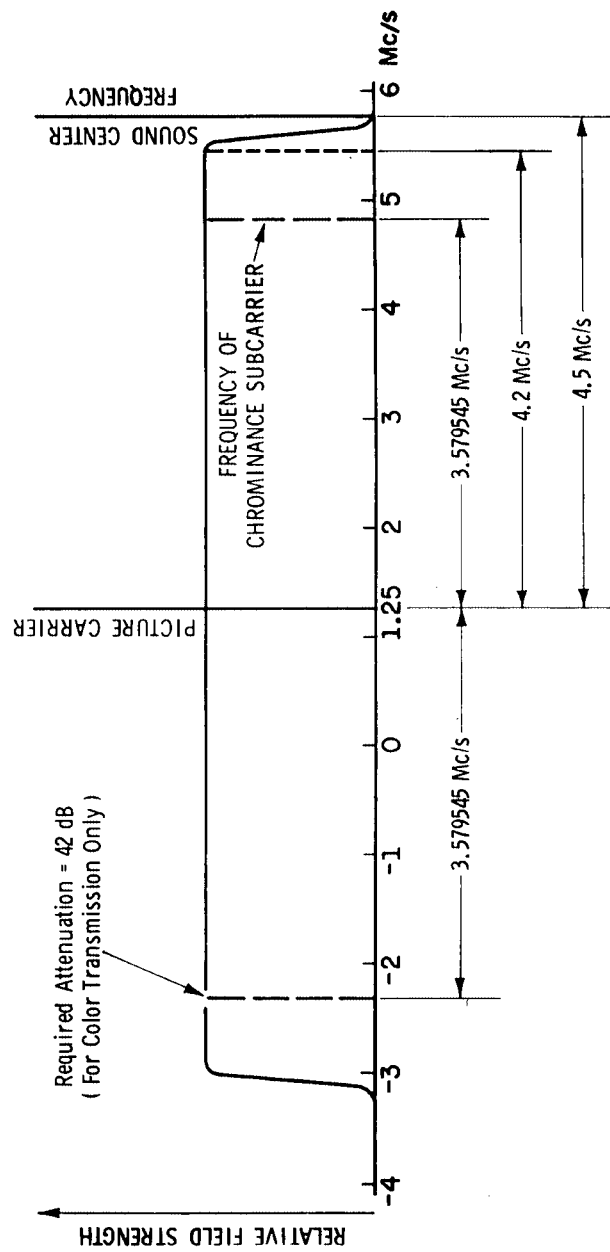
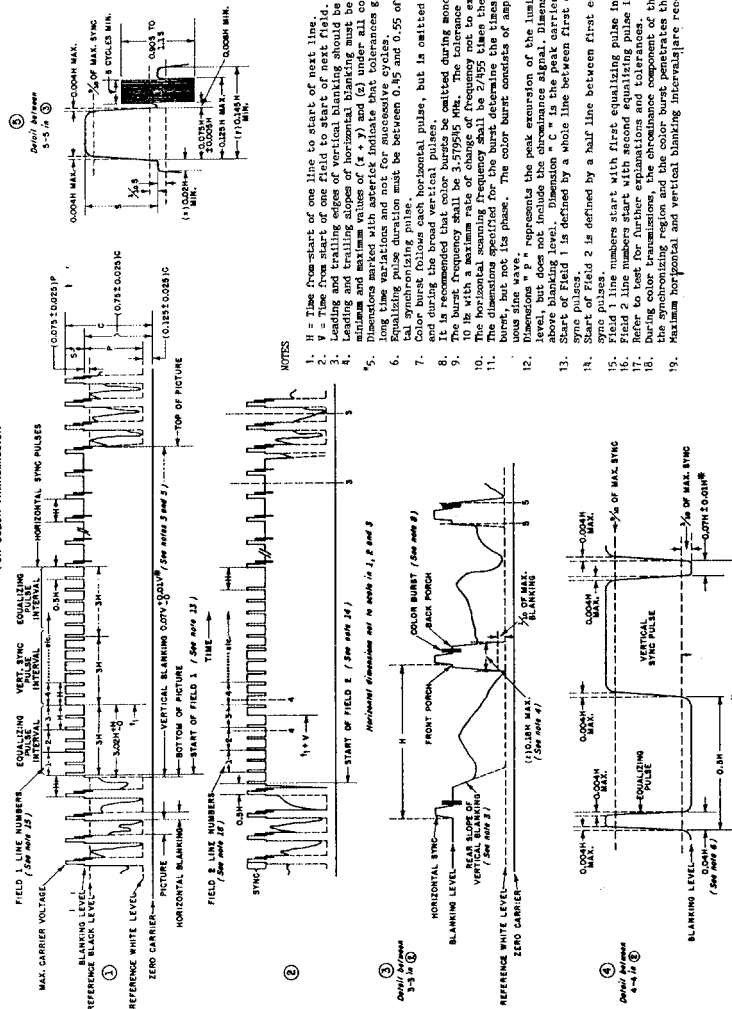


FIGURE 5 (a)

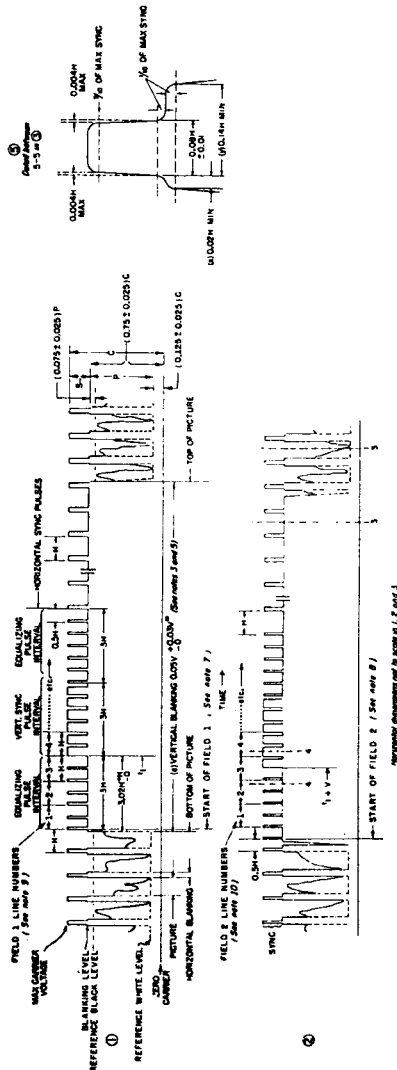
TELEVISION SYNCHRONIZING WAVEFORM  
FOR COLOR TRANSMISSION

FCC § 73.699, FIGURE 6





TELEVISION SYNCHRONIZING WAVEFORM  
FOR MONOCHROME TRANSMISSION ONLY



NOTES

- 1 H: Time from start of one line to start of next line.
- 2 V: Time from start of one field to start of next field.
- 3 Leading and trailing edges of vertical blanking should be complete in less than 0.1H.
- 4 Leading and trailing slopes of horizontal blanking must be steep enough to preserve minimum and maximum values of  $(x + y)$  and  $(z)$  under all conditions of picture content.
- \*5 Dimensions marked with asterisk indicate that tolerances given are permitted only for long time variations and not for successive cycles.
- 6 Equalizing pulse duration must be between 0.45 and 0.55 of the duration of the horizontal synchronizing pulse duration.
- 7 Start of Field 1 is defined by a whole line between first equalizing pulse and preceding H sync pulse.
- 8 Start of Field 2 is defined by a half line between first equalizing pulse and preceding H sync pulse.
- 9 Field line numbers start with first equalizing pulse in Field 1.
- 10 Field 2 line numbers start with second equalizing pulse in Field 2.
- 11 Refer to text for further explanations and tolerances.
- 12 Maximum horizontal and vertical blanking intervals are recommended values only.

Figure 7

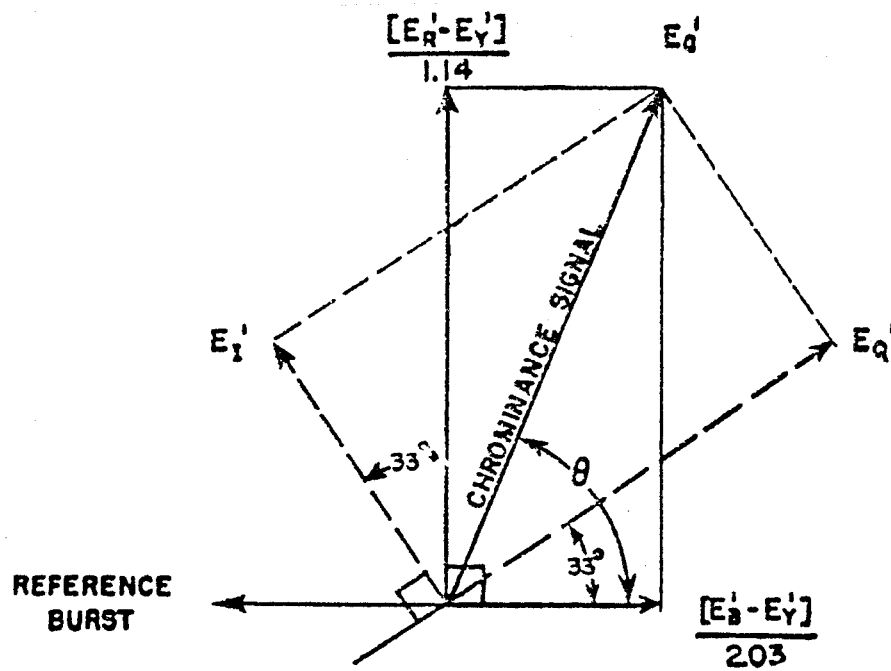
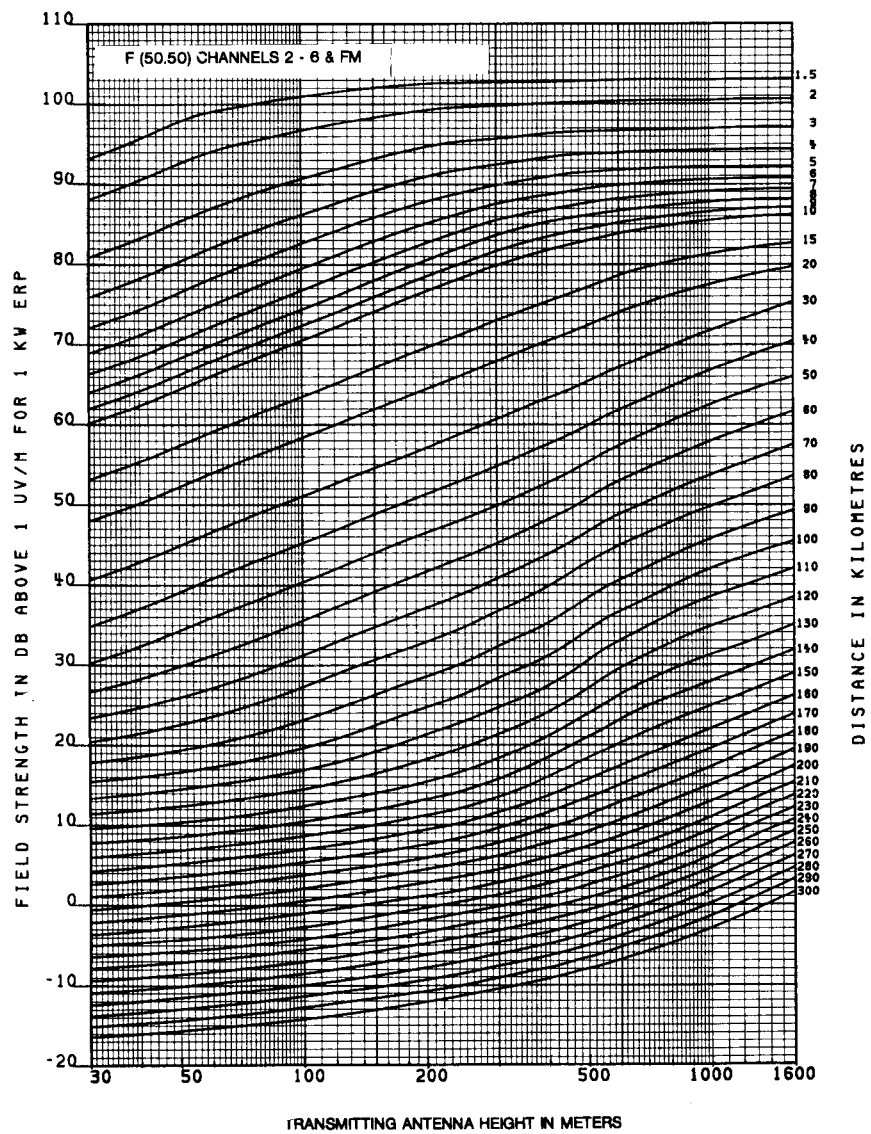
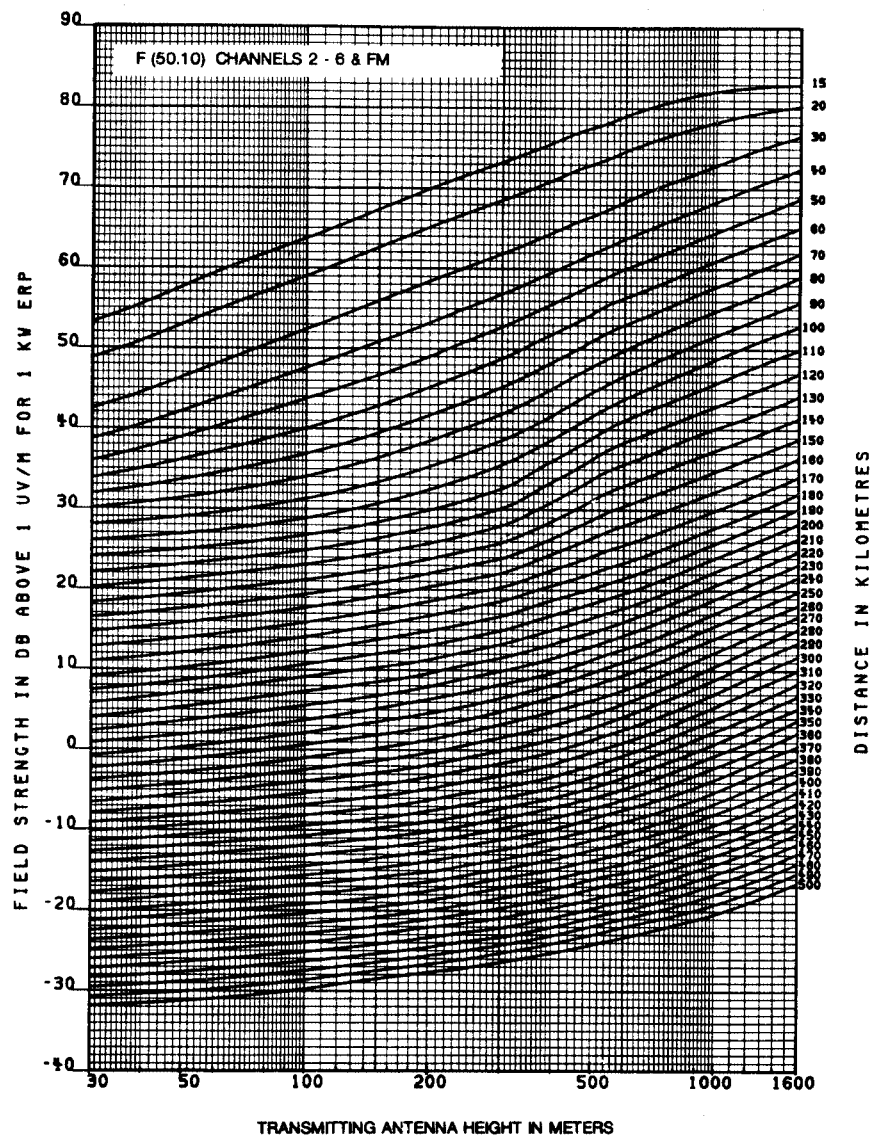


FIGURE 8



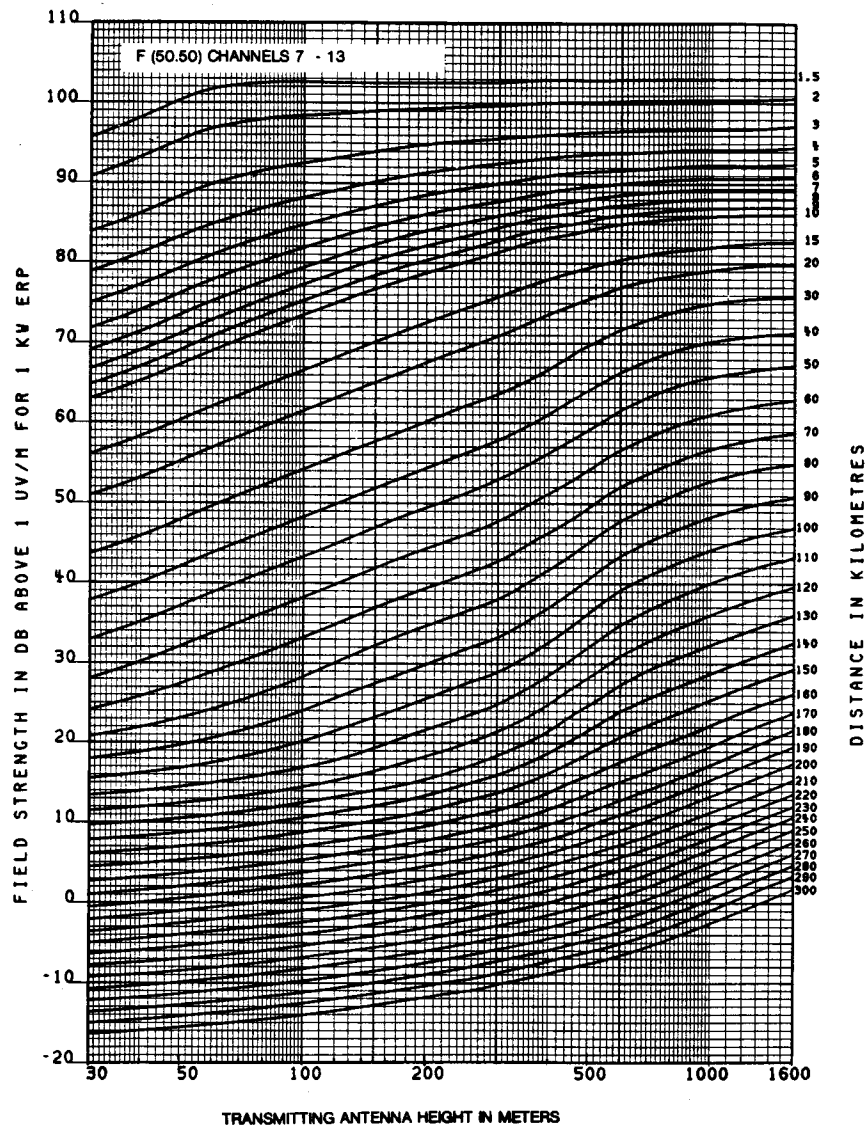
FCC 73.699 Figure 9

ESTIMATED FIELD STRENGTH EXCEEDED AT 50 PERCENT  
OF THE POTENTIAL RECEIVER LOCATIONS FOR AT LEAST 50 PERCENT  
OF THE TIME AT A RECEIVING ANTENNA HEIGHT OF 9 METERS



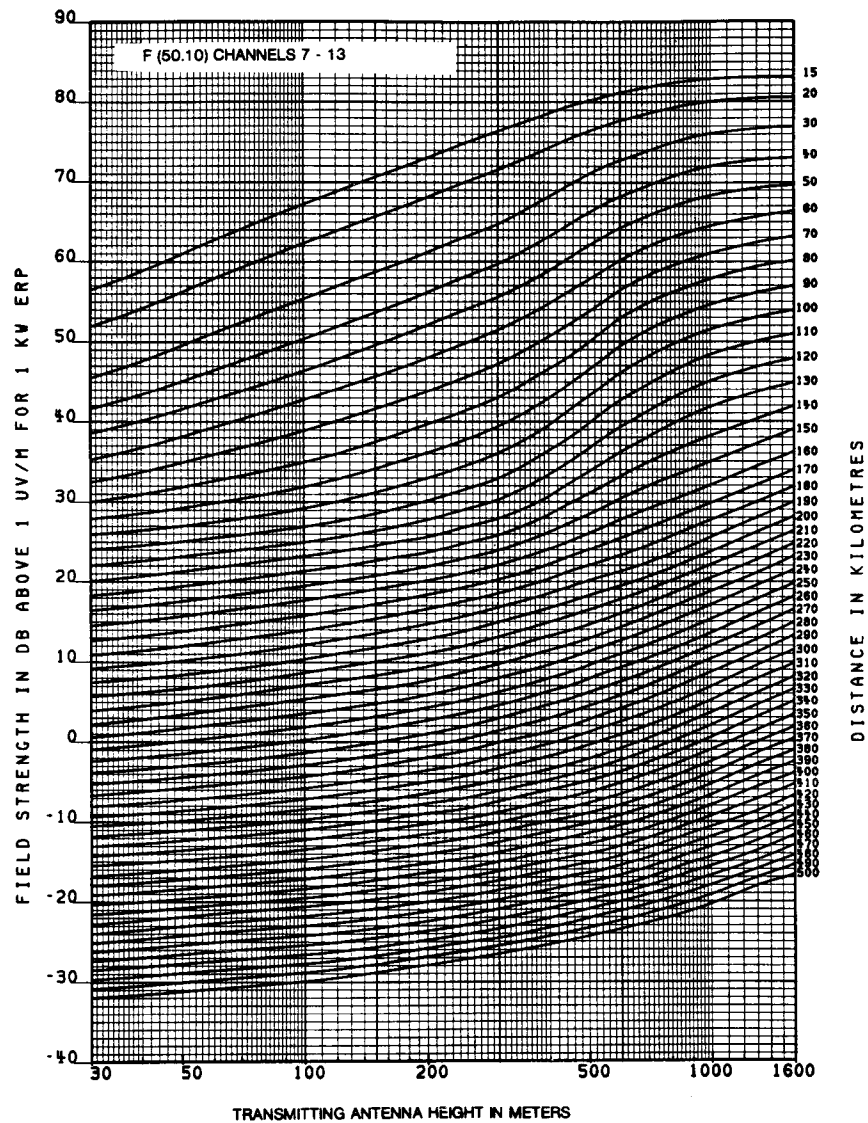
FCC 73.699 Figure 9a

ESTIMATED FIELD STRENGTH EXCEEDED AT 50 PERCENT  
OF THE POTENTIAL RECEIVER LOCATIONS FOR AT LEAST 10 PERCENT  
OF THE TIME AT A RECEIVING ANTENNA HEIGHT OF 9 METERS



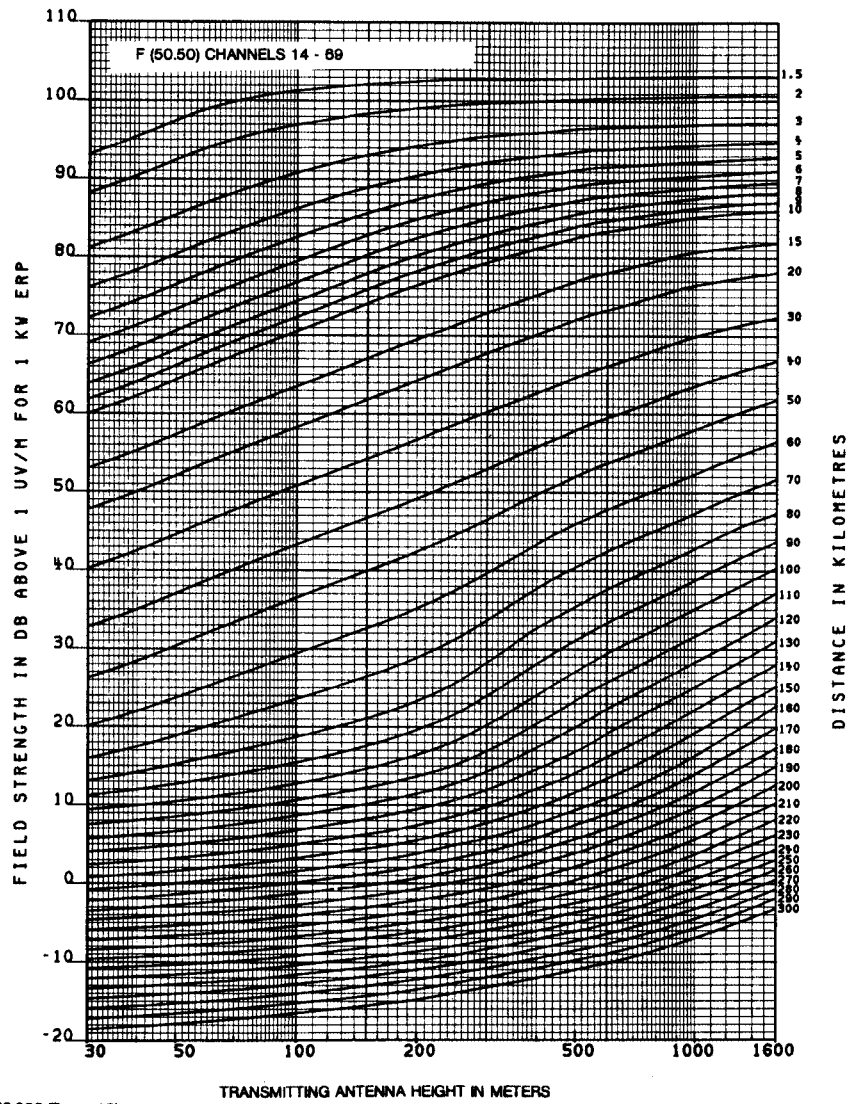
FCC 73.699 Figure 10

ESTIMATED FIELD STRENGTH EXCEEDED AT 50 PERCENT  
OF THE POTENTIAL RECEIVER LOCATIONS FOR AT LEAST 50 PERCENT  
OF THE TIME AT A RECEIVING ANTENNA HEIGHT OF 9 METERS



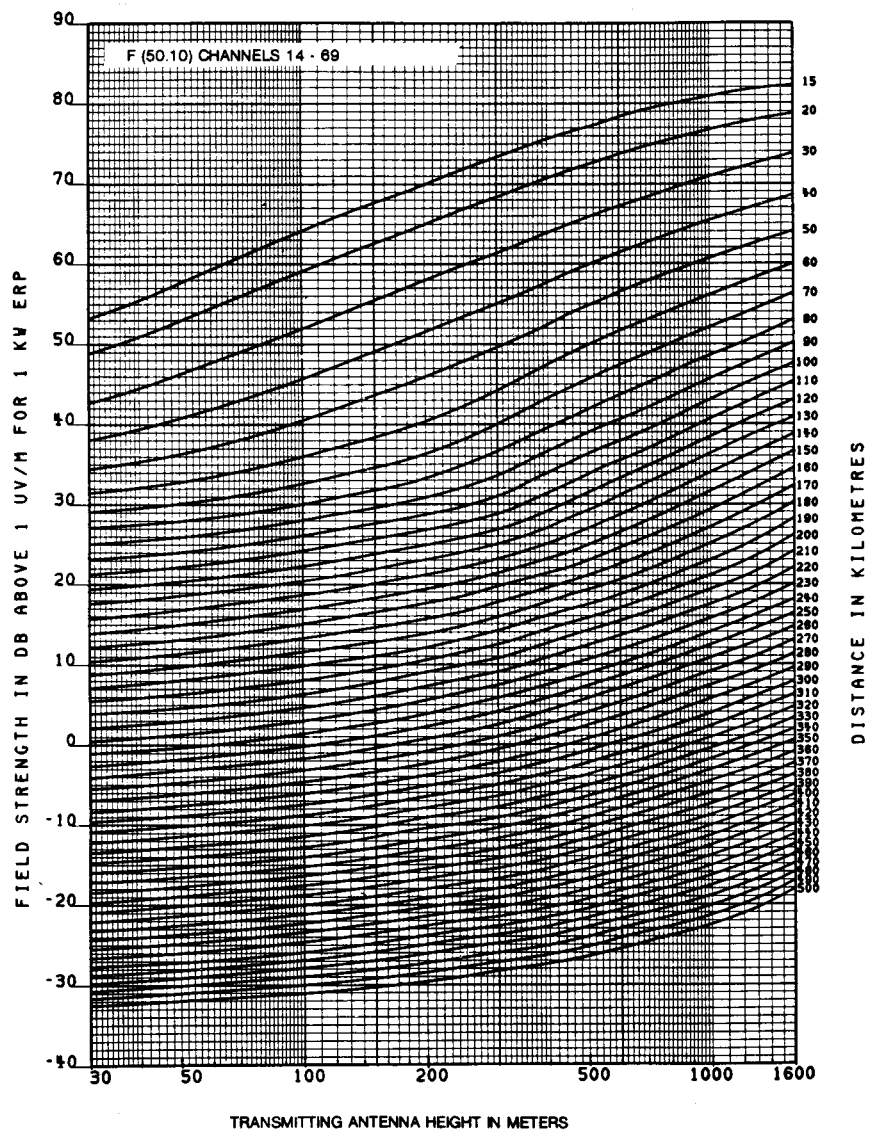
FCC 73.699 Figure 10a

ESTIMATED FIELD STRENGTH EXCEEDED AT 50 PERCENT  
OF THE POTENTIAL RECEIVER LOCATIONS FOR AT LEAST 10 PERCENT  
OF THE TIME AT A RECEIVING ANTENNA HEIGHT OF 9 METERS



FCC 73.699 Figure 10b

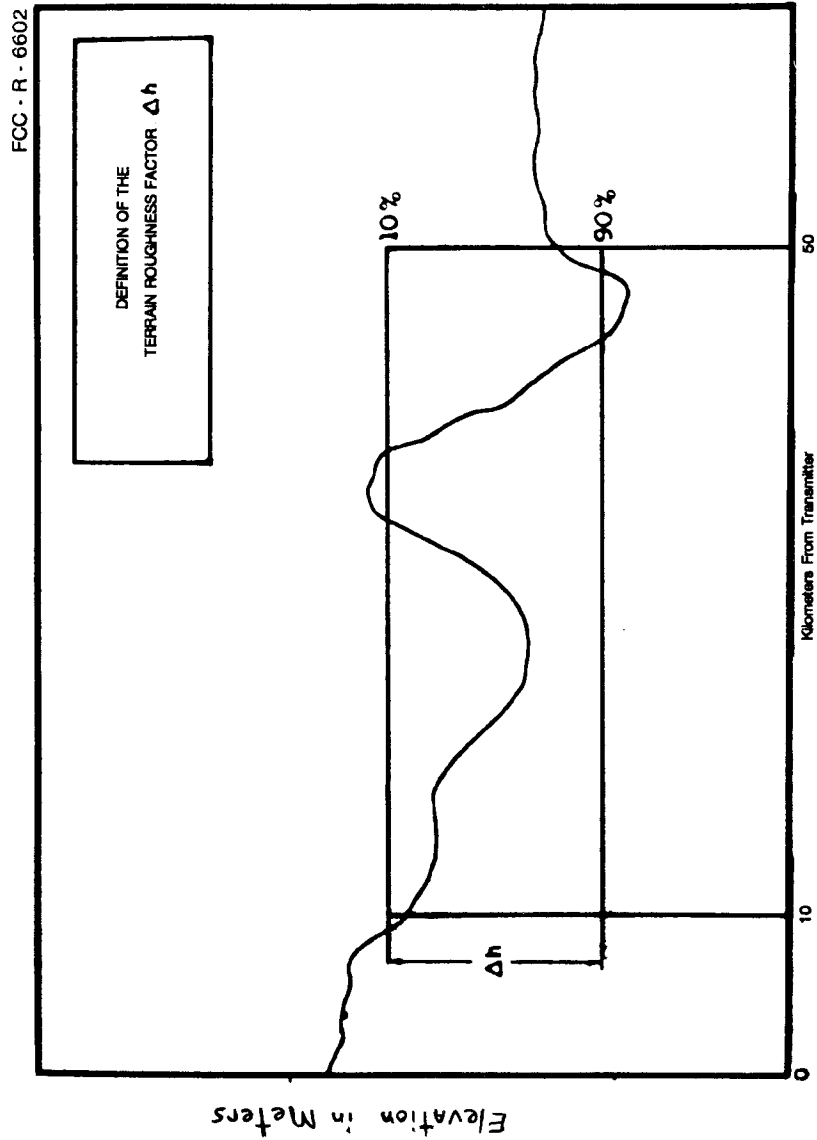
ESTIMATED FIELD STRENGTH EXCEEDED AT 50 PERCENT  
OF THE POTENTIAL RECEIVER LOCATIONS FOR AT LEAST 50 PERCENT  
OF THE TIME AT A RECEIVING ANTENNA HEIGHT OF 9 METERS



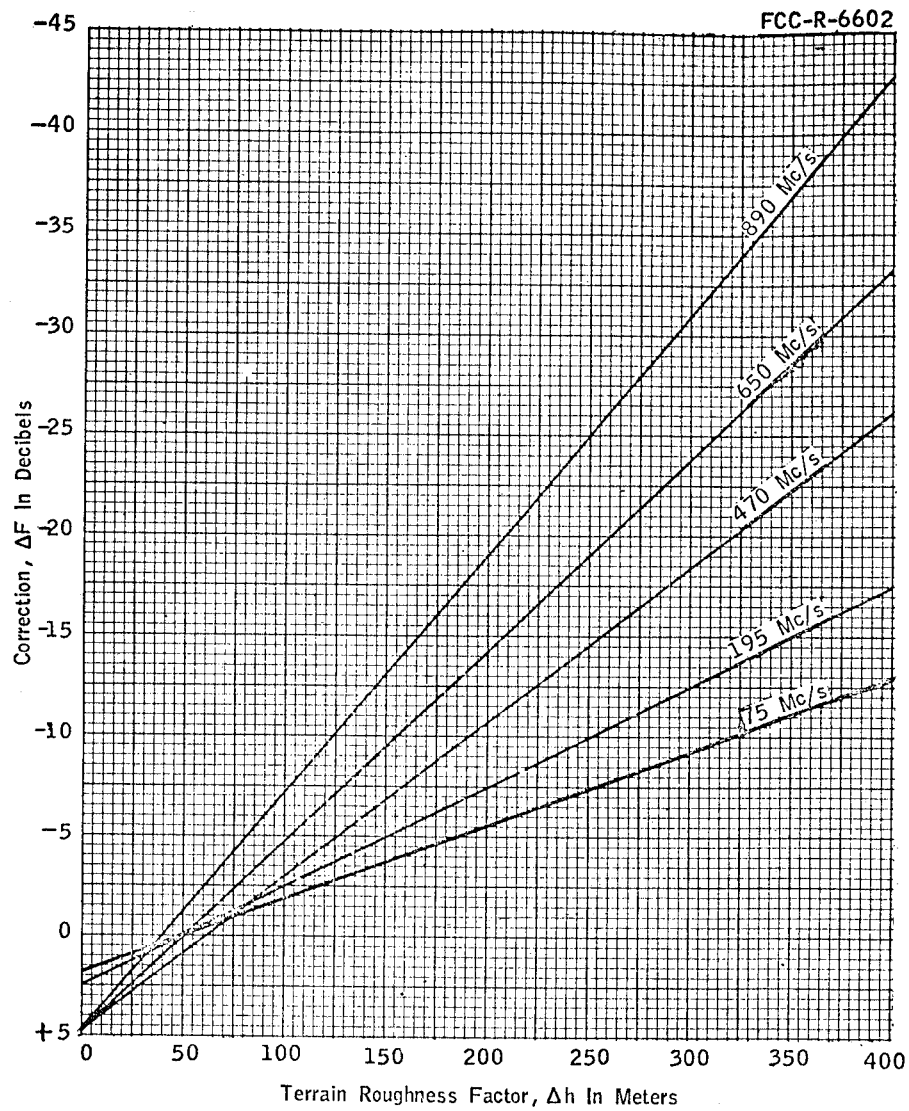
FCC 73.699 Figure 10c

ESTIMATED FIELD STRENGTH EXCEEDED AT 50 PERCENT  
OF THE POTENTIAL RECEIVER LOCATIONS FOR AT LEAST 10 PERCENT  
OF THE TIME AT A RECEIVING ANTENNA HEIGHT OF 9 METERS





FCC § 73.699 FIGURE 10d



TERRAIN ROUGHNESS CORRECTION  
for use with estimated  $F(50,50)$  and  $F(50,10)$  field strength curves

FCC § 73.699 FIGURE 10e

ASSUMED IDEAL DETECTOR OUTPUT

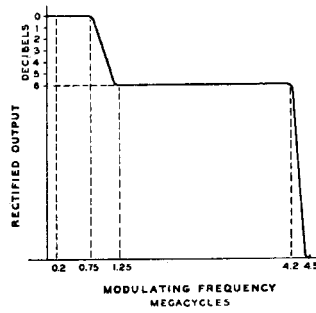


FIGURE 11

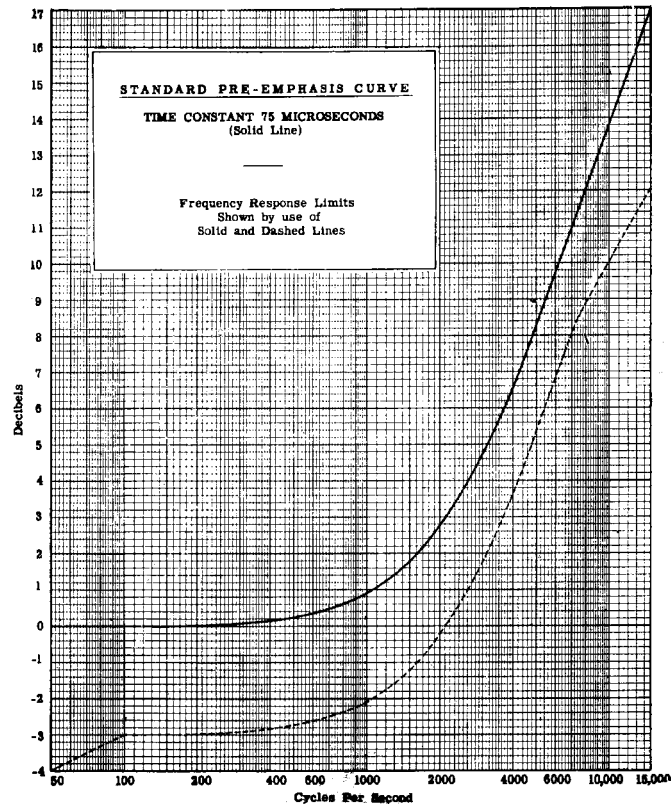
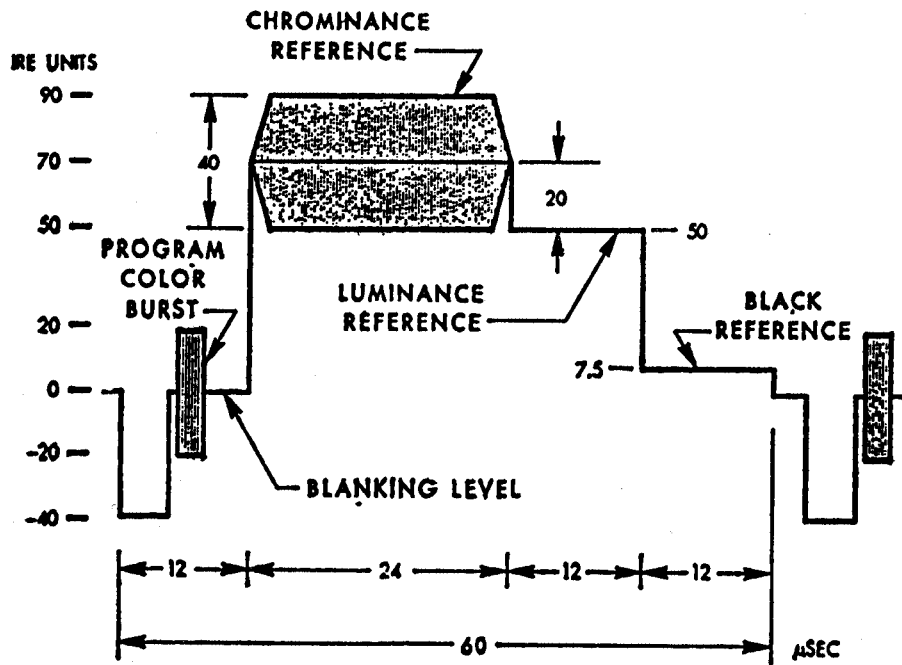


FIGURE 12

FIGURES 13 THROUGH 15 [RESERVED]



NOTE: THE CHROMINANCE REFERENCE AND THE PROGRAM COLOR BURST HAVE THE SAME PHASE.

**FIGURE 16**

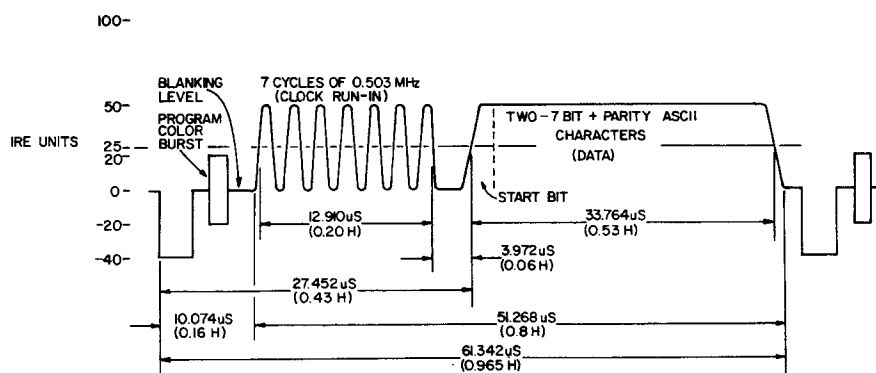


FIGURE 17 LINE 21 FIELD DATA SIGNAL FORMAT

HORIZONTAL DIMENSIONS NOT TO SCALE

1. DATA "1" = 50 IRE UNITS, DATA "0" = 0.
2. DATA PULSE RISE TIME = 2 T<sub>RI</sub> RISE TIME.
3. DATA TIME BASE = 32 T<sub>H</sub> (0.50349650 MHz).
4. DATA BIT INTERVAL = H/32 (1.986 μs).
5. NEGATIVE GOING ZERO CROSSINGS OF CLOCK ARE COHERENT WITH DATA TRANSITIONS.
6. DATA AND CLOCK RUN-IN COHERENT WITH H.

**FCC § 73.699, Figure 17**

[28 FR 13660, Dec. 14, 1963, as amended at 36 FR 17429, Aug. 31, 1971; 39 FR 40957, Nov. 22, 1974; 40 FR 27684, July 1, 1975; 41 FR 56326, Dec. 28, 1976; 44 FR 36040, June 20, 1979; 47 FR 3790, Jan. 27, 1982; 47 FR 35990, Aug. 18, 1982; 50 FR 13972, Apr. 9, 1985; 50 FR 23701, June 5, 1985; 50 FR 32205, Aug. 9, 1985; 52 FR 11656, Apr. 10, 1987; 54 FR 9807, Mar. 8, 1989; 58 FR 29983, May 25, 1993]

EFFECTIVE DATE NOTE: At 42 FR 25736, May 19, 1977, the effective date of § 73.699 Figure 10e was stayed indefinitely.

## Subpart F—International Broadcast Stations

### § 73.701 Definitions.

The following definitions apply to terminology employed in this subpart:

(a) *International broadcast stations.* A broadcasting station employing frequencies allocated to the broadcasting service between 5900 and 26100 kHz, the transmissions of which are intended to be received directly by the general public in foreign countries. (A station may be authorized more than one transmitter.) There are both Federal and non-Federal Government international broadcast stations; only the latter are licensed by the Commission and are subject to the rules of this subpart.

(b) *Transmitter-hour.* One frequency used on one transmitter for one hour.

(c) *Frequency-hour.* One frequency used for one hour regardless of the number of transmitters over which it is simultaneously broadcast by a station during that hour.

(d) *Multiple operation.* Broadcasting by a station on one frequency over two or more transmitters simultaneously. If a station uses the same frequency simultaneously on each of two (three, etc.) transmitters for an hour, it uses one frequency-hour and two (three, etc.) transmitter-hours.

(e) *Coordinated Universal Time (UTC).* Time scale, based on the second (SI), as defined in Recommendation ITU-R TF.460-6. For most practical purposes associated with the ITU *Radio Regulations*, UTC is equivalent to mean solar time at the prime meridian (0° longitude), formerly expressed in GMT. (RR)