MEMORANDUM OF UNDERSTANDING BETWEEN THE FEDERAL COMMUNICATIONS COMMISSION OF THE UNITED STATES OF AMERICA AND THE SECRETARIA DE COMUNICACIONES Y TRANSPORTES OF THE UNITED MEXICAN STATES RELATED TO THE USE OF THE 54-72 MHZ, 76-88 MHZ, 174-216 MHZ AND 470-806 MHZ BANDS FOR THE DIGITAL TELEVISION BROADCASTING SERVICE ALONG THE COMMON BORDER

Considering:

that there are currently in effect agreements which govern the use of the 54-72 MHz, 76-88 MHz, 174-216 MHz and 470-806 MHz bands for television broadcasting: *Assignment of Television Channels Along United States-Mexican Border* (1962), and the *Agreement Relating to Assignments and Usage of Television Broadcasting Channels in the Frequency Range 470-806 MHz (Channels 14-69) Along the United States-Mexico Border* (1982);

that there were provisions for introduction of digital television broadcasting service (DTV) established in the *Memorandum of Understanding Between the Federal Communications Commission of the United States of America and the Secretaria de Comunicatciones Y Transportes of the United Mexican States Related to the Use of the 54-72 MHz, 76-88 MHz, 174-216 MHz and 470-806 MHz bands for the digital television broadcasting service along the Common Borde*r (1997);

that consultations have taken place under the auspices of the United States-Mexico High Level Consultative Commission on Telecommunications (HLCC) on the use of the 54-72 MHz, 76-88 MHz, 174-216 MHz and 470-806 MHz bands which have led to the development of mutually acceptable allotments allowing introduction of DTV in these bands along the common border;

that, as a result of Bilateral Meetings, both Administrations have established that Appendices 1, 2, 3 and 4 of this Memorandum of Understanding provide the basis for the introduction of television services using digital technologies along the common border;

that the requirements set forth in the attached Tables A and B which establish distance separation requirements between digital stations and the current analog stations, and also between digital stations, served as the basis for developing Appendices 3 and 4, having as a reference Appendices 1 and 2, attached;

that both Agencies, the Federal Communications Commission and the Secretaria de Comunicaciones y Transportes, having worked together on the contents of Appendices 3 and 4, view the entries contained in the these Appendices as compatible and are, accordingly, prepared to bring into service DTV stations listed therein;

The representatives of the Federal Communications Commission and the Secretaria de Comunicaciones y Transportes have reached the following understandings for the use of 54-72 MHz, 76-88 MHz, 174-216 MHz and 470-806 MHz bands within 275 kilometers of the common border:

1. The DTV allotments contained in the Tables of Allotments (Appendices 3 and 4) are considered to be mutually acceptable.

2. When a DTV allotment as listed in Appendix 3 or 4 is to be brought into service, and it is not a special negotiated mutually accepted short space allotment, then the initiating Agency will notify the other Agency of its intention to implement DTV service relative to the allotment, as follows:

   a) The notifying Agency will send using the most expeditious way (e-mail, fax, etc.), for information purposes, the specific parameters for the assignment, as established in Appendix 6.

   b) The receiving Agency will acknowledge receipt of this information within a 15 day time period.

   c) If for any reason the receiving Agency does not respond within this period of time, then it will be assumed by the notifying Agency that the notification has been received and the DTV operation may commence immediately, and the notified facilities will be entered into Appendix 7 or 8.

3. When a DTV allotment is to be brought into service, and that allotment is listed in Appendix 3 or 4 as a special negotiated mutually accepted short space allotment, or for requests for DTV facilities which do not utilize the coordinates in Appendix 3 or 4, then the initiating Agency will notify the other Agency of its intention to implement DTV service relative to the allotment, as follows:

   a) The notifying Agency will send both by registered mail and, on the same day, by using the most expeditious way (e-mail, fax, etc.), the specific parameters for the assignment, as established in Appendix 6.

   b) The receiving Agency will have 30 days from the date of receipt of the notification sent by registered mail, to reply thereto. The receiving Agency may, if required, request a 15 day extension to further consider the notification. Upon receipt of a favorable reply to the proposed notification, it will be considered approved and will be entered into Appendix 7 or 8.

   c) If for any reason the receiving Agency does not respond within the 30-day time period set forth in paragraph 3.b (or within the additional 15-day extension period if such an extension was requested) then it will be assumed by the notifying Agency that the notification has been approved and the DTV operation may commence immediately, and the notified facilities will be entered into Appendix 7 or 8.

   d) In evaluating notifications, Agencies will make use of the separation requirements in Tables A and B, as well as, for more detailed analysis, the use of the methodology outlined in Appendix 5.

e) If the receiving Agency objects to a notification provided under paragraph 3.a, then sufficient justification will be submitted to warrant such objection. Should it be determined that the objection is justified, the notification will be designated an allotment that is not mutually acceptable and coordination between FCC and SCT will be required.

4. For the establishment of new DTV allotments, coordination between FCC and SCT will be required.

5. Regarding what has not been covered in this Memorandum of Understanding, the current agreements, cited in the first paragraph of this Memorandum of Understanding, will apply.

This Memorandum of Understanding supersedes the previous Memorandum of Understanding cited on the second paragraph of this Memorandum of Understanding.

This Memorandum of Understanding will be effective upon signature by both parties.

FOR THE FEDERAL COMMUNICATIONS COMMISSION

William E. Kennard
Chairman,
Federal Communications Commission

Washington, DC
July 22, 1998

FOR THE SECRETARIA DE COMUNICACIONES Y TRANSPORTES

Jorge Nicolin
Subsecretario De
Comunicaciones

Mexico City, D.F.
July 22, 1998

Table A[1]

DTV to NTSC Television Distance Separation Requirements			
		Required Distance Separation	
Channel Band	**Channel Separation**	**Lower Boundary (KM)**	**Upper Boundary (KM)**
2-13	Co-Channel	0	273
2-13 #	+/- 1	18	100
14-69	Co-Channel	0	244
14-69	+/- 1	10	88
14-69	+/- 2	24	32
14-69	+/- 3	24	32
14-69	+/- 4	24	32
14-69	+/- 7	24	95
14-69	+/- 8	24	32
14-69	+/- 14	24	95
14-69	+/- 15	24	96

Channels 4 and 5, and channels 6 and 7, are not adjacent.

[1] The distances specified in this table are subject to modification based on determinations resulting from further discussions on a new television agreement that includes DTV technical criteria.

Table B[2]

DTV to DTV Television Distance Separation Requirements			
		Required Distance Separation	
Channel Band	**Channel Separation**	**Lower Boundary (KM)**	**Upper Boundary (KM)**
2-13	Co-Channel	0	273
2-13 #	+/- 1	48	96
14-69	Co-Channel	0	223
14-69	+/- 1	32	88

Channels 4 and 5, and channels 6 and 7, are not adjacent.

[2] The distances specified in this table are subject to modification based on determinations resulting from further discussions on a new television agreement that includes DTV technical criteria.

Table C

Numerical Designation of Television Channels

VHF Television Channels			UHF Television Channels		
Channel	Lower Frequency (MHz)	Upper Frequency (MHz)	Channel	Lower Frequency (MHz)	Upper Frequency (MHz)
2	54	60	14	470	476
3	60	66	15	476	482
4	66	72	16	482	488
5	76	82	17	488	494
6	82	88	18	494	500
7	174	180	19	500	506
8	180	186	20	506	512
9	186	192	21	512	518
10	192	198	22	518	524
11	198	204	23	524	530
12	204	210	24	530	536
13	210	216	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
			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

* Channel 37 is not for television broadcasting use.

MEXICAN NTSC TELEVISION ALLOTMENTS
(Within 275 Kilometers of the U.S.-MEX. Border)

STATE	CITY	LATITUDE	LONGITUDE	CHANNEL
BCN	ENSENADA	315225	1163751	13
BCN	ENSENADA	315222	1163751	17
BCN	ENSENADA	315222	1163751	23
BCN	ENSENADA	315326	1163750	29
BCN	ENSENADA	315222	1163751	57
BCN	MEXICALI	323641	1152939	3
BCN	MEXICALI	323930	1152905	5
BCN	MEXICALI	323641	1152939	14
BCN	MEXICALI	323930	1152905	20
BCN	MEXICALI	323641	1152939	32
BCN	MEXICALI	323641	1152939	38
BCN	MEXICALI	323641	1152939	66
BCN	SAN FELIPE	310135	1144946	2
BCN	TECATE	323403	1163730	49
BCN	TIJUANA	322826	1165349	3
BCN	TIJUANA	323005	1170223	6
BCN	TIJUANA	323005	1170223	12
BCN	TIJUANA	323008	1170221	21
BCN	TIJUANA	323008	1170221	27
BCN	TIJUANA	323007	1170223	33
BCN	TIJUANA	322744	1170150	45
BCN	TIJUANA	323005	1170223	57
CHI	CD. CAMARGO	274020	1051054	6
CHI	CD. CUAUHTEMOC	282415	1065127	5
CHI	CD. DELICIAS	281048	1052831	6
CHI	CD. DELICIAS	281048	1052831	13
CHI	CD. JIMENEZ	270746	1045453	8
CHI	CD. JIMENEZ	270748	1045454	10
CHI	CD. JUAREZ	314235	1062938	2
CHI	CD. JUAREZ	314014	1063108	5
CHI	CD. JUAREZ	314014	1063106	11
CHI	CD. JUAREZ	314014	1063106	20
CHI	CD. JUAREZ	314235	1062938	32
CHI	CD. JUAREZ	314113	1063026	44
CHI	CD. JUAREZ	314235	1062938	56
CHI	CD. MADERA	291134	108 845	7
CHI	CHIHUAHUA	283711	1055155	2
CHI	CHIHUAHUA	283711	1055155	4
CHI	CHIHUAHUA	283655	1060520	5
CHI	CHIHUAHUA	283711	1055155	11
CHI	CHIHUAHUA	283655	1060520	13
CHI	NUEVO CASAS GRANDES	302411	1075418	8
CHI	OJINAGA	293330	1042531	6
CHI	OJINAGA	293329	1042512	15
CHI	OJINAGA	293329	1042512	21
COA	CD. ACUÑA	291809	1005530	7
COA	CD. ACUÑA	291741	1005404	34
COA	CD. ACUÑA	291741	1005404	64

MEXICAN NTSC TELEVISION ALLOTMENTS
(Within 275 Kilometers of the U.S.-MEX. Border)

STATE	CITY	LATITUDE	LONGITUDE	CHANNEL
COA	CD. ALLENDE	282048	1005055	46
COA	MONCLOVA	265343	1012546	9
COA	MONCLOVA	265343	1012546	11
COA	MONCLOVA	265441	1012613	29
COA	MONCLOVA	265441	1012613	35
COA	NUEVA ROSITA	275615	1011335	17
COA	NUEVA ROSITA	275721	1011205	23
COA	NUEVA ROSITA	275721	1011205	29
COA	PIEDRAS NEGRAS	284114	1003258	3
COA	PIEDRAS NEGRAS	284027	1003349	6
COA	PIEDRAS NEGRAS	284114	1003258	22
COA	PIEDRAS NEGRAS	284114	1003258	46
COA	PIEDRAS NEGRAS	284114	1003258	52
COA	SABINAS	275034	1010723	59
COA	SABINAS NUEVA ROSITA	275037	1010807	4
COA	SABINAS NUEVA ROSITA	275037	1010807	13
COA	SALTILLO	252610	1005949	5
COA	SALTILLO	252637	1005922	7
COA	SALTILLO	252440	1010017	25
COA	SALTILLO	252442	1010008	44
NLE	MONTERREY	253736	1001915	2
NLE	MONTERREY	253729	1001913	4
NLE	MONTERREY	253752	1001404	6
NLE	MONTERREY	253729	1001913	7
NLE	MONTERREY	253752	1001404	10
NLE	MONTERREY	253847	1001846	12
NLE	MONTERREY	253752	1001404	22
NLE	MONTERREY	254114	1001847	28
NLE	MONTERREY	253752	1001404	34
NLE	MONTERREY	253736	1001915	53
SON	CABORCA	304338	1120915	8
SON	CABORCA	304338	1120415	21
SON	CABORCA	304338	1120915	63
SON	CANANEA	305837	1101822	56
SON	HERMOSILLO	290429	1105736	2
SON	HERMOSILLO	290422	1105659	4
SON	HERMOSILLO	290419	1105856	6
SON	HERMOSILLO	290422	1105659	10
SON	HERMOSILLO	290422	1105702	12
SON	HERMOSILLO	290551	1110030	23
SON	HERMOSILLO	290422	1105702	29
SON	MAGDALENA	303759	1105837	20
SON	NACO	311953	1095705	48
SON	NOGALES	311806	1105627	2
SON	NOGALES	311949	1105708	7
SON	NOGALES	3118 6	1105627	22
SON	NOGALES	311939	1105708	38
SON	NOGALES	311939	1105708	50

MEXICAN NTSC TELEVISION ALLOTMENTS
(Within 275 Kilometers of the U.S.-MEX. Border)

STATE	CITY	LATITUDE	LONGITUDE	CHANNEL
SON	PUERTO PEÑASCO	311809	1133257	19
SON	SAN LUIS RIO COLORADO	322820	1144657	44
TAM	CD. VICTORIA	234308	990849	3
TAM	CD. VICTORIA	234308	990847	7
TAM	CD. VICTORIA	234306	990849	9
TAM	CD. VICTORIA	234306	990834	11
TAM	CD. VICTORIA	234308	990849	13
TAM	CD. VICTORIA	234306	990835	23
TAM	MATAMOROS	255628	975049	2
TAM	MATAMOROS	255636	975057	7
TAM	MATAMOROS	255219	973010	11
TAM	MATAMOROS	255219	973010	14
TAM	MATAMOROS	255232	972956	54
TAM	NUEVO LAREDO	272730	993112	2
TAM	NUEVO LAREDO	272641	993030	11
TAM	NUEVO LAREDO	272645	993027	21
TAM	NUEVO LAREDO	272645	993027	33
TAM	NUEVO LAREDO	272913	993006	45
TAM	NUEVO LAREDO	272641	993030	57
TAM	REYNOSA	255636	975057	9
TAM	REYNOSA	260531	981652	12
TAM	REYNOSA/MATAMOROS	255636	975057	17
TAM	ROSITA VILLAGRAN	242905	992935	4
TAM	SAN FERNANDO	245358	980726	25
TAM	SOTO LA MARINA	234555	981230	3
TAM	SOTO LA MARINA	234619	981218	10

UNITED STATES NTSC TELEVISION ALLOTMENTS
(Within 275 Kilometers of the U.S.-MEX. Border)

STATE	CITY	LATITUDE	LONGITUDE	CHANNEL
AZ	COOLIDGE	330011	1114026	43
AZ	DOUGLAS	312238	1093120	3
AZ	GREEN VALLEY	322454	1104256	46
AZ	KINGMAN	350157	1142156	6
AZ	LAKE HAVASU CITY	343306	1141137	34
AZ	MESA	332000	1120348	12
AZ	NOGALES	312030	1105741	16
AZ	PHOENIX	332001	1120345	3
AZ	PHOENIX	332002	1120340	5
AZ	PHOENIX	332000	1120349	8
AZ	PHOENIX	332003	1120343	10
AZ	PHOENIX	332000	1120346	15
AZ	PHOENIX	332002	1120342	21
AZ	PHOENIX	332000	1120346	33
AZ	PHOENIX	331958	1120348	39
AZ	PHOENIX	332001	1120332	45
AZ	PHOENIX	332001	1120344	61
AZ	SIERRA VISTA	314533	1104802	58
AZ	TOLLESON	332003	1120338	51
AZ	TUCSON	322456	1104249	4
AZ	TUCSON	322455	1104254	6
AZ	TUCSON	322454	1104259	9
AZ	TUCSON	314218	1105526	11
AZ	TUCSON	321456	1110658	13
AZ	TUCSON	321455	1110657	18
AZ	TUCSON	321253	1110021	27
AZ	TUCSON	321455	1110657	40
AZ	YUMA	330310	1144940	11
AZ	YUMA	330317	1144934	13
CA	ANAHEIM	341114	1174201	56
CA	AVALON	332100	1182105	54
CA	BARSTOW	343634	1171711	64
CA	CALIPATRIA	330319	1144939	54
CA	CORONA	341327	1180345	52
CA	EL CENTRO	330306	1144941	7
CA	EL CENTRO	330319	1144939	9
CA	HUNTINGTON BEACH	335819	1175657	50
CA	LOS ANGELES	341357	1180418	2
CA	LOS ANGELES	341332	1180352	4
CA	LOS ANGELES	341336	1180356	5
CA	LOS ANGELES	341337	1180358	7
CA	LOS ANGELES	341338	1180400	9
CA	LOS ANGELES	341329	1180347	11
CA	LOS ANGELES	341342	1180402	13
CA	LOS ANGELES	341336	1180359	22
CA	LOS ANGELES	341326	1180344	28
CA	LOS ANGELES	341335	1180356	34

UNITED STATES NTSC TELEVISION ALLOTMENTS
(Within 275 Kilometers of the U.S.-MEX. Border)

STATE	CITY	LATITUDE	LONGITUDE	CHANNEL
CA	LOS ANGELES	341326	1180345	58
CA	ONTARIO	341337	1180358	46
CA	OXNARD	341951	1190122	63
CA	PALM SPRINGS	335200	1162556	36
CA	PALM SPRINGS	333855	1163334	42
CA	RANCHO PALOS VERDES	332100	1182105	44
CA	RIVERSIDE	341116	1174155	62
CA	SAN BERNARDINO	341115	1174154	18
CA	SAN BERNARDINO	335757	1171705	24
CA	SAN BERNARDINO	341115	1174158	30
CA	SAN DIEGO	325017	1171456	8
CA	SAN DIEGO	325020	1171456	10
CA	SAN DIEGO	324147	1165607	15
CA	SAN DIEGO	324148	1165606	39
CA	SAN DIEGO	324152	1165602	51
CA	SAN DIEGO	324147	1165607	69
CA	SANTA ANA	341327	1180344	40
CA	TWENTYNINE PALMS	340915	1161150	31
CA	VENTURA	341951	1190122	57
NM	CARLSBAD	324739	1041227	6
NM	CARLSBAD	323422	1040532	25
NM	LAS CRUCES	321524	1065834	22
NM	LAS CRUCES	320230	1062741	48
NM	ROSWELL	330320	1034912	10
NM	ROSWELL	332356	1042245	21
NM	ROSWELL	332458	1043359	27
NM	SILVER CITY	325146	1081426	6
NM	SILVER CITY	325146	1081428	10
TX	BIG SPRING	321514	1012644	4
TX	BIG SPRING	320552	1014527	14
TX	BLANCO	300832	981710	52
TX	BROWNSVILLE	260559	975016	23
TX	CORPUS CHRISTI	273929	973604	3
TX	CORPUS CHRISTI	274428	973608	6
TX	CORPUS CHRISTI	274650	973803	10
TX	CORPUS CHRISTI	273912	973355	16
TX	CORPUS CHRISTI	274511	973814	28
TX	DEL RIO	292039	1005139	10
TX	DEL RIO	292054	1005219	24
TX	EAGLE PASS	284332	1002835	16
TX	EL PASO	314746	1062857	4
TX	EL PASO	314715	1062847	7
TX	EL PASO	314818	1062857	9
TX	EL PASO	314715	1062847	13
TX	EL PASO	314855	1062920	14
TX	EL PASO	314746	1062857	26
TX	EL PASO	314855	1062917	38

UNITED STATES NTSC TELEVISION ALLOTMENTS
(Within 275 Kilometers of the U.S.-MEX. Border)

STATE	CITY	LATITUDE	LONGITUDE	CHANNEL
TX	EL PASO	314855	1062917	65
TX	FREDERICKSBURG	301757	985616	2
TX	HARLINGEN	260855	974917	4
TX	HARLINGEN	261300	974648	44
TX	HARLINGEN	260714	974918	60
TX	KERRVILLE	293637	985335	35
TX	LAREDO	274021	993951	8
TX	LAREDO	273114	993119	13
TX	LAREDO	273003	993037	27
TX	LAREDO	273113	993120	39
TX	LLANO	304036	983359	14
TX	MCALLEN	260520	980344	48
TX	MIDLAND	320514	1021712	2
TX	MIDLAND	315448	1020238	18
TX	ODESSA	315150	1023441	7
TX	ODESSA	315917	1025159	9
TX	ODESSA	320551	1021721	24
TX	ODESSA	315150	1023441	30
TX	ODESSA	315159	1022250	36
TX	ODESSA	320253	1021744	42
TX	RIO GRANDE CITY	262547	984925	40
TX	SAN ANGELO	313722	1002614	3
TX	SAN ANGELO	313521	1003100	6
TX	SAN ANGELO	312201	1000248	8
TX	SAN ANGELO	313522	1003101	21
TX	SAN ANTONIO	291610	981555	4
TX	SAN ANTONIO	291607	981555	5
TX	SAN ANTONIO	291933	982125	9
TX	SAN ANTONIO	291611	981531	12
TX	SAN ANTONIO	293125	984325	23
TX	SAN ANTONIO	291727	981612	29
TX	SAN ANTONIO	291739	981530	41
TX	SAN ANTONIO	291739	981530	60
TX	UVALDE	285834	993528	26
TX	WESLACO	260954	974845	5

MEXICAN DIGITAL TELEVISION ALLOTMENTS

STATE	CITY	LATITUDE	LONGITUDE	CHANNEL
BCN	ENSENADA	315222	1163751	16*
BCN	ENSENADA	315326	1163750	24*
BCN	ENSENADA	315222	1163751	35
BCN	ENSENADA	315225	1163751	61
BCN	ENSENADA	315222	1163751	65
BCN	MEXICALI	323641	1152939	25*
BCN	MEXICALI	323930	1152905	46*
BCN	MEXICALI	323641	1152939	47*
BCN	MEXICALI	323641	1152939	60
BCN	MEXICALI	323930	1152905	64
BCN	MEXICALI	323641	1152939	65
BCN	MEXICALI	323641	1152939	67
BCN	SAN FELIPE	310135	1144946	51
BCN	TECATE	323403	1163730	53*
BCN	TIJUANA	323005	1170223	23*
BCN	TIJUANA	323005	1170223	28*
BCN	TIJUANA	322826	1165349	29*
BCN	TIJUANA	323005	1170223	32*
BCN	TIJUANA	322744	1170150	46*
BCN	TIJUANA	323007	1170223	47*
BCN	TIJUANA	323008	1170221	58*
BCN	TIJUANA	323008	1170221	59*
CHI	CD. CAMARGO	274020	1051054	27
CHI	CD. CUAUHTEMOC	282415	1065127	50
CHI	CD. DELICIAS	281048	1052831	48
CHI	CD. DELICIAS	281048	1052831	53
CHI	CD. JIMENEZ	270748	1045454	24
CHI	CD. JIMENEZ	270746	1045453	58
CHI	CD. JUAREZ	314235	1062938	29*
CHI	CD. JUAREZ	314014	1063108	34*
CHI	CD. JUAREZ	314014	1063106	36*
CHI	CD. JUAREZ	314113	1063026	45
CHI	CD. JUAREZ	314235	1062938	50
CHI	CD. JUAREZ	314235	1062938	57
CHI	CD. JUAREZ	314014	1063106	58
CHI	CD. MADERA	291134	108 845	56
CHI	CHIHUAHUA	283655	1060520	25
CHI	CHIHUAHUA	283655	1060520	26
CHI	CHIHUAHUA	283711	1055155	34
CHI	CHIHUAHUA	283711	1055155	51
CHI	CHIHUAHUA	283711	1055155	55
CHI	NUEVO CASAS GRANDES	302411	1075418	54
CHI	OJINAGA	293330	1042531	10
CHI	OJINAGA	293329	1042512	36
CHI	OJINAGA	293329	1042512	59
COA	CD. ACUÑA	291741	1005404	43
COA	CD. ACUÑA	291809	1005530	55
COA	CD. ACUÑA	291741	1005404	56

*Special negotiated mutually accepted short-spaced allotment.

MEXICAN DIGITAL TELEVISION ALLOTMENTS

STATE	CITY	LATITUDE	LONGITUDE	CHANNEL
COA	CD. ALLENDE	282048	1005055	41
COA	MONCLOVA	265441	1012613	36
COA	MONCLOVA	265441	1012613	42
COA	MONCLOVA	265343	1012546	48
COA	MONCLOVA	265343	1012546	49
COA	NUEVA ROSITA	275721	1011205	41
COA	NUEVA ROSITA	275721	1011205	43
COA	NUEVA ROSITA	275615	1011335	65
COA	PIEDRAS NEGRAS	284027	1003349	43
COA	PIEDRAS NEGRAS	284114	1003258	44
COA	PIEDRAS NEGRAS	284114	1003258	51
COA	PIEDRAS NEGRAS	284114	1003258	55
COA	PIEDRAS NEGRAS	284114	1003258	56
COA	SABINAS	275034	1010723	42
COA	SABINAS NUEVA ROSITA	275037	1010807	48
COA	SABINAS NUEVA ROSITA	275037	1010807	50
COA	SALTILLO	252440	1010017	20
COA	SALTILLO	252610	1005949	30
COA	SALTILLO	252442	1010008	31
COA	SALTILLO	252637	1005922	69
NLE	MONTERREY	253752	1001404	23
NLE	MONTERREY	253736	1001915	31
NLE	MONTERREY	253729	1001913	39*
NLE	MONTERREY	253752	1001404	43
NLE	MONTERREY	253736	1001915	50
NLE	MONTERREY	254114	1001847	52
NLE	MONTERREY	253752	1001404	55
NLE	MONTERREY	253729	1001913	56
NLE	MONTERREY	253752	1001404	57
NLE	MONTERREY	253847	1001846	58
SON	CABORCA	304338	1120915	35
SON	CABORCA	304338	1120415	36
SON	CABORCA	304338	1120915	55
SON	CANANEA	305837	1101822	25*
SON	HERMOSILLO	290422	1105702	30
SON	HERMOSILLO	290419	1105856	48
SON	HERMOSILLO	290422	1105659	49
SON	HERMOSILLO	290429	1105736	51
SON	HERMOSILLO	290551	1110030	57
SON	HERMOSILLO	290422	1105659	58
SON	HERMOSILLO	290422	1105702	59
SON	MAGDALENA	303759	1105837	66
SON	NACO	311953	1095705	33
SON	NOGALES	311939	1105708	24*
SON	NOGALES	311806	1105627	25*
SON	NOGALES	311949	1105708	31
SON	NOGALES	311939	1105708	53
SON	NOGALES	3118 6	1105627	54

*Special negotiated mutually accepted short-spaced allotment.

MEXICAN DIGITAL TELEVISION ALLOTMENTS

STATE	CITY	LATITUDE	LONGITUDE	CHANNEL
SON	PUERTO PEÑASCO	311809	1133257	48
SON	SAN LUIS RIO COLORADO	322820	1144657	22*
TAM	CD. VICTORIA	234308	990847	2
TAM	CD. VICTORIA	234306	990834	36
TAM	CD. VICTORIA	234306	990849	42
TAM	CD. VICTORIA	234308	990849	50
TAM	CD. VICTORIA	234308	990849	52
TAM	CD. VICTORIA	234306	990835	55
TAM	MATAMOROS	255636	975057	30*
TAM	MATAMOROS	255232	972956	33*
TAM	MATAMOROS	255628	975049	51*
TAM	MATAMOROS	255219	973010	58*
TAM	MATAMOROS	255219	973010	63*
TAM	NUEVO LAREDO	272641	993030	50*
TAM	NUEVO LAREDO	272730	993112	51
TAM	NUEVO LAREDO	272913	993006	54
TAM	NUEVO LAREDO	272645	993027	55
TAM	NUEVO LAREDO	272641	993030	58
TAM	NUEVO LAREDO	272645	993027	62
TAM	REYNOSA	255636	975057	52*
TAM	REYNOSA	260531	981652	56
TAM	REYNOSA/MATAMOROS	255636	975057	36*
TAM	ROSITA VILLAGRAN	242905	992935	30
TAM	SAN FERNANDO	245358	980726	21
TAM	SOTO LA MARINA	234555	981230	28
TAM	SOTO LA MARINA	234619	981218	32

*Special negotiated mutually accepted short-spaced allotment.

UNITED STATES DIGITAL TELEVISION ALLOTMENTS

STATE	CITY	LATITUDE	LONGITUDE	CHANNEL
AZ	GREEN VALLEY	322454	1104256	47
AZ	KINGMAN	350157	1142156	19
AZ	LAKE HAVASU CITY	343306	1141137	32
AZ	MESA	332000	1120348	36
AZ	PHOENIX	332002	1120340	17
AZ	PHOENIX	332002	1120342	20
AZ	PHOENIX	332001	1120345	24
AZ	PHOENIX	332001	1120332	26
AZ	PHOENIX	332000	1120349	29
AZ	PHOENIX	332003	1120343	31
AZ	PHOENIX	332000	1120346	34
AZ	PHOENIX	332001	1120344	49
AZ	PHOENIX	332000	1120346	56
AZ	SIERRA VISTA	314533	1104802	44
AZ	TOLLESON	332003	1120338	52
AZ	TUCSON	321455	1110657	19
AZ	TUCSON	322456	1104249	23
AZ	TUCSON	314218	1105526	25*
AZ	TUCSON	321253	1110021	28
AZ	TUCSON	322455	1104254	30
AZ	TUCSON	321456	1110658	32
AZ	TUCSON	322454	1104259	35
AZ	TUCSON	321455	1110657	42
AZ	YUMA	330317	1144934	16*
AZ	YUMA	330310	1144940	41
CA	ANAHEIM	341114	1174201	32*
CA	BARSTOW	343634	1171711	44
CA	BLYTHE	333636	1143544	4
CA	CALIPATRIA	330319	1144939	50
CA	CORONA	341327	1180345	39
CA	EL CENTRO	330306	1144941	22*
CA	EL CENTRO	330319	1144939	48*
CA	HUNTINGTON BEACH	335819	1175657	48
CA	LOS ANGELES	341336	1180356	31
CA	LOS ANGELES	341335	1180356	35
CA	LOS ANGELES	341332	1180352	36
CA	LOS ANGELES	341326	1180345	41
CA	LOS ANGELES	341336	1180359	42
CA	LOS ANGELES	341338	1180400	43
CA	LOS ANGELES	341337	1180358	53
CA	LOS ANGELES	341326	1180344	59*
CA	LOS ANGELES	341357	1180418	60
CA	LOS ANGELES	341329	1180347	65
CA	LOS ANGELES	341342	1180402	66
CA	ONTARIO	341337	1180358	47*
CA	OXNARD	341951	1190122	24
CA	PALM SPRINGS	335200	1162556	46*
CA	PALM SPRINGS	333855	1163334	52

* Special negotiated mutually accepted short-spaced allotment.

UNITED STATES DIGITAL TELEVISION ALLOTMENTS

STATE	CITY	LATITUDE	LONGITUDE	CHANNEL
CA	RANCHO PALOS VERDES	332100	1182105	51
CA	RIVERSIDE	341116	1174155	68
CA	SAN BERNARDINO	335757	1171705	26
CA	SAN BERNARDINO	341115	1174158	38
CA	SAN BERNARDINO	341115	1174154	61
CA	SAN DIEGO	324152	1165602	18
CA	SAN DIEGO	324147	1165607	19
CA	SAN DIEGO	325020	1171456	25*
CA	SAN DIEGO	324147	1165607	30*
CA	SAN DIEGO	324148	1165606	40*
CA	SAN DIEGO	325017	1171456	55
CA	SANTA ANA	341327	1180344	23*
CA	TWENTYNINE PALMS	340915	1161150	23*
CA	VENTURA	341951	1190122	49
NM	CARLSBAD	324739	1041227	19
NM	LAS CRUCES	321524	1065834	23
NM	LAS CRUCES	320230	1062741	47*
NM	ROSWELL	332458	1043359	28
NM	ROSWELL	330320	1034912	41
NM	SILVER CITY	325146	1081428	12
NM	SILVER CITY	324612	1081641	33
NM	SOCORRO	340329	1065329	31
TX	BIG SPRING	321514	1012644	33
TX	BROWNSVILLE	260559	975016	24
TX	CORPUS CHRISTI	274650	973803	18
TX	CORPUS CHRISTI	273912	973355	23
TX	CORPUS CHRISTI	274511	973814	27
TX	CORPUS CHRISTI	273929	973604	47
TX	CORPUS CHRISTI	274428	973608	50*
TX	DEL RIO	292039	1005139	28
TX	EAGLE PASS	284332	1002835	18
TX	EL PASO	314855	1062920	15
TX	EL PASO	314818	1062857	16
TX	EL PASO	314715	1062847	17
TX	EL PASO	314746	1062857	18
TX	EL PASO	314746	1062857	25
TX	EL PASO	314715	1062847	30
TX	EL PASO	314855	1062917	39
TX	EL PASO	314855	1062917	51
TX	HARLINGEN	260855	974917	31
TX	HARLINGEN	261300	974648	34*
TX	HARLINGEN	260714	974918	38
TX	KERRVILLE	293637	985335	32
TX	LAREDO	273114	993119	14
TX	LAREDO	274021	993951	15
TX	LAREDO	273003	993037	19
TX	LLANO	304036	983359	27
TX	MCALLEN	260520	980344	46

* Special negotiated mutually accepted short-spaced allotment.

UNITED STATES DIGITAL TELEVISION ALLOTMENTS

STATE	CITY	LATITUDE	LONGITUDE	CHANNEL
TX	MIDLAND	320514	1021712	26
TX	ODESSA	315917	1025159	15
TX	ODESSA	315159	1022250	22
TX	ODESSA	320551	1021721	23
TX	ODESSA	315150	1023441	31
TX	ODESSA	320253	1021744	43
TX	RIO GRANDE CITY	262547	984925	20
TX	SAN ANGELO	312201	1000248	11
TX	SAN ANGELO	313722	1002614	16
TX	SAN ANGELO	313521	1003100	19
TX	SAN ANTONIO	293125	984325	16
TX	SAN ANTONIO	291933	982125	20
TX	SAN ANTONIO	291727	981612	30
TX	SAN ANTONIO	291739	981530	38
TX	SAN ANTONIO	291739	981530	39
TX	SAN ANTONIO	291611	981531	48
TX	SAN ANTONIO	291607	981555	55
TX	SAN ANTONIO	291610	981555	58
TX	WESLACO	260954	974845	13

* Special negotiated mutually accepted short-spaced allotment.

Longley-Rice Methodology

The Longley-Rice model is described in NTIA Report 82-100, *A Guide to the Use of the ITS Irregular Terrain Model in the Area Prediction Mode*, authors G.A. Hufford, A.G. Longley and W.A. Kissick, U.S. Department of Commerce, April 1982. The report may be obtained from the U.S. Department of Commerce, National Technical Information Service, Springfield, Virginia, USA, by requesting Accession No. PB 82-217977.

Parameter values for the Longley-Rice Fortran code are given in Table 1. In addition to these parameters, the percent of time and locations at which the predicted fields will be realized or exceeded must be specified, and also a percentage identifying the degree of confidence desired in the results. To determine whether TV service is present, the location variability is set at 50% and the time variability at 90%. The percent confidence is set at 50%, indicating interest in median situations.

Table 1.

Parameter Values to be Used in the Longley-Rice Model

Parameter	Value	Meaning/Comment
EPS	15.0	Relative permittivity of ground.
SGM	0.005	Ground conductivity, Siemens per meter.
ZSYS	0.0	Coordinated with setting of EN0. See page 72 of NTIA Report.
EN0	301.0	Surface refractivity in N-units (parts per million).
IPOL	0	Denotes horizontal polarization.
MDVAR	3	Code 3 sets broadcast mode of variability calculations.
KLIM	5	Climate code 5 for continental temperate.
HG(1)	see text	Height of the radiation center above ground.
HG(2)	10 m	Height of TV receiving antenna above ground.
MDP	-1	Point to Point mode

In using the Longley-Rice model, terrain elevation data is input at uniformly spaced points the between transmitter and receiver. Elevations are retrieved from terrain elevation databases available from the United States Geological Survey (USGS) for points in the United States, and from the National Statistics, Geography and Informatics Institute (INEGI) for points in Mexico. The elevation of a point of interest is determined by linear interpolation of the values retrieved for the corners of the coordinate rectangle in which the point of interest

lies.

The presence or absence of interference is determined by further application of Longley-Rice. Radio paths between undesired TV transmitters and points representing geographical cells are examined. The undesired transmitters included in the analysis of each cell are those which are possible sources of interference at that cell, considering their distance from the cell and channel offset relationships. For each such radio path, the Longley-Rice procedure is applied for median situations (that is, confidence 50%), and for 50% of locations, 10% of the time.

A cell being examined is counted as having interference if the ratio of the desired field strength to that of any one of the possible interference sources is less than a critical minimum value. The comparison is made after applying the discrimination effect of the receiving antenna. The critical value is a function of the channel offset relationship.

Criteria for the ratio of desired to undesired field strength are summarized in Tables 2A and 2B.

Table 2A.

Interference Criteria for Co- and Adjacent Channels

Channel Offset	D/U Ratio, dB			
	Analog into Analog	DTV into Analog	Analog into DTV	DTV into DTV
-1 (lower adjacent)	-3	-17	-48	-42
0 (co-channel)	+28	+34	+2	+15
+1 (upper adjacent)	-13	-12	-49	-43

Receiving Antenna Pattern

The receiving antenna is assumed to have a directional gain pattern which tends to discriminate against off-axis undesired stations. This pattern is a planning factor affecting interference. The discrimination, in relative volts, provided by the assumed receiving pattern is a fourth-power cosine function of the angle between the lines joining the desired and

Longley-Rice Methodology

undesired stations to the reception point. One of these lines goes directly to the desired station, the other goes to the undesired station. The discrimination is calculated as the fourth power of the cosine of the angle between these lines but never more than represented by the front-to-back ratios identified in Table 3. When both desired and undesired stations are dead ahead, the angle is 0.0 giving a cosine of unity so that there is no discrimination. When the undesired station is somewhat off-axis, the cosine will be less than unity bringing discrimination into play; and when the undesired station is far off axis, the maximum discrimination given by the front-to-back ratio is attained.

Table 2B.

Interference Criteria for UHF Taboo Channels
(NC means not considered)

Channel Offset Relative to Desired Channel N	D/U Ratio, dB			
	Analog into Analog	DTV into Analog	Analog into DTV	DTV into DTV
N - 8	-32	-32	NC	NC
N - 7	-30	-35	NC	NC
N - 4	NC	-34	NC	NC
N - 3	-33	-30	NC	NC
N - 2	-26	-24	NC	NC
N + 2	-29	-28	NC	NC
N + 3	-34	-34	NC	NC
N + 4	-23	-25	NC	NC
N + 7	-33	-34	NC	NC
N + 8	-41	-43	NC	NC
N+14	-25	-33	NC	NC
N+15	-9	-31	NC	NC

Longley-Rice Methodology

Table 3.

Front-to-Back Ratios Assumed for Receiving Antennas

TV Service	Front-to-Back Ratios, dB		
	Low VHF	High VHF	UHF
Analog	6	6	6
DTV	10	12	14

APPENDIX 6

Technical parameters

1. City, State
2. Transmitter location: LN
   LW
3. Call Sign
4. Channel Number
5. Effective Radiated Power
6. Radiation Center Above Mean Sea Level
7. Antenna System:
   - Horizontal antenna pattern
   - Vertical antenna pattern (if available and possible)
   - Polarization and beam tilt

UNITED STATES DIGITAL TELEVISION ASSIGNMENTS

STATE	CITY	LATITUDE	LONGITUDE	CALL SIGN	CHANNEL	ERP (KW)	HAAT (M)	RCAMSL (M)	ANTENNA
CA	LOS ANGELES	341336	1180356	KTLA-DT	31	375	954	1854	DA
CA	LOS ANGELES	341332	1180352	KNBC-DT	36	380	991	1891	ND
CA	LOS ANGELES	341337	1180358	KABC-DT	53	183	924	1821	DA
CA	LOS ANGELES	341355	1180418	KCBS-DT	60	469	1087	1999	DA
CA	LOS ANGELES	341329	1180348	KTTV-DT	65	680	902	1785	DA

MEXICAN DIGITAL TELEVISION ASSIGNMENTS

STATE	CITY	LATITUDE	LONGITUDE	CALL SIGN	CHANNEL	ERP (KW)	HAAT (M)	RCAMSL (M)	ANTENNA