



Frequency Allocation Tables

This appendix provides information on broadcast and cable television NTSC and PAL/SECAM standards and frequencies used around the world.

There are three standards for transmitting video. They are defined by the method of encoding color onto a monochrome signal. The methods are defined as:

- **NTSC—National Television System Committee**
NTSC is the current standard used for analog television in the United States and elsewhere. NTSC supports color television transmission in a 6-MHz channel bandwidth and has 525 interlaced scan lines. Two fields are interlaced to make one frame with a frame rate of 29.97 frames per second and a field rate of 59.94 fields per second. A fraction (approximately 8 percent) of the available bandwidth is used for signal synchronization between the transmitter and the receiver, giving an effective resolution of 640 x 480. The aspect ratio, or ratio of picture width to picture height, is 4:3.
- **PAL—Phase Alternating Line**
PAL is a composite color system similar to NTSC. In PAL, however, the color difference signals alternate phase at the horizontal line rate. PAL video consists of a 625-line frame, a frame rate of 25 Hz, and a field rate of 50 Hz. As with NTSC, approximately 8 percent of the available bandwidth is used for synchronization yielding an effective resolution of 768 x 576. The aspect ratio is 4:3. The PAL standard and its variants are used primarily in Europe, Asia, Africa, Australia, Brazil, and Argentina.
- **SECAM—SEquential Couleur Avec Memoire**
SECAM is a color television broadcasting system using 625 picture lines and a 50-hertz (Hz) field rate, in which the two color-difference signals are transmitted sequentially instead of simultaneously.

NTSC information is covered in [Table E-4 on page E-3](#) and [Table E-5 on page E-8](#). General PAL/SECAM information is covered in [Table E-6 on page E-10](#). Use the information in [Table E-1](#), [Table E-2](#), and [Table E-3 on page E-2](#) to compare analog television standards used around the world.

Check these websites for more information:

<http://www.blondertongue.com>

<http://www.geo-orbit.org>

<http://www.acterna.com>

<http://developer.apple.com>

<http://www.c-cor.net>

<http://atxnetworks.com>

<http://www.alkenmrs.com>

Standards Comparisons

The following tables (Table E-1, Table E-2, and Table E-3) include data from Recommendation ITU-R BT.470.6, Conventional Television Systems (1998) and provide a comparison of the different standards.

Table E-1 Analog Television System Baseband Video Parameters

	M	N	B, B1, D1, G	H	I	D, K	K1	L
Lines per frame	525	625	625	625	625	625	625	625
Field rate (Hz)	Monochrome: 60 Color: 59.94	50	50	50	50	50	50	50
Horizontal rate (Hz)	Monochrome: 15,750 Color: 15,734.264	15,625	15,625	15,625	15,625	15,625	15,625	15,625
Video bandwidth (Mhz)	4.2	4.2	5	5	5.5	6	6	6

Table E-2 Analog Television Chrominance Sub Carrier Frequencies

	M/NTSC	M/PAL	B, B1, D, D1, G, H, K, N/PAL	I/PAL	N/PAL¹	B, D, G, H, K, K1, L/SECAM
Chrominance sub carrier frequency (Hz)	3,579,545 ± 10	3,575,611.49 ± 10	4,433,618.75 ± 5	4,433,618.75 ± 1	3,582,056.25 ± 5	$f_{OR}=4,406,250$ $\pm 2,000$ $f_{OB}=4,250,000$ $\pm 2,000$

1. This value applies to the combination N/PAL used in Argentina.

Table E-3 Analog Television System RF Parameters

	M	N	B, B1, G	H	I	D, D1, K	K1	L
Channel bandwidth at RF (MHz)	6	6	B=7 B1, G=8	8	8	8	8	8
Frequency separation between visual and aural carrier (MHz)	4.5	4.5	5.5	5.5	5.9996	6.5	6.5	6.5

NTSC Cable Television Channels and Relative Frequencies

Table E-4 provides information on the NTSC frequency map for standard 6-MHz channels in North, Central, and South America, as well as parts of Asia. Table E-5 on page E-8 lists NTSC assignments for Japan.

Table E-4 NCTA Cable Television Channels and Relative Frequencies

Channel No. ¹	Channel No., EIA	Bandwidth (MHz)	Visual Carrier (MHz)	Center Freq.	Aural Carrier (MHz)	Incrementally Related Carrier		Harmonically Related Carrier	
						Visual	Aural	Visual	Aural
T-7	none	5.75-11.75	7	8.75	11.5	N/A	N/A	N/A	N/A
T-8	none	11.75-17.75	13	14.75	17.5	N/A	N/A	N/A	N/A
T-9	none	17.75-23.75	19	10.75	23.5	N/A	N/A	N/A	N/A
T-10	none	23.75-29.75	25	26.75	29.5	N/A	N/A	N/A	N/A
T-11	none	29.75-35.75	31	32.75	35.5	N/A	N/A	N/A	N/A
T-12	none	35.75-41.75	37	38.75	41.5	N/A	N/A	N/A	N/A
T-13	none	41.75-47.75	43	44.75	47.5	N/A	N/A	N/A	N/A
TV-IF	none	40.0-46.0	45.75	44.0	41.25	N/A	N/A	N/A	N/A
2	2	54.0-60.0	55.25	57.0	59.75	55.2625	59.7625	54.0027	58.5027
3	3	60.0-66.0	61.25	63.0	65.75	61.2625	65.7625	60.0030	64.5030
4	4	66.0-72.0	67.25	69.0	71.75	67.2625	71.7625	66.0033	70.5030
5	5	76.0-82.0	77.25	79.0	81.75	79.2625	83.7625	78.0039	82.5039
6	6	82.0-88.0	83.25	85.0	87.75	85.2625	89.7625	84.0042	88.5042
	FM	88.0-108.0							
A-5	95	90.0-96.0	91.25	93.0	95.75	91.2625	95.7625	90.0045	94.5045
A-4	96	96.0-102.0	97.25	99.0	101.75	97.2625	101.7625	96.0048	100.5048
A-3	97	102.0-108.0	103.25	105.0	107.75	103.2625	107.7625	102.0051	106.5051
A-2	98 ²	108.0-114.0	109.25	111.0	113.75	109.2750	113.7750	Cannot lock to comb	
A-1	99 ²	114.0-120.0	115.25	117.0	119.75	115.2750	119.7750	ref: Refer to FCC regulations	
A	14 ²	120.0-126.0	121.25	123.0	125.75	121.2625	125.7625	120.0060	124.5060
B	15 ²	126.0-132.0	127.25	129.0	131.75	127.2625	131.7625	126.0063	130.5063
C	16 ²	132.0-138.0	133.25	135.0	137.75	133.2625	137.7625	132.0066	136.5066
D	17	138.0-144.0	139.25	141.0	143.75	139.2625	143.7625	138.0069	142.5069
E	18	144.0-150.0	145.25	147.0	149.75	145.2625	149.7625	144.0072	148.5072
F	19	150.0-156.0	151.25	153.0	155.75	151.2625	155.7625	150.0075	154.5075
G	20	156.0-162.0	157.25	159.0	161.75	157.2625	161.7625	156.0078	160.5078
H	21	162.0-168.0	163.25	165.0	167.75	163.2625	167.7625	162.0081	166.5081
I	22	168.0-174.0	169.25	171.0	173.75	169.2625	173.7625	168.0084	172.5084
7	7	174.0-180.0	175.25	177.0	179.75	175.2625	179.7625	174.0087	178.5087

Table E-4 NCTA Cable Television Channels and Relative Frequencies (continued)

Channel No. ¹	Channel No., EIA	Bandwidth (MHz)	Visual Carrier (MHz)	Center Freq.	Aural Carrier (MHz)	Incrementally Related Carrier		Harmonically Related Carrier	
						Visual	Aural	Visual	Aural
8	8	180.0-186.0	181.25	183.0	185.75	181.2625	185.7625	180.0090	184.5090
9	9	186.0-192.0	187.25	189.0	191.75	187.2625	191.7625	186.0093	190.5093
10	10	192.0-198.0	193.25	195.0	197.75	193.2625	197.7625	192.0096	196.5096
11	11	198.0-204.0	199.25	201.0	203.75	199.2625	203.7625	198.0099	202.5099
12	12	204.0-210.0	205.25	207.0	209.75	205.2625	209.7625	204.0102	208.5102
13	13	210.0-216.0	211.25	213.0	215.75	211.2625	215.7625	210.0105	214.5105
J	23	216.0-222.0	217.25	219.0	221.75	217.2625	211.7625	216.0108	220.5108
K	24 ²	222.0-228.0	223.25	225.0	227.75	223.2625	227.7625	222.0111	226.5111
L	25 ²	228.0-234.0	229.25	231.0	233.75	229.2625	233.7625	228.0114	232.5114
M	26 ²	234.0-240.0	235.25	237.0	239.75	235.2625	239.7625	234.0117	238.5117
N	27 ²	240.0-246.0	241.25	243.0	245.75	241.2625	245.7625	240.0120	244.5120
O	28 ²	246.0-252.0	247.25	249.0	251.75	247.2625	251.7625	246.0123	250.5123
P	29 ²	252.0-258.0	253.25	255.0	257.75	253.2625	257.7625	252.0126	256.5126
Q	30 ²	258.0-264.0	259.25	261.0	263.75	259.2625	263.7625	258.0129	262.5129
R	31 ²	264.0-270.0	265.25	267.0	269.75	265.2625	269.7625	264.0132	268.5132
S	32 ²	270.0-276.0	271.25	273.0	275.75	271.2625	275.7625	270.0135	274.5135
T	33 ²	276.0-282.0	277.25	279.0	281.75	277.2625	281.7625	276.0138	270.5138
U	34 ²	282.0-288.0	283.25	285.0	287.75	283.2625	287.7625	282.0141	286.5141
V	35 ²	288.0-294.0	289.25	291.0	293.75	289.2625	293.7625	288.0144	292.5144
W	36 ²	294.0-300.0	295.25	297.0	299.75	295.2625	299.7625	294.0147	298.5147
AA	37 ²	300.0-306.0	301.25	303.0	305.75	301.2625	305.7625	300.0150	304.5150
BB	38 ²	306.0-312.0	307.25	309.0	311.75	307.2625	311.7625	306.0153	310.5153
CC	39 ²	312.0-318.0	313.25	315.0	317.75	313.2625	317.7625	312.0156	316.5156
DD	40 ²	318.0-324.0	319.25	321.0	323.75	319.2625	323.7625	318.0159	322.5159
EE	41 ²	324.0-330.0	325.25	327.0	329.75	325.2625	329.7625	324.0162	328.5162
FF	42 ²	330.0-336.0	331.25	333.0	335.75	331.2625	335.7625	330.0165	334.5165
GG	43 ²	336.0-342.0	337.25	339.0	341.75	337.2625	341.7625	336.0168	340.5168
HH	44 ²	342.0-348.0	343.25	345.0	347.75	343.2625	347.7625	342.0171	346.5171
II	45 ²	348.0-354.0	349.25	351.0	353.75	349.2625	353.7625	348.0174	352.5174
JJ	46 ²	354.0-360.0	355.25	357.0	359.75	355.2625	359.7625	354.0177	358.5177
KK	47 ²	360.0-366.0	361.25	363.0	365.75	361.2625	365.7625	360.0180	364.5180
LL	48 ²	366.0-372.0	367.25	369.0	371.75	367.2625	371.7625	366.0183	370.5183
MM	49 ²	372.0-378.0	373.25	375.0	377.75	373.2625	377.7625	372.0186	376.5186
NN	50 ²	378.0-384.0	379.25	381.0	383.75	379.2625	383.7625	378.0189	382.5189
OO	51 ²	384.0-390.0	385.25	387.0	389.75	385.2625	389.7625	384.0192	388.5192

Table E-4 NCTA Cable Television Channels and Relative Frequencies (continued)

Channel No. ¹	Channel No., EIA	Bandwidth (MHz)	Visual Carrier (MHz)	Center Freq.	Aural Carrier (MHz)	Incrementally Related Carrier		Harmonically Related Carrier	
						Visual	Aural	Visual	Aural
PP	52 ²	390.0-396.0	391.25	393.0	395.75	391.2625	395.7625	390.0195	394.5195
QQ	53 ²	396.0-402.0	397.25	399.0	401.75	397.2625	401.7625	396.0198	400.5198
RR	54	402.0-408.0	403.25	405.0	407.75	403.2625	407.7625	402.0201	406.5201
SS	55	408.0-414.0	409.25	411.0	413.75	409.2625	413.7625	408.0204	412.5204
TT	56	414.0-420.0	415.25	417.0	419.75	415.2625	419.7625	414.0207	418.5207
UU	57	420.0-426.0	421.25	423.0	425.75	421.2625	425.7625	420.0210	424.5210
VV	58	426.0-432.0	427.25	429.0	431.75	427.2625	431.7625	426.0213	430.5213
WW	59	432.0-438.0	433.25	435.0	437.75	433.2625	437.7625	432.0216	436.5216
XX	60	438.0-444.0	439.25	441.0	443.75	439.2625	443.7625	438.0219	442.5219
YY	61	444.0-450.0	445.25	447.0	449.75	445.2625	449.7625	444.0222	448.5222
ZZ	62	450.0-456.0	451.25	453.0	455.75	451.2625	455.7625	450.0225	454.5225
	63	456.0-462.0	457.25	459.0	461.75	457.2625	461.7625	456.0228	460.5228
	64	462.0-468.0	463.25	465.0	467.75	463.2625	467.7625	462.0231	466.5231
	65	468.0-474.0	469.25	471.0	473.75	469.2625	473.7625	468.0234	472.5234
	66	474.0-480.0	475.25	477.0	479.75	475.2625	479.7625	474.0237	478.5237
	67	480.0-486.0	481.25	483.0	485.75	481.2625	485.7625	480.0240	484.5240
	68	486.0-492.0	487.25	489.0	491.75	487.2625	491.7625	486.0243	490.5243
	69	492.0-498.0	493.25	495.0	497.75	493.2625	497.7625	492.0246	496.5246
	70	498.0-504.0	499.25	501.0	503.75	499.2625	503.7625	498.0249	502.5249
	71	504.0-510.0	505.25	507.0	509.75	505.2625	509.7625	504.0252	508.5252
	72	510.0-516.0	511.25	513.0	515.75	511.2625	515.7625	510.0255	514.5255
	73	516.0-522.0	517.25	519.0	521.75	517.2625	521.7625	516.0258	520.5258
	74	522.0-528.0	523.25	525.0	527.75	523.2625	527.7625	522.0261	526.5261
	75	528.0-534.0	529.25	531.0	533.75	529.2625	533.7625	528.0264	532.5264
	76	534.0-540.0	535.25	537.0	539.75	535.2625	539.7625	534.0267	538.5267
	77	540.0-546.0	541.25	543.0	545.75	541.2625	545.7625	540.0270	544.5270
	78	546.0-552.0	547.25	549.0	551.75	547.2625	551.7625	556.0273	550.5273
	79	552.0-558.0	553.25	555.0	557.75	553.2625	557.7625	552.0276	556.5276
	80	558.0-564.0	559.25	561.0	563.75	559.2625	563.7625	558.0279	562.5279
	81	564.0-570.0	565.25	567.0	569.75	565.2625	569.7625	564.0282	568.5282
	82	570.0-576.0	571.25	573.0	575.75	571.2625	575.7625	570.0285	574.5285
	83	576.0-582.0	577.25	579.0	581.75	577.2625	581.7625	576.0288	580.5288
	84	582.0-588.0	583.25	585.0	587.75	583.2625	587.7625	582.0291	586.5291
	85	588.0-594.0	589.25	591.0	593.75	589.2625	593.7625	588.0294	592.5294
	86	594.0-600.0	595.25	597.0	599.75	595.2625	599.7625	594.0297	598.5297

Table E-4 NCTA Cable Television Channels and Relative Frequencies (continued)

Channel No. ¹	Channel No., EIA	Bandwidth (MHz)	Visual Carrier (MHz)	Center Freq.	Aural Carrier (MHz)	Incrementally Related Carrier		Harmonically Related Carrier	
						Visual	Aural	Visual	Aural
	87	600.0-606.0	601.25	603.0	605.75	601.2625	605.7625	600.0300	604.5300
	88	606.0-612.0	607.25	609.0	611.75	607.2625	611.7625	606.0303	610.5303
	89	612.0-618.0	613.25	615.0	617.75	613.2625	617.7625	612.0306	616.5306
	90	618.0-624.0	619.25	621.0	623.75	619.2625	623.7625	618.0309	622.5309
	91	624.0-630.0	625.25	627.0	629.75	625.2625	629.7625	624.0312	628.5312
	92	630.0-636.0	631.25	633.0	635.75	631.2625	635.7625	630.0315	634.5315
	93	636.0-642.0	637.25	639.0	641.75	637.2625	641.7625	636.0318	640.5318
	94	642.0-648.0	643.25	645.0	647.75	643.2625	647.7625	642.0321	646.5321
	100	648.0-654.0	649.25	651.0	653.75	649.2625	653.7625	648.0324	652.5324
	101	654.0-660.0	655.25	657.0	659.75	655.2625	659.7625	654.0327	658.5327
	102	660.0-666.0	661.25	663.0	665.75	661.2625	665.7625	660.0330	664.5330
	103	666.0-672.0	667.25	669.0	671.75	667.2625	671.7625	666.0333	670.5333
	104	672.0-678.0	673.25	675.0	677.75	673.2625	677.7625	672.0336	676.5336
	105	678.0-684.0	679.25	681.0	683.75	679.2625	683.7625	678.0339	682.5339
	106	684.0-690.0	685.25	687.0	689.75	685.2625	689.7625	684.0342	688.5342
	107	690.0-696.0	691.25	693.0	695.75	691.2625	695.7625	690.0345	694.5345
	108	696.0-702.0	697.25	699.0	701.75	697.2625	701.7625	696.0348	700.5348
	109	702.0-708.0	703.25	705.0	707.75	703.2625	707.7625	702.0351	706.5351
	110	708.0-714.0	709.25	711.0	713.75	709.2625	713.7625	708.0354	712.5354
	111	714.0-720.0	715.25	717.0	719.75	715.2625	719.7625	714.0357	718.5357
	112	720.0-726.0	721.25	723.0	725.75	721.2625	725.7625	720.0360	724.5360
	113	726.0-732.0	727.25	729.0	731.75	727.2625	731.7625	726.0363	730.5363
	114	732.0-738.0	733.25	735.0	737.75	733.2625	737.7625	732.0366	736.5366
	115	738.0-744.0	739.25	741.0	743.75	739.2625	743.7625	738.0369	742.5369
	116	744.0-750.0	745.25	747.0	749.75	745.2625	749.7625	744.0372	748.5372
	117	750.0-756.0	751.25	753.0	755.75	751.2625	755.7625	750.0375	754.5375
	118	756.0-762.0	757.25	759.0	761.75	757.2625	761.7625	756.0378	760.5378
	119	762.0-768.0	763.25	765.0	767.75	763.2625	767.7625	762.0381	766.5381
	120	768.0-774.0	769.25	771.0	773.75	769.2625	773.7625	768.0384	772.5384
	121	774.0-780.0	775.25	777.0	779.75	775.2625	779.7625	774.0387	778.5387
	122	780.0-786.0	781.25	783.0	785.75	781.2625	785.7625	780.0390	784.5390
	123	786.0-792.0	787.25	789.0	791.75	787.2625	791.7625	786.0393	790.5393
	124	792.0-798.0	793.25	795.0	797.75	793.2625	797.7625	792.0396	796.5396
	125	798.0-804.0	799.25	801.0	803.75	799.2625	803.7625	798.0399	802.5399
	126	804.0-810.0	805.25	807.0	809.75	805.2625	809.7625	804.0402	808.5402

Table E-4 NCTA Cable Television Channels and Relative Frequencies (continued)

Channel No. ¹	Channel No., EIA	Bandwidth (MHz)	Visual Carrier (MHz)	Center Freq.	Aural Carrier (MHz)	Incrementally Related Carrier		Harmonically Related Carrier	
						Visual	Aural	Visual	Aural
	127	810.0-816.0	811.25	813.0	815.75	811.2625	815.7625	810.0405	814.5405
	128	816.0-822.0	817.25	819.0	821.75	817.2625	821.7625	816.0408	820.5408
	129	822.0-828.0	823.25	825.0	827.75	823.2625	827.7625	822.0411	826.5411
	130	828.0-834.0	829.25	831.0	833.75	829.2625	833.7625	828.0414	832.5414
	131	834.0-840.0	835.25	837.0	839.75	835.2625	839.7625	834.0417	838.5417
	132	840.0-846.0	841.25	843.0	845.75	841.2625	845.7625	840.0420	844.5420
	133	846.0-852.0	847.25	849.0	851.75	847.2625	851.7625	846.0423	850.5423
	134	852.0-858.0	853.25	855.0	857.75	853.2625	857.7625	852.0426	856.5426
	135	858.0-864.0	859.25	861.0	863.75	859.2625	863.7625	858.0429	862.5429
	136	864.0-870.0	865.25	867.0	869.75	865.2625	869.7625	864.0432	868.5432
	137	870.0-876.0	871.25	873.0	875.75	871.2625	875.7625	870.0435	874.5435
	138	876.0-882.0	877.25	879.0	881.75	877.2625	881.7625	876.0438	880.5438
	139	882.0-888.0	883.25	885.0	887.75	883.2625	887.7625	882.0441	886.5441
	140	888.0-894.0	889.25	891.0	893.75	889.2625	893.7625	888.0444	892.5444
	141	894.0-900.0	895.25	897.0	899.75	895.2625	899.7625	894.0447	898.5447
	142	900.0-906.0	901.25	903.0	905.75	901.2625	905.7625	900.0450	904.5450
	143	906.0-912.0	907.25	909.0	911.75	907.2625	911.7625	906.0453	910.5453
	144	912.0-918.0	913.25	915.0	917.75	913.2625	917.7625	912.0456	916.5456
	145	918.0-924.0	919.25	921.0	923.75	919.2625	923.7625	918.0459	922.5459
	146	924.0-930.0	925.25	927.0	929.75	925.2625	929.7625	924.0462	928.5462
	147	930.0-936.0	931.25	933.0	935.75	931.2625	935.7625	930.0465	934.5465
	148	936.0-942.0	937.25	939.0	941.75	937.2625	941.7625	936.0468	940.5468
	149	942.0-948.0	943.25	945.0	947.75	943.2625	947.7625	942.0471	946.5471
	150	948.0-954.0	949.25	951.0	953.75	949.2625	953.7625	948.0474	952.5474
	151	954.0-960.0	955.25	957.0	959.75	955.2625	959.7625	954.0477	958.5477
	152	960.0-966.0	961.25	963.0	965.75	961.2625	965.7625	960.0480	964.5480
	153	966.0-972.0	967.25	969.0	971.75	967.2625	971.7625	966.0483	970.5483
	154	972.0-978.0	973.25	975.0	977.75	973.2625	977.7625	972.0486	976.5486
	155	978.0-984.0	979.25	981.0	983.75	979.2625	983.7625	978.0489	982.5489
	156	984.0-990.0	985.25	987.0	989.75	985.2625	989.7625	984.0492	988.5492
	157	990.0-996.0	991.25	993.0	995.75	991.2625	995.7625	990.0495	994.5495
	158	996.0-1002.0	997.25	999.0	1001.75	997.2625	1001.7625	996.0498	1000.5498

1. This column is for historical channel listings.

2. Aeronautical channels visual carrier frequency tolerance +/-5 kHz.

NTSC (M) Cable Television Frequencies for Japan

Japan uses NTSC (M) but has different channel assignments. See [Table E-5](#).

Table E-5 Japanese Channel Assignments

Channel Number	Bandwidth (MHz)	Visual Carrier (MHz)	Center Frequency	Aural Carrier (MHz)
1	90.0-96.0	91.25	93.00	95.75
2	96.0-102.0	97.25	99.00	101.75
3	102.0-108.0	103.25	105.00	107.75
4	170.0-176.0	171.25	173.00	175.75
5	176.0-182.0	177.25	179.00	181.75
6	182.0-188.0	183.25	185.00	187.75
7	188.0-194.0	189.25	191.00	193.75
8	192.0-198.0	193.25	195.00	197.75
9	198.0-204.0	199.25	201.00	203.75
10	204.0-210.0	205.25	207.00	209.75
11	210.0-216.0	211.25	213.00	215.75
12	216.0-222.0	217.25	219.00	221.75
C13	108.0-114.0	109.25	111.00	113.75
C14	114.0-120.0	115.25	117.00	119.75
C15	120.0-126.0	121.25	123.00	125.75
C16	126.0-132.0	125.25	129.00	131.75
C17	132.0-138.0	133.25	135.00	137.75
C18	138.0-144.0	139.25	141.00	143.75
C19	144.0-150.0	145.25	147.00	149.75
C20	150.0-156.0	151.25	153.00	155.75
C21	156.0-162.0	157.25	159.00	161.75
C22	164.0-170.0	165.25	167.00	169.75
C23	222.0-228.0	223.25	225.00	227.75
C24	230.0-236.0	231.25	233.00	235.75
C25	236.0-242.0	237.25	239.00	241.75
C26	242.0-248.0	243.25	245.00	247.75
C27	248.0-254.0	249.25	251.00	253.75
C28	254.0-258.0	253.25	257.00	257.75
C29	258.0-264.0	259.25	261.00	263.75
C30	264.0-270.0	265.25	267.00	269.75
C31	270.0-276.0	271.25	273.00	275.75
C32	276.0-282.0	277.25	279.00	281.75

Table E-5 Japanese Channel Assignments (continued)

Channel Number	Bandwidth (MHz)	Visual Carrier (MHz)	Center Frequency	Aural Carrier (MHz)
C33	282.0-288.0	283.25	285.00	287.75
C34	288.0-294.0	289.25	291.00	293.75
C35	294.0-300.0	295.25	297.00	299.75
C36	300.0-306.0	301.25	303.00	305.75
C37	306.0-312.0	307.25	309.00	311.75
C38	312.0-318.0	313.25	315.00	317.75
C39	318.0-324.0	319.25	321.00	323.75
C40	324.0-330.0	325.25	327.00	329.75
C41	330.0-336.0	331.25	333.00	335.75
C42	336.0-342.0	337.25	339.00	341.75
C43	342.0-348.0	343.25	345.00	347.75
C44	348.0-354.0	349.25	351.00	353.75
C45	354.0-360.0	355.25	357.00	359.75
C46	360.0-366.0	361.25	363.00	365.75
C47	366.0-372.0	367.25	369.00	371.75
C48	372.0-378.0	373.25	375.00	377.75
C49	378.0-384.0	379.25	381.00	383.75
C50	384.0-390.0	385.25	387.00	389.75
C51	390.0-396.0	391.25	393.00	395.75
C52	396.0-402.0	397.25	399.00	401.75
C53	402.0-408.0	403.25	405.00	407.75
C54	408.0-414.0	409.25	411.00	413.75
C55	414.0-420.0	415.25	417.00	419.75
C56	420.0-426.0	421.25	423.00	425.75
C57	426.0-432.0	427.25	429.00	431.75
C58	432.0-438.0	433.25	435.00	437.75
C59	438.0-444.0	439.25	441.00	443.75
C60	444.0-450.0	445.25	447.00	449.75
C61	450.0-456.0	451.25	453.00	455.75
C62	456.0-462.0	457.25	459.00	461.75
C63	462.0-468.0	463.25	465.00	467.75

PAL/SECAM Cable Television Channels and Relative Frequencies

Table E-6 provides information on the Phase Alternating Line (PAL) and SEquential Couleur Avec Memoire (SECAM) frequency map for standard 7- and 8-MHz channel bands in Europe.

The FCS (reference subaltern frequency) for color integration is different for different countries. Also, the channel and frequency designations are different for different countries. For a summary of the ITU designations for PAL and SECAM systems and Recommendation ITU-R BT.470.6 standards, refer to Table E-1, Table E-2, and Table E-3 on page E-2. These tables provide general information that may help determine frequency allocations for specific countries. Table E-6 is a frequency allocation table for PAL B and G locations. Also note that some countries use different schemes for VHF and UHF.

More information can be found at the websites listed on page E-1.



Note

The downstream frequency plan includes all center frequencies between 112 and 858 MHz on 250-kHz increments. It is up to the operator to decide which frequencies to use to meet national and network requirements.

Table E-6 Cable Television Channels and Relative Frequencies, PAL B and G

Channel Number	Bandwidth (MHz)	Visual Carrier (MHz)	Aural Carrier (MHz)
E2	47.0-54.0	48.25	53.75
E3	54.0-61.0	55.25	60.75
E4	61.0-68.0	62.25	67.75
S3	118.0-125.0	119.25	124.75
S4	125.0-132.0	126.25	131.75
S5	132.0-139.0	133.25	138.75
S6	139.0-146.0	140.25	145.75
S7	146.0-153.0	147.25	152.75
S8	153.0-160.0	154.25	159.75
S9	160.0-167.0	161.25	166.75
S10	167.0-174.0	168.25	173.75
E5	174.0-181.0	175.25	180.75
E6	181.0-188.0	182.25	187.75
E7	188.0-195.0	189.25	194.5
E8	195.0-202.0	196.25	201.75
E9	202.0-209.0	203.25	208.75
E10	209.0-216.0	210.25	215.75
E11	216.0-223.0	217.25	222.75
E12	223.0-230.0	224.25	229.75
S11	230.0-237.0	231.25	236.75

Table E-6 Cable Television Channels and Relative Frequencies, PAL B and G (continued)

Channel Number	Bandwidth (MHz)	Visual Carrier (MHz)	Aural Carrier (MHz)
S12	237.0-244.0	238.25	243.75
S13	244.0-251.0	245.25	250.75
S14	251.0-258.0	252.25	257.75
S15	258.0-265.0	259.25	264.75
S16	265.0-272.0	266.25	271.75
S17	272.0-279.0	273.25	278.75
S18	279.0-286.0	280.25	285.75
S19	286.0-293.0	287.25	289.75
S20	293.0-300.0	294.25	299.75
S21	302.0-310.0	303.25	308.75
S22	310.0-318.0	311.25	316.75
S23	318.0-326.0	319.25	324.75
S24	326.0-334.0	327.25	332.75
S25	334.0-342.0	335.25	340.75
S26	342.0-350.0	343.25	348.75
S27	350.0-358.0	351.25	356.75
S28	358.0-366.0	359.25	364.75
S29	366.0-374.0	367.25	372.05
S30	374.0-382.0	375.25	380.75
S31	382.0-390.0	383.25	388.75
S32	390.0-398.0	391.25	396.75
S33	398.0-406.0	399.25	404.75
S34	406.0-414.0	407.25	412.75
S35	414.0-422.0	415.25	420.75
S36	422.0-430.0	423.25	428.75
S37	430.0-438.0	431.25	436.75
S38	438.0-446.0	439.25	444.75
S39	446.0-454.0	447.25	452.75
S40	454.0-462.0	455.25	460.75
S41	462.0-470.0	463.25	468.75
21	470.0-478.0	471.25	476.75
22	478.0-486.0	479.25	484.75
23	486.0-494.0	487.25	492.75
24	494.0-502.0	495.25	500.75
25	502.0-510.0	503.25	508.75

Table E-6 Cable Television Channels and Relative Frequencies, PAL B and G (continued)

Channel Number	Bandwidth (MHz)	Visual Carrier (MHz)	Aural Carrier (MHz)
26	510.0-518.0	511.25	516.75
27	518.0-526.0	519.25	524.75
28	526.0-534.0	527.25	532.75
29	534.0-542.0	535.25	540.75
30	542.0-550.0	543.25	548.75
31	550.0-558.0	551.25	556.75
32	558.0-566.0	559.25	564.75
33	566.0-574.0	567.25	572.75
34	574.0-582.0	575.25	580.725
35	582.0-590.0	583.25	588.75
36	590.0-598.0	591.25	596.75
37	598.0-606.0	599.25	604.75
38	606.0-614.0	607.25	612.75
39	614.0-622.0	615.25	620.75
40	622.0-630.0	623.25	628.75
41	630.0-638.0	631.25	636.75
42	638.0-646.0	639.25	644.75
43	646.0-654.0	647.25	652.75
44	654.0-662.0	655.25	660.75
45	662.0-670.0	663.25	668.75
46	670.0-678.0	671.25	676.75
47	678.0-686.0	679.25	684.75
48	686.0-694.0	687.25	692.75
49	694.0-702.0	695.25	700.75
50	702.0-710.0	703.25	708.75
51	710.0-718.0	711.25	716.75
52	718.0-726.0	719.25	724.75
53	726.0-734.0	727.25	732.75
54	734.0-742.0	735.25	740.75
55	742.0-750.0	743.25	748.75
56	750.0-758.0	751.25	756.75
57	758.0-766.0	759.25	764.75
58	766.0-774.0	767.25	772.75
59	774.0-782.0	775.25	780.75
60	782.0-790.0	783.25	788.75

Table E-6 Cable Television Channels and Relative Frequencies, PAL B and G (continued)

Channel Number	Bandwidth (MHz)	Visual Carrier (MHz)	Aural Carrier (MHz)
61	790.0-798.0	791.25	796.75
62	798.0-806.0	799.25	804.75
63	806.0-814.0	807.25	812.75
64	814.0-822.0	815.25	820.75
65	822.0-830.0	823.25	828.75
66	830.0-838.0	831.25	836.75
67	838.0-846.0	839.25	844.75
68	846.0-854.0	847.25	852.75
69	854.0-862.0	855.25	860.75

