

ENGINEERING EXHIBIT

Digital Television Station Application for Construction Permit

prepared for

Gray Television Licensee, LLC

New(DT) Yuma, AZ

Facility ID 776268

Ch. 11 5 kW 452 m

Gray Television Licensee, LLC (“Gray”) is the FCC Auction 112 winning bidder for a Construction Permit for the vacant full power television allotment on Channel 11 at Yuma, AZ. Pursuant to FCC Public Notice,¹ *Gray* is submitting this long-form application (Form 2100 Schedule A) to obtain a Construction Permit to specify the operation on Channel 11 at Yuma AZ. As specified herein, the new Channel 11 facility will operate with an effective radiated power (“ERP”) of 5 kW directional at 452 meters height above average terrain (“HAAT”).

Gray proposes to construct the Channel 11 facility by installing a side-mounted transmitting antenna on the tower structure is associated with FCC Antenna Structure Registration number 1225054. No increase to the overall structure height will result.

The proposed antenna is an elliptically polarized directional ERI model ATW4V4-ESWC-11H (30 percent vertical polarization). The maximum horizontally polarized ERP is 5 kW and the maximum vertically polarized ERP is 1.5 kW. The vertically polarized component will not exceed the horizontally polarized component at any azimuth. The directional antenna’s azimuthal patterns are depicted in Figures 1 and 1A for horizontal and vertical polarization, respectively. Similarly, the antenna’s elevation patterns are provided in Figures 2 and 2A.

Figure 3 supplies a map that demonstrates compliance with §73.625(a)(1) regarding coverage of the entire principal community.

¹*Auction of Construction Permits for Full Power Television Stations Closes*, Public Notice, DA 22-659, released June 23, 2022.

Interference study per FCC OET Bulletin 69² shows that the proposal complies with the 0.5 percent limit of new interference caused to pertinent nearby full service and Class A television stations as required by §73.616. The interference study output report is provided as Table 1.

Human Exposure to Radiofrequency Electromagnetic Field (Environmental)

The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the FCC's OET Bulletin Number 65. Based on OET-65 equation (10) and considering 30 percent antenna relative field in downward elevations (pattern data shows less than 30 percent relative field at angles 20 to 90 degrees below the antenna), the calculated signal density near the tower at two meters above ground level attributable to the proposed facility is $1.8 \mu\text{W}/\text{cm}^2$, which is 0.9 percent of the general population/uncontrolled maximum permitted exposure limit. This is well below the five percent threshold limit described in §1.1307(b) regarding sites with multiple emitters, categorically excluding the applicant from responsibility for taking any corrective action in the areas where the proposal's contribution is less than five percent.

The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs will continue to be posted. With respect to worker safety, the applicant will coordinate exposure procedures with all pertinent stations and will reduce power or cease operation as necessary to protect persons having access to the site, tower, or antenna from RF electromagnetic field exposure in excess of FCC guidelines. This exhibit is limited to the evaluation of exposure to RF electromagnetic field. No increase in structure height is proposed.

²FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004 ("OET-69"). This analysis employed the FCC's current "TVStudy" software with the default application processing template settings, 2 km cell size, and 1 km terrain increment. Comparisons of various results of this computer program (run on a Mac processor) to the FCC's implementation of TVStudy show excellent correlation.

Engineering Exhibit
Gray Television Licensee, LLC (New Ch. 11)
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List of Attachments

Figure 1, 1A Antenna Azimuthal Pattern
Figure 2, 2A Antenna Elevation Pattern
Figure 3 Proposed Coverage Contours
Table 1 TVStudy Analysis of Proposal
Form 2100 Saved Version of Engineering Sections of FCC Form at Time of Upload

Chesapeake RF Consultants, LLC

Joseph M. Davis, P.E. July 23, 2022
207 Old Dominion Road Yorktown, VA 23692 703-650-9600

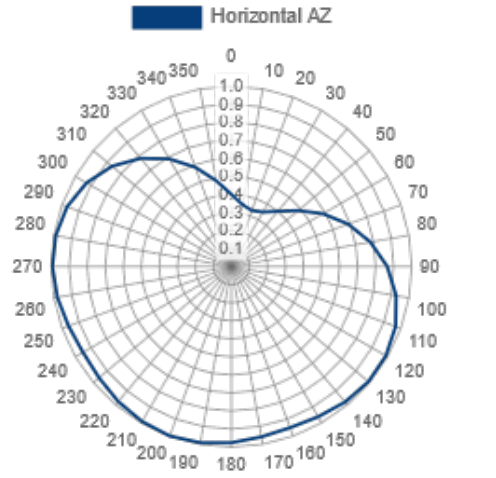


Spec Number: 20220722jmd prelim

Model Number: ATW4V4-ESWC-11H

Azimuth Pattern

Type: ATW-WC Polarization: Horizontal
Directivity: 1.42 numeric (1.52 dB) Frequency: 11 (ATSC)
Peak(s) at: Location: Yuma AZ
Note: Pattern shape and directivity may vary with channel and mounting configuration.



Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0	0.400	-7.96	61	0.596	-4.5	122	0.991	-0.08	183	0.982	-0.16	244	0.956	-0.39	305	0.896	-0.95
1	0.395	-8.07	62	0.606	-4.35	123	0.991	-0.08	184	0.983	-0.15	245	0.957	-0.38	306	0.890	-1.01
2	0.390	-8.18	63	0.617	-4.19	124	0.992	-0.07	185	0.985	-0.13	246	0.958	-0.37	307	0.884	-1.07
3	0.385	-8.29	64	0.627	-4.05	125	0.992	-0.07	186	0.986	-0.12	247	0.959	-0.36	308	0.877	-1.14
4	0.379	-8.43	65	0.637	-3.92	126	0.992	-0.07	187	0.988	-0.1	248	0.960	-0.35	309	0.871	-1.2
5	0.374	-8.54	66	0.647	-3.78	127	0.993	-0.06	188	0.989	-0.1	249	0.961	-0.35	310	0.865	-1.26
6	0.369	-8.66	67	0.658	-3.64	128	0.993	-0.06	189	0.991	-0.08	250	0.962	-0.34	311	0.857	-1.34
7	0.364	-8.78	68	0.668	-3.5	129	0.993	-0.06	190	0.992	-0.07	251	0.964	-0.32	312	0.848	-1.43
8	0.359	-8.9	69	0.678	-3.38	130	0.993	-0.06	191	0.993	-0.06	252	0.966	-0.3	313	0.840	-1.51
9	0.354	-9.02	70	0.689	-3.24	131	0.992	-0.07	192	0.994	-0.05	253	0.968	-0.28	314	0.832	-1.6
10	0.349	-9.14	71	0.698	-3.12	132	0.991	-0.08	193	0.995	-0.04	254	0.970	-0.26	315	0.824	-1.68
11	0.347	-9.19	72	0.708	-3	133	0.990	-0.09	194	0.995	-0.04	255	0.971	-0.26	316	0.816	-1.77
12	0.345	-9.24	73	0.717	-2.89	134	0.988	-0.1	195	0.996	-0.03	256	0.973	-0.24	317	0.807	-1.86
13	0.344	-9.27	74	0.726	-2.78	135	0.987	-0.11	196	0.997	-0.03	257	0.975	-0.22	318	0.799	-1.95
14	0.342	-9.32	75	0.736	-2.66	136	0.986	-0.12	197	0.998	-0.02	258	0.977	-0.2	319	0.791	-2.04
15	0.340	-9.37	76	0.745	-2.56	137	0.985	-0.13	198	0.998	-0.02	259	0.979	-0.19	320	0.783	-2.12
16	0.338	-9.42	77	0.755	-2.44	138	0.983	-0.15	199	0.999	-0.01	260	0.981	-0.17	321	0.773	-2.24
17	0.337	-9.45	78	0.764	-2.34	139	0.982	-0.16	200	1.000	0	261	0.982	-0.16	322	0.764	-2.34
18	0.335	-9.5	79	0.773	-2.24	140	0.981	-0.17	201	0.999	-0.01	262	0.983	-0.15	323	0.755	-2.44
19	0.333	-9.55	80	0.783	-2.12	141	0.979	-0.18	202	0.998	-0.02	263	0.985	-0.13	324	0.745	-2.56
20	0.331	-9.6	81	0.791	-2.04	142	0.977	-0.2	203	0.998	-0.02	264	0.986	-0.12	325	0.736	-2.66
21	0.333	-9.55	82	0.799	-1.95	143	0.975	-0.22	204	0.997	-0.03	265	0.987	-0.11	326	0.726	-2.78
22	0.335	-9.5	83	0.807	-1.86	144	0.973	-0.24	205	0.996	-0.03	266	0.988	-0.1	327	0.717	-2.89
23	0.337	-9.45	84	0.816	-1.77	145	0.971	-0.26	206	0.995	-0.04	267	0.990	-0.09	328	0.708	-3
24	0.338	-9.42	85	0.824	-1.68	146	0.970	-0.26	207	0.995	-0.04	268	0.991	-0.08	329	0.698	-3.12
25	0.340	-9.37	86	0.832	-1.6	147	0.968	-0.28	208	0.994	-0.05	269	0.992	-0.07	330	0.689	-3.24
26	0.342	-9.32	87	0.840	-1.51	148	0.966	-0.3	209	0.993	-0.06	270	0.993	-0.06	331	0.678	-3.38
27	0.344	-9.27	88	0.848	-1.43	149	0.964	-0.32	210	0.992	-0.07	271	0.993	-0.06	332	0.668	-3.5
28	0.345	-9.24	89	0.857	-1.34	150	0.962	-0.34	211	0.991	-0.08	272	0.993	-0.06	333	0.658	-3.64
29	0.347	-9.19	90	0.865	-1.26	151	0.961	-0.35	212	0.989	-0.1	273	0.993	-0.06	334	0.647	-3.78
30	0.349	-9.14	91	0.871	-1.2	152	0.960	-0.35	213	0.988	-0.1	274	0.992	-0.07	335	0.637	-3.92
31	0.354	-9.02	92	0.877	-1.14	153	0.959	-0.36	214	0.986	-0.12	275	0.992	-0.07	336	0.627	-4.05
32	0.359	-8.9	93	0.884	-1.07	154	0.958	-0.37	215	0.985	-0.13	276	0.992	-0.07	337	0.617	-4.19
33	0.364	-8.78	94	0.890	-1.01	155	0.957	-0.38	216	0.983	-0.15	277	0.991	-0.08	338	0.606	-4.35
34	0.369	-8.66	95	0.896	-0.95	156	0.956	-0.39	217	0.982	-0.16	278	0.991	-0.08	339	0.596	-4.5
35	0.374	-8.54	96	0.903	-0.89	157	0.955	-0.4	218	0.980	-0.18	279	0.991	-0.08	340	0.586	-4.64
36	0.379	-8.43	97	0.909	-0.83	158	0.954	-0.41	219	0.979	-0.18	280	0.990	-0.09	341	0.576	-4.81
37	0.385	-8.29	98	0.915	-0.77	159	0.953	-0.42	220	0.977	-0.2	281	0.988	-0.1	342	0.565	-4.96
38	0.390	-8.18	99	0.922	-0.71	160	0.951	-0.44	221	0.975	-0.22	282	0.986	-0.12	343	0.555	-5.11
39	0.395	-8.07	100	0.928	-0.65	161	0.952	-0.43	222	0.973	-0.24	283	0.984	-0.14	344	0.545	-5.27
40	0.400	-7.96	101	0.932	-0.61	162	0.953	-0.42	223	0.972	-0.25	284	0.982	-0.16	345	0.535	-5.43
41	0.408	-7.79	102	0.936	-0.57	163	0.954	-0.41	224	0.970	-0.26	285	0.980	-0.18	346	0.524	-5.61
42	0.417	-7.6	103	0.941	-0.53	164	0.954	-0.41	225	0.969	-0.28	286	0.978	-0.19	347	0.514	-5.78
43	0.425	-7.43	104	0.945	-0.49	165	0.955	-0.4	226	0.966	-0.3	287	0.976	-0.21	348	0.504	-5.95
44	0.433	-7.27	105	0.949	-0.45	166	0.956	-0.39	227	0.964	-0.32	288	0.974	-0.23	349	0.494	-6.13
45	0.442	-7.09	106	0.953	-0.42	167	0.957	-0.38	228	0.963	-0.33	289	0.972	-0.25	350	0.483	-6.32
46	0.450	-6.94	107	0.957	-0.38	168	0.957	-0.38	229	0.961	-0.35	290	0.970	-0.26	351	0.475	-6.47
47	0.458	-6.78	108	0.962	-0.34	169	0.958	-0.37	230	0.959	-0.36	291	0.968	-0.3	352	0.467	-6.61
48	0.467	-6.61	109	0.966	-0.3	170	0.959	-0.36	231	0.958	-0.37	292	0.962	-0.34	353	0.458	-6.78
49	0.475	-6.47	110	0.970	-0.26	171	0.961	-0.35	232	0.957	-0.38	293	0.957	-0.38	354	0.450	-6.94
50	0.483	-6.32	111	0.972	-0.25	172	0.963	-0.33	233	0.957	-0.38	294	0.953	-0.42	355	0.442	-7.09
51	0.494	-6.13	112	0.974	-0.23	173	0.964	-0.32	234	0.956	-0.39	295	0.949	-0.45	356	0.433	-7.27
52	0.504	-5.95	113	0.976	-0.21	174	0.966	-0.3	235	0.955	-0.4	296	0.945	-0.49	357	0.425	-7.43
53	0.514	-5.78	114	0.978	-0.19	175	0.968	-0.28	236	0.954	-0.41	297	0.941	-0.53	358	0.417	-7.61
54	0.524	-5.61	115	0.980	-0.18	176	0.970	-0.26	237	0.954	-0.41	298	0.936	-0.57	359	0.408	-7.79
55	0.535	-5.43	116	0.982	-0.16	177	0.972	-0.25	238	0.953	-0.42	299	0.932	-0.61	360	0.400	-7.96
56	0.545	-5.27	117	0.984	-0.14	178	0.973	-0.24	239	0.952	-0.43	300	0.928	-0.65			
57	0.555	-5.11	118	0.986	-0.12	179	0.975	-0.22	240	0.951	-0.44	301	0.922	-0.71			
58	0.565	-4.96	119	0.988	-0.1	180	0.977	-0.2	241	0.953	-0.42	302	0.915	-0.77			
59	0.575	-4.81	120	0.990	-0.09	181	0.979	-0.18	242	0.954	-0.41	303	0.909	-0.83			
60	0.586	-4.64	121	0.991	-0.08	182	0.980	-0.18	243	0.955	-0.4	304	0.903	-0.89			

Figure 1
Antenna Azimuthal Pattern
Horizontal Polarization
New(DT) Yuma, AZ
Facility ID 776268
Ch. 11 5 kW 452 m

prepared for
Gray Television Licensee, LLC

July, 2022



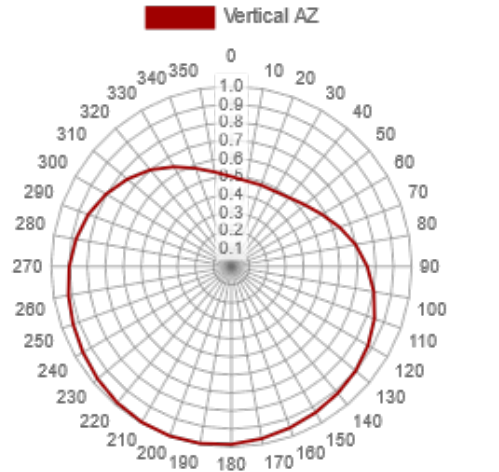


Spec Number: 20220722jmd prelim

Model Number: ATW4V4-ESWC-11H

Azimuth Pattern

Type: ATW-W-V Polarization: Vertical
Directivity: 1.54 numeric (1.88 dB) Frequency: 11 (ATSC)
Peak(s) at: Location: Yuma AZ
Note: Pattern shape and directivity may vary with channel and mounting configuration.



Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0	0.499	-6.04	61	0.588	-4.61	122	0.881	-1.1	183	0.988	-0.1	244	0.944	-0.5	305	0.781	-2.15
1	0.496	-6.09	62	0.592	-4.55	123	0.885	-1.06	184	0.990	-0.09	245	0.944	-0.5	306	0.777	-2.19
2	0.494	-6.13	63	0.597	-4.48	124	0.886	-1.05	185	0.992	-0.07	246	0.942	-0.52	307	0.769	-2.28
3	0.492	-6.16	64	0.604	-4.38	125	0.888	-1.03	186	0.994	-0.05	247	0.940	-0.54	308	0.765	-2.33
4	0.490	-6.2	65	0.609	-4.31	126	0.891	-1	187	0.992	-0.07	248	0.940	-0.54	309	0.760	-2.38
5	0.488	-6.23	66	0.615	-4.22	127	0.895	-0.96	188	0.992	-0.07	249	0.937	-0.57	310	0.754	-2.45
6	0.487	-6.25	67	0.619	-4.17	128	0.896	-0.95	189	0.995	-0.04	250	0.935	-0.58	311	0.750	-2.5
7	0.486	-6.27	68	0.626	-4.07	129	0.899	-0.92	190	0.996	-0.03	251	0.935	-0.58	312	0.742	-2.59
8	0.483	-6.32	69	0.633	-3.97	130	0.900	-0.92	191	0.992	-0.07	252	0.932	-0.61	313	0.738	-2.64
9	0.483	-6.32	70	0.638	-3.9	131	0.903	-0.89	192	0.997	-0.03	253	0.929	-0.64	314	0.732	-2.71
10	0.482	-6.34	71	0.642	-3.85	132	0.905	-0.87	193	0.999	-0.01	254	0.926	-0.65	315	0.727	-2.77
11	0.483	-6.32	72	0.646	-3.8	133	0.908	-0.84	194	0.999	-0.01	255	0.927	-0.66	316	0.722	-2.83
12	0.482	-6.34	73	0.655	-3.68	134	0.908	-0.83	195	0.999	-0.01	256	0.926	-0.67	317	0.715	-2.91
13	0.479	-6.39	74	0.662	-3.58	135	0.909	-0.83	196	0.999	-0.01	257	0.924	-0.69	318	0.712	-2.95
14	0.479	-6.39	75	0.669	-3.49	136	0.910	-0.82	197	1.000	0	258	0.922	-0.71	319	0.704	-3.05
15	0.479	-6.39	76	0.674	-3.43	137	0.914	-0.78	198	0.999	-0.01	259	0.919	-0.73	320	0.700	-3.1
16	0.479	-6.39	77	0.679	-3.36	138	0.915	-0.77	199	0.999	-0.01	260	0.918	-0.74	321	0.692	-3.2
17	0.479	-6.39	78	0.687	-3.26	139	0.918	-0.74	200	1.000	0	261	0.918	-0.74	322	0.687	-3.26
18	0.479	-6.39	79	0.692	-3.2	140	0.918	-0.74	201	0.999	-0.01	262	0.915	-0.77	323	0.679	-3.36
19	0.481	-6.36	80	0.700	-3.1	141	0.919	-0.73	202	0.999	-0.01	263	0.914	-0.78	324	0.674	-3.43
20	0.481	-6.36	81	0.704	-3.05	142	0.922	-0.71	203	1.000	0	264	0.910	-0.82	325	0.669	-3.49
21	0.481	-6.36	82	0.712	-2.95	143	0.924	-0.69	204	0.999	-0.01	265	0.909	-0.83	326	0.662	-3.58
22	0.479	-6.39	83	0.715	-2.91	144	0.926	-0.67	205	0.999	-0.01	266	0.909	-0.83	327	0.655	-3.68
23	0.479	-6.39	84	0.722	-2.83	145	0.927	-0.66	206	0.999	-0.01	267	0.908	-0.84	328	0.646	-3.8
24	0.479	-6.39	85	0.727	-2.77	146	0.928	-0.65	207	0.999	-0.01	268	0.905	-0.87	329	0.642	-3.85
25	0.479	-6.39	86	0.732	-2.71	147	0.929	-0.64	208	0.997	-0.03	269	0.903	-0.89	330	0.638	-3.9
26	0.479	-6.39	87	0.738	-2.64	148	0.932	-0.61	209	0.992	-0.07	270	0.900	-0.92	331	0.633	-3.97
27	0.479	-6.39	88	0.742	-2.59	149	0.935	-0.58	210	0.996	-0.03	271	0.899	-0.92	332	0.626	-4.07
28	0.482	-6.34	89	0.750	-2.5	150	0.935	-0.58	211	0.995	-0.04	272	0.896	-0.95	333	0.619	-4.17
29	0.483	-6.32	90	0.754	-2.45	151	0.937	-0.57	212	0.992	-0.07	273	0.895	-0.96	334	0.615	-4.22
30	0.482	-6.34	91	0.760	-2.38	152	0.940	-0.54	213	0.992	-0.07	274	0.891	-1	335	0.609	-4.31
31	0.483	-6.32	92	0.765	-2.33	153	0.940	-0.54	214	0.994	-0.05	275	0.888	-1.03	336	0.604	-4.38
32	0.483	-6.32	93	0.769	-2.28	154	0.942	-0.52	215	0.992	-0.07	276	0.886	-1.05	337	0.597	-4.48
33	0.486	-6.27	94	0.777	-2.19	155	0.944	-0.5	216	0.990	-0.09	277	0.885	-1.06	338	0.592	-4.55
34	0.487	-6.25	95	0.781	-2.15	156	0.944	-0.5	217	0.988	-0.1	278	0.881	-1.1	339	0.588	-4.61
35	0.488	-6.23	96	0.785	-2.1	157	0.945	-0.49	218	0.987	-0.11	279	0.879	-1.12	340	0.579	-4.75
36	0.490	-6.2	97	0.790	-2.05	158	0.947	-0.47	219	0.986	-0.12	280	0.876	-1.15	341	0.571	-4.79
37	0.492	-6.16	98	0.794	-2	159	0.950	-0.45	220	0.986	-0.12	281	0.873	-1.18	342	0.571	-4.87
38	0.494	-6.13	99	0.800	-1.94	160	0.951	-0.44	221	0.983	-0.15	282	0.871	-1.2	343	0.565	-4.96
39	0.496	-6.09	100	0.803	-1.91	161	0.953	-0.42	222	0.982	-0.16	283	0.868	-1.23	344	0.560	-5.04
40	0.499	-6.04	101	0.809	-1.84	162	0.955	-0.4	223	0.979	-0.18	284	0.864	-1.27	345	0.555	-5.11
41	0.503	-5.97	102	0.812	-1.81	163	0.956	-0.39	224	0.979	-0.18	285	0.862	-1.29	346	0.550	-5.19
42	0.505	-5.93	103	0.815	-1.78	164	0.959	-0.36	225	0.978	-0.19	286	0.859	-1.32	347	0.546	-5.28
43	0.508	-5.88	104	0.822	-1.7	165	0.962	-0.34	226	0.976	-0.21	287	0.855	-1.36	348	0.540	-5.35
44	0.510	-5.85	105	0.826	-1.66	166	0.962	-0.34	227	0.974	-0.23	288	0.853	-1.38	349	0.536	-5.42
45	0.513	-5.8	106	0.829	-1.63	167	0.964	-0.32	228	0.973	-0.24	289	0.849	-1.42	350	0.532	-5.48
46	0.518	-5.71	107	0.833	-1.59	168	0.967	-0.29	229	0.972	-0.25	290	0.845	-1.46	351	0.528	-5.55
47	0.521	-5.66	108	0.836	-1.56	169	0.969	-0.27	230	0.969	-0.27	291	0.841	-1.5	352	0.526	-5.58
48	0.526	-5.58	109	0.841	-1.5	170	0.969	-0.27	231	0.969	-0.27	292	0.836	-1.56	353	0.521	-5.66
49	0.528	-5.55	110	0.845	-1.46	171	0.972	-0.25	232	0.967	-0.29	293	0.833	-1.59	354	0.518	-5.71
50	0.532	-5.48	111	0.849	-1.42	172	0.973	-0.24	233	0.964	-0.32	294	0.829	-1.63	355	0.513	-5.8
51	0.536	-5.42	112	0.853	-1.38	173	0.974	-0.23	234	0.962	-0.34	295	0.826	-1.66	356	0.510	-5.85
52	0.540	-5.35	113	0.855	-1.36	174	0.976	-0.21	235	0.962	-0.34	296	0.822	-1.7	357	0.508	-5.88
53	0.546	-5.26	114	0.859	-1.32	175	0.978	-0.19	236	0.959	-0.36	297	0.815	-1.78	358	0.505	-5.93
54	0.550	-5.19	115	0.862	-1.29	176	0.979	-0.18	237	0.956	-0.39	298	0.812	-1.81	359	0.503	-5.97
55	0.555	-5.11	116	0.864	-1.27	177	0.979	-0.18	238	0.955	-0.4	299	0.809	-1.84	360	0.499	-6.04
56	0.560	-5.04	117	0.868	-1.23	178	0.982	-0.16	239	0.953	-0.42	300	0.803	-1.91			
57	0.565	-4.96	118	0.871	-1.2	179	0.983	-0.15	240	0.951	-0.44	301	0.800	-1.94			
58	0.571	-4.87	119	0.873	-1.18	180	0.986	-0.12	241	0.950	-0.45	302	0.794	-2			
59	0.576	-4.79	120	0.876	-1.15	181	0.986	-0.12	242	0.947	-0.47	303	0.790	-2.05			
60	0.579	-4.75	121	0.879	-1.12	182	0.987	-0.11	243	0.945	-0.49	304	0.785	-2.1			

Figure 1A
Antenna Azimuthal Pattern
Vertical Polarization (Ref 30%)
New(DT) Yuma, AZ
Facility ID 776268
Ch. 11 5 kW 452 m

prepared for
Gray Television Licensee, LLC

July, 2022

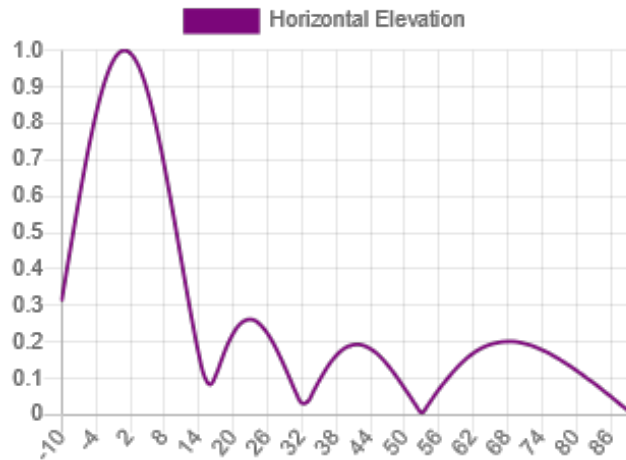




Spec Number: 20220722jmd prelim

Model Number: ATW4V4-ESWC-11H

Type:	Elevation Pattern		Polarization:		Horizontal	
	ATW4V4H					
Directivity:			Frequency:		11 (ATSC)	
Main Lobe:	4.00 numeric	(6.02 dB)	Location:		Yuma AZ	
Horizontal:	3.94 numeric	(5.96 dB)	Beam Tilt:		1.00 degrees	



Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-10.00	0.314	-10.06	6.75	0.778	-2.2	23.50	0.260	-11.7	40.25	0.189	-14.47	57.00	0.090	-20.32
-9.75	0.337	-9.45	7.00	0.758	-2.41	23.75	0.259	-11.73	40.50	0.190	-14.42	57.25	0.095	-20.45
-9.50	0.360	-8.87	7.25	0.739	-2.63	24.00	0.257	-11.8	40.75	0.191	-14.38	57.50	0.100	-20
-9.25	0.383	-8.34	7.50	0.720	-2.85	24.25	0.254	-11.9	41.00	0.192	-14.33	57.75	0.105	-19.58
-9.00	0.407	-7.81	7.75	0.700	-3.1	24.50	0.251	-12.01	41.25	0.193	-14.29	58.00	0.109	-19.25
-8.75	0.430	-7.33	8.00	0.680	-3.35	24.75	0.247	-12.15	41.50	0.193	-14.29	58.25	0.114	-18.86
-8.50	0.453	-6.88	8.25	0.659	-3.62	25.00	0.243	-12.29	41.75	0.193	-14.29	58.50	0.118	-18.56
-8.25	0.476	-6.45	8.50	0.639	-3.89	25.25	0.239	-12.43	42.00	0.193	-14.29	58.75	0.123	-18.2
-8.00	0.499	-6.04	8.75	0.617	-4.19	25.50	0.234	-12.62	42.25	0.192	-14.33	59.00	0.127	-17.92
-7.75	0.522	-5.65	9.00	0.596	-4.5	25.75	0.229	-12.8	42.50	0.192	-14.33	59.25	0.131	-17.65
-7.50	0.545	-5.27	9.25	0.574	-4.82	26.00	0.223	-13.03	42.75	0.190	-14.42	59.50	0.135	-17.39
-7.25	0.567	-4.93	9.50	0.552	-5.16	26.25	0.217	-13.27	43.00	0.189	-14.47	59.75	0.139	-17.14
-7.00	0.589	-4.6	9.75	0.530	-5.51	26.50	0.210	-13.56	43.25	0.188	-14.52	60.00	0.143	-16.89
-6.75	0.611	-4.28	10.00	0.508	-5.88	26.75	0.204	-13.81	43.50	0.186	-14.61	60.25	0.146	-16.71
-6.50	0.633	-3.97	10.25	0.485	-6.29	27.00	0.197	-14.11	43.75	0.184	-14.7	60.50	0.150	-16.48
-6.25	0.654	-3.69	10.50	0.463	-6.69	27.25	0.189	-14.47	44.00	0.181	-14.85	60.75	0.153	-16.31
-6.00	0.675	-3.41	10.75	0.440	-7.13	27.50	0.182	-14.8	44.25	0.179	-14.94	61.00	0.157	-16.08
-5.75	0.696	-3.15	11.00	0.418	-7.58	27.75	0.174	-15.19	44.50	0.176	-15.09	61.25	0.160	-15.92
-5.50	0.716	-2.9	11.25	0.395	-8.07	28.00	0.166	-15.6	44.75	0.173	-15.24	61.50	0.163	-15.76
-5.25	0.735	-2.67	11.50	0.373	-8.57	28.25	0.157	-16.08	45.00	0.170	-15.39	61.75	0.166	-15.6
-5.00	0.754	-2.45	11.75	0.351	-9.09	28.50	0.149	-16.54	45.25	0.166	-15.6	62.00	0.169	-15.44
-4.75	0.773	-2.24	12.00	0.329	-9.66	28.75	0.140	-17.08	45.50	0.163	-15.76	62.25	0.171	-15.34
-4.50	0.791	-2.04	12.25	0.307	-10.26	29.00	0.132	-17.59	45.75	0.159	-15.97	62.50	0.174	-15.19
-4.25	0.808	-1.85	12.50	0.285	-10.9	29.25	0.123	-18.2	46.00	0.155	-16.19	62.75	0.176	-15.09
-4.00	0.825	-1.67	12.75	0.264	-11.57	29.50	0.114	-18.86	46.25	0.151	-16.42	63.00	0.179	-14.94
-3.75	0.841	-1.5	13.00	0.243	-12.29	29.75	0.105	-19.58	46.50	0.146	-16.71	63.25	0.181	-14.85
-3.50	0.857	-1.34	13.25	0.223	-13.03	30.00	0.096	-20.35	46.75	0.142	-16.95	63.50	0.183	-14.75
-3.25	0.872	-1.19	13.50	0.203	-13.85	30.25	0.087	-21.21	47.00	0.137	-17.27	63.75	0.185	-14.66
-3.00	0.886	-1.05	13.75	0.184	-14.7	30.50	0.078	-22.16	47.25	0.132	-17.59	64.00	0.187	-14.56
-2.75	0.899	-0.92	14.00	0.165	-15.65	30.75	0.069	-23.22	47.50	0.127	-17.92	64.25	0.189	-14.47
-2.50	0.912	-0.8	14.25	0.148	-16.69	31.00	0.060	-24.44	47.75	0.122	-18.27	64.50	0.190	-14.42
-2.25	0.924	-0.69	14.50	0.132	-17.59	31.25	0.052	-25.68	48.00	0.117	-18.64	64.75	0.192	-14.33
-2.00	0.935	-0.58	14.75	0.117	-18.64	31.50	0.044	-27.13	48.25	0.112	-19.02	65.00	0.193	-14.28
-1.75	0.945	-0.49	15.00	0.104	-19.66	31.75	0.037	-28.64	48.50	0.107	-19.41	65.25	0.194	-14.24
-1.50	0.954	-0.41	15.25	0.094	-20.54	32.00	0.032	-29.9	48.75	0.101	-19.91	65.50	0.195	-14.2
-1.25	0.963	-0.33	15.50	0.085	-21.31	32.25	0.028	-31.06	49.00	0.095	-20.45	65.75	0.197	-14.11
-1.00	0.971	-0.26	15.75	0.083	-21.82	32.50	0.026	-31.06	49.25	0.090	-20.92	66.00	0.197	-14.11
-0.75	0.977	-0.2	16.00	0.083	-21.62	32.75	0.030	-30.46	49.50	0.094	-21.51	66.25	0.198	-14.07
-0.50	0.983	-0.15	16.25	0.086	-21.31	33.00	0.035	-29.12	49.75	0.078	-22.16	66.50	0.199	-14.02
-0.25	0.988	-0.1	16.50	0.092	-20.72	33.25	0.041	-27.74	50.00	0.072	-22.85	66.75	0.200	-13.98
0.00	0.993	-0.06	16.75	0.101	-19.91	33.50	0.048	-26.38	50.25	0.067	-23.48	67.00	0.200	-13.98
0.25	0.998	-0.03	17.00	0.110	-19.17	33.75	0.055	-25.19	50.50	0.061	-24.29	67.25	0.201	-13.94
0.50	0.998	-0.02	17.25	0.120	-18.42	34.00	0.063	-24.01	50.75	0.055	-25.19	67.50	0.201	-13.94
0.75	1.000	0	17.50	0.131	-17.65	34.25	0.070	-23.1	51.00	0.049	-26.2	67.75	0.201	-13.94
1.00	1.000	0	17.75	0.142	-16.86	34.50	0.078	-22.16	51.25	0.043	-27.33	68.00	0.201	-13.94
1.25	1.000	0	18.00	0.152	-16.36	34.75	0.085	-21.41	51.50	0.037	-28.64	68.25	0.201	-13.94
1.50	0.998	-0.02	18.25	0.163	-15.76	35.00	0.092	-20.72	51.75	0.031	-30.17	68.50	0.201	-13.94
1.75	0.996	-0.03	18.50	0.173	-15.24	35.25	0.099	-20.09	52.00	0.025	-32.04	68.75	0.201	-13.94
2.00	0.993	-0.06	18.75	0.182	-14.8	35.50	0.106	-19.49	52.25	0.019	-34.42	69.00	0.201	-13.94
2.25	0.989	-0.1	19.00	0.192	-14.33	35.75	0.113	-18.94	52.50	0.013	-37.72	69.25	0.200	-13.98
2.50	0.984	-0.14	19.25	0.200	-13.98	36.00	0.119	-18.49	52.75	0.008	-41.94	69.50	0.200	-13.98
2.75	0.978	-0.19	19.50	0.209	-13.6	36.25	0.126	-17.99	53.00	0.006	-44.44	69.75	0.199	-14.02
3.00	0.971	-0.26	19.75	0.216	-13.31	36.50	0.132	-17.59	53.25	0.009	-40.92	70.00	0.199	-14.02
3.25	0.964	-0.32	20.00	0.223	-13.03	36.75	0.138	-17.2	53.50	0.014	-37.08	70.25	0.198	-14.07
3.50	0.955	-0.4	20.25	0.230	-12.77	37.00	0.143	-16.89	53.75	0.019	-34.42	70.50	0.197	-14.11
3.75	0.946	-0.48	20.50	0.236	-12.54	37.25	0.148	-16.59	54.00	0.025	-32.04	70.75	0.196	-14.15
4.00	0.936	-0.57	20.75	0.241	-12.36	37.50	0.153	-16.31	54.25	0.031	-30.17	71.00	0.195	-14.2
4.25	0.925	-0.68	21.00	0.248	-12.18	37.75	0.158	-16.03	54.50	0.036	-28.67	71.25	0.194	-14.24
4.50	0.913	-0.79	21.25	0.250	-12.04	38.00	0.162	-15.81	54.75	0.042	-27.54	71.50	0.193	-14.29
4.75	0.901	-0.91	21.50	0.253	-11.94	38.25	0.167	-15.65	55.00	0.048	-26.38	71.75	0.192	-14.33
5.00	0.888	-1.03	21.75	0.258	-11.84	38.50	0.170	-15.39	55.25	0.053	-25.51	72.00	0.191	-14.38
5.25	0.874	-1.17	22.00	0.258	-11.77	38.75	0.174	-15.19	55.50	0.059	-24.58	72.25	0.189	-14.47
5.50	0.859	-1.32	22.25	0.260	-11.7	39.00	0.177	-15.04	55.75	0.064	-23.88	72.50	0.188	-14.52
5.75	0.844	-1.47	22.50	0.261	-11.67	39.25	0.180	-14.89	56.00	0.070	-23.1	72.75	0.187	-14.56
6.00	0.828	-1.64	22.75	0.262	-11.63	39.50	0.183	-14.75	56.25	0.075	-22.5	73.00	0.185	-14.66
6.25	0.811	-1.82	23.00	0.262	-11.63	39.75	0.185	-14.66	56.50	0.080	-21.94	73.25	0.184	-14.7
6.50	0.794	-2	23.25	0.261	-11.67	40.00	0.187	-14.56	56.75	0.085	-21.41	73.50	0.182	-14.8

Figure 2
Antenna Elevation Pattern
Horizontal Polarization
New(DT) Yuma, AZ
Facility ID 776268
Ch. 11 5 kW 452 m

prepared for
Gray Television Licensee, LLC

July, 2022

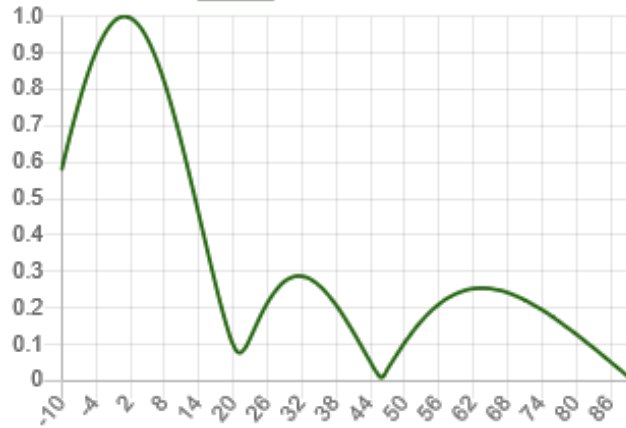




Spec Number: 20220722jmd prelim

Model Number: ATW4V4-ESWC-11H

Type:	Elevation Pattern	
	ATW3V4H	Polarization:
Directivity:	Frequency:	
	11 (ATSC)	
Main Lobe:	3.00 numeric	(4.77 dBd)
Horizontal:	2.98 numeric	(4.74 dBd)
Location:		Yuma AZ
Beam Tilt:		1.00 degrees

Vertical Elevation

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-10.00	0.580	-4.73	6.75	0.875	-1.18	23.50	0.135	-17.39	40.25	0.153	-16.31	57.00	0.222	-13.07	73.75	0.197	-14.11
-9.75	0.596	-4.5	7.00	0.864	-1.27	23.75	0.144	-16.83	40.50	0.147	-16.65	57.25	0.224	-13	74.00	0.195	-14.2
-9.50	0.612	-4.26	7.25	0.853	-1.38	24.00	0.152	-16.36	40.75	0.140	-17.08	57.50	0.227	-12.88	74.25	0.192	-14.33
-9.25	0.628	-4.04	7.50	0.842	-1.49	24.25	0.161	-15.86	41.00	0.134	-17.46	57.75	0.229	-12.8	74.50	0.190	-14.42
-9.00	0.644	-3.82	7.75	0.830	-1.62	24.50	0.169	-15.44	41.25	0.127	-17.92	58.00	0.231	-12.73	74.75	0.187	-14.56
-8.75	0.660	-3.61	8.00	0.818	-1.74	24.75	0.177	-15.04	41.50	0.120	-18.42	58.25	0.234	-12.62	75.00	0.185	-14.66
-8.50	0.675	-3.41	8.25	0.805	-1.88	25.00	0.185	-14.66	41.75	0.113	-18.94	58.50	0.236	-12.54	75.25	0.182	-14.8
-8.25	0.690	-3.22	8.50	0.792	-2.03	25.25	0.193	-14.29	42.00	0.107	-19.41	58.75	0.237	-12.51	75.50	0.179	-14.94
-8.00	0.705	-3.04	8.75	0.779	-2.17	25.50	0.200	-13.98	42.25	0.100	-20	59.00	0.239	-12.43	75.75	0.177	-15.04
-7.75	0.720	-2.85	9.00	0.766	-2.32	25.75	0.207	-13.68	42.50	0.093	-20.83	59.25	0.241	-12.36	76.00	0.174	-15.19
-7.50	0.734	-2.69	9.25	0.752	-2.48	26.00	0.214	-13.39	42.75	0.086	-21.31	59.50	0.243	-12.29	76.25	0.171	-15.34
-7.25	0.748	-2.52	9.50	0.739	-2.63	26.25	0.221	-13.11	43.00	0.079	-22.05	59.75	0.244	-12.25	76.50	0.168	-15.49
-7.00	0.762	-2.36	9.75	0.724	-2.81	26.50	0.227	-12.88	43.25	0.072	-22.85	60.00	0.245	-12.22	76.75	0.166	-15.6
-6.75	0.776	-2.2	10.00	0.710	-2.97	26.75	0.233	-12.65	43.50	0.065	-23.74	60.25	0.247	-12.15	77.00	0.163	-15.76
-6.50	0.789	-2.06	10.25	0.695	-3.16	27.00	0.238	-12.47	43.75	0.058	-24.73	60.50	0.248	-12.11	77.25	0.160	-15.92
-6.25	0.802	-1.92	10.50	0.680	-3.35	27.25	0.244	-12.25	44.00	0.051	-25.68	60.75	0.249	-12.08	77.50	0.157	-16.08
-6.00	0.815	-1.78	10.75	0.665	-3.54	27.50	0.249	-12.08	44.25	0.045	-26.94	61.00	0.250	-12.04	77.75	0.154	-16.25
-5.75	0.827	-1.65	11.00	0.650	-3.74	27.75	0.254	-11.9	44.50	0.038	-28.4	61.25	0.251	-12.01	78.00	0.151	-16.42
-5.50	0.839	-1.52	11.25	0.635	-3.94	28.00	0.258	-11.77	44.75	0.031	-30.17	61.50	0.252	-11.97	78.25	0.149	-16.54
-5.25	0.851	-1.4	11.50	0.619	-4.17	28.25	0.262	-11.63	45.00	0.025	-32.04	61.75	0.252	-11.97	78.50	0.146	-16.71
-5.00	0.862	-1.29	11.75	0.603	-4.39	28.50	0.266	-11.5	45.25	0.018	-34.89	62.00	0.253	-11.94	78.75	0.143	-16.89
-4.75	0.873	-1.18	12.00	0.587	-4.63	28.75	0.269	-11.4	45.50	0.012	-38.42	62.25	0.253	-11.94	79.00	0.140	-17.08
-4.50	0.883	-1.08	12.25	0.571	-4.87	29.00	0.273	-11.28	45.75	0.009	-41.94	62.50	0.254	-11.9	79.25	0.137	-17.27
-4.25	0.893	-0.98	12.50	0.555	-5.11	29.25	0.275	-11.21	46.00	0.009	-40.92	62.75	0.254	-11.9	79.50	0.134	-17.46
-4.00	0.903	-0.89	12.75	0.539	-5.37	29.50	0.278	-11.12	46.25	0.013	-37.72	63.00	0.254	-11.9	79.75	0.131	-17.65
-3.75	0.912	-0.8	13.00	0.522	-5.65	29.75	0.280	-11.06	46.50	0.019	-34.42	63.25	0.255	-11.87	80.00	0.128	-17.86
-3.50	0.921	-0.71	13.25	0.506	-5.92	30.00	0.282	-11	46.75	0.025	-32.04	63.50	0.255	-11.87	80.25	0.125	-18.06
-3.25	0.929	-0.64	13.50	0.489	-6.21	30.25	0.284	-10.93	47.00	0.032	-29.9	63.75	0.255	-11.87	80.50	0.122	-18.27
-3.00	0.937	-0.57	13.75	0.473	-6.5	30.50	0.285	-10.9	47.25	0.038	-28.4	64.00	0.254	-11.9	80.75	0.119	-18.49
-2.75	0.944	-0.5	14.00	0.456	-6.82	30.75	0.286	-10.87	47.50	0.044	-27.13	64.25	0.254	-11.9	81.00	0.116	-18.71
-2.50	0.952	-0.43	14.25	0.440	-7.13	31.00	0.287	-10.84	47.75	0.051	-25.85	64.50	0.254	-11.9	81.25	0.113	-18.92
-2.25	0.958	-0.37	14.50	0.423	-7.47	31.25	0.287	-10.84	48.00	0.057	-24.88	64.75	0.254	-11.9	81.50	0.109	-19.25
-2.00	0.964	-0.32	14.75	0.406	-7.83	31.50	0.287	-10.84	48.25	0.063	-24.01	65.00	0.253	-11.94	81.75	0.106	-19.49
-1.75	0.970	-0.26	15.00	0.390	-8.18	31.75	0.287	-10.84	48.50	0.069	-23.22	65.25	0.253	-11.94	82.00	0.103	-19.74
-1.50	0.975	-0.22	15.25	0.373	-8.57	32.00	0.287	-10.84	48.75	0.075	-22.5	65.50	0.252	-11.97	82.25	0.100	-20
-1.25	0.980	-0.18	15.50	0.357	-8.95	32.25	0.286	-10.87	49.00	0.081	-21.83	65.75	0.251	-12.01	82.50	0.097	-20.26
-1.00	0.984	-0.14	15.75	0.340	-9.37	32.50	0.285	-10.9	49.25	0.087	-21.21	66.00	0.250	-12.04	82.75	0.094	-20.54
-0.75	0.988	-0.1	16.00	0.324	-9.79	32.75	0.284	-10.93	49.50	0.093	-20.63	66.25	0.250	-12.04	83.00	0.091	-20.82
-0.50	0.991	-0.06	16.25	0.306	-10.23	33.00	0.283	-10.96	49.75	0.099	-20.09	66.50	0.249	-12.08	83.25	0.087	-21.21
-0.25	0.994	-0.05	16.50	0.292	-10.69	33.25	0.281	-11.03	50.00	0.105	-19.58	66.75	0.248	-12.11	83.50	0.084	-21.51
0.00	0.996	-0.03	16.75	0.276	-11.18	33.50	0.279	-11.09	50.25	0.110	-19.17	67.00	0.247	-12.15	83.75	0.081	-21.83
0.25	0.998	-0.02	17.00	0.260	-11.7	33.75	0.277	-11.15	50.50	0.116	-18.71	67.25	0.246	-12.18	84.00	0.078	-22.16
0.50	0.999	-0.01	17.25	0.244	-12.25	34.00	0.274	-11.24	50.75	0.121	-18.34	67.50	0.244	-12.25	84.25	0.075	-22.5
0.75	1.000	0	17.50	0.229	-12.8	34.25	0.272	-11.31	51.00	0.126	-17.99	67.75	0.243	-12.29	84.50	0.071	-22.97
1.00	1.000	0	17.75	0.214	-13.39	34.50	0.269	-11.4	51.25	0.132	-17.59	68.00	0.242	-12.32	84.75	0.068	-23.35
1.25	1.000	0	18.00	0.199	-14.02	34.75	0.266	-11.5	51.50	0.137	-17.27	68.25	0.240	-12.4	85.00	0.065	-23.74
1.50	0.999	-0.01	18.25	0.185	-14.66	35.00	0.262	-11.63	51.75	0.142	-16.95	68.50	0.239	-12.43	85.25	0.062	-24.15
1.75	0.998	-0.02	18.50	0.171	-15.34	35.25	0.259	-11.73	52.00	0.147	-16.65	68.75	0.238	-12.47	85.50	0.059	-24.58
2.00	0.996	-0.03	18.75	0.157	-16.08	35.50	0.255	-11.87	52.25	0.151	-16.42	69.00	0.236	-12.54	85.75	0.055	-25.19
2.25	0.994	-0.05	19.00	0.144	-16.83	35.75	0.251	-12.01	52.50	0.156	-16.14	69.25	0.234	-12.62	86.00	0.052	-25.68
2.50	0.991	-0.08	19.25	0.131	-17.65	36.00	0.247	-12.15	52.75	0.161	-15.86	69.50	0.233	-12.65	86.25	0.049	-26.2
2.75	0.988	-0.1	19.50	0.120	-18.42	36.25	0.243	-12.29	53.00	0.165	-15.65	69.75	0.231	-12.73	86.50	0.046	-26.74
3.00	0.984	-0.14	19.75	0.109	-19.25	36.50	0.238	-12.47	53.25	0.170	-15.39	70.00	0.229	-12.8	86.75	0.042	-27.54
3.25	0.980	-0.18	20.00	0.099	-20.08	36.75	0.233	-12.65	53.50	0.174	-15.19	70.25	0.227	-12.88	87.00	0.039	-28.18
3.50	0.976	-0.21	20.25	0.091	-20.82	37.00	0.228	-12.84	53.75	0.178	-14.99	70.50	0.226	-12.92	87.25	0.036	-28.87
3.75	0.971	-0.26	20.50	0.084	-21.51	37.25	0.223	-13.03	54.00	0.182	-14.8	70.75	0.224	-13	87.50	0.033	-29.63
4.00	0.965	-0.31	20.75	0.079	-22.25	37.50	0.218	-13.23	54.25	0.186	-14.61	71.00	0.222	-13.07	87.75	0.029	-30.7
4.25	0.959	-0.36	21.00	0.077	-22.27	37.75	0.213	-13.43	54.50	0.190	-14.42	71.25	0.220	-13.15	88.00	0.026	-31.7
4.50	0.952	-0.43	21.25	0.076	-22.38	38.00	0.208	-13.64	54.75	0.193	-14.29	71.50	0.218	-13.23	88.25	0.023	-32.77
4.75	0.946	-0.48	21.50	0.078	-22.16	38.25	0.202	-13.89	55.00	0.197	-14.11	71.75	0.215	-13.35	88.50	0.020	-33.98
5.00	0.938	-0.56	21.75	0.082	-21.72	38.50	0.196	-14.15	55.25	0.201	-13.94	72.00	0.213	-13.43	88.75	0.016	-35.92
5.25	0.930	-0.63	22.00	0.088	-21.11	38.75	0.190	-14.42	55.50	0.204	-13.81	72.25	0.211	-13.51	89.00	0.013	-37.72
5.50	0.922	-0.71	22.25	0.094	-20.54	39.00	0.185	-14.66	55.75	0.207	-13.68	72.50	0.209	-13.6	89.25	0.010	-40
5.75	0.913	-0.79	22.50	0.102	-19.83	39.25	0.178	-14.99	56.00	0.210	-13.56	72.75	0.207	-13.68	89.50	0.007	-43.1
6.00	0.904	-0.86	22.75	0.110	-19.17	39.50	0.172	-15.29	56.25	0.213	-13.43	73.00	0.204	-13.81	89.75	0.003	-50.4
6.25	0.895	-0.94	23.00	0.118	-18.52	39.75	0.166	-15.62	56.50	0.216	-13.31	73.25	0.202	-13.90	90.00	0.000	-60
6.50	0.885	-1.06	23.25	0.127	-17.92	40.00	0.160	-15.92	56.75	0.219	-13.19	73.50	0				

Figure 3
Proposed Coverage Contours
New(DT) Yuma, AZ
Facility ID 776268
Ch. 11 5 kW 452 m

prepared for
Gray Television Licensee, LLC

July, 2022

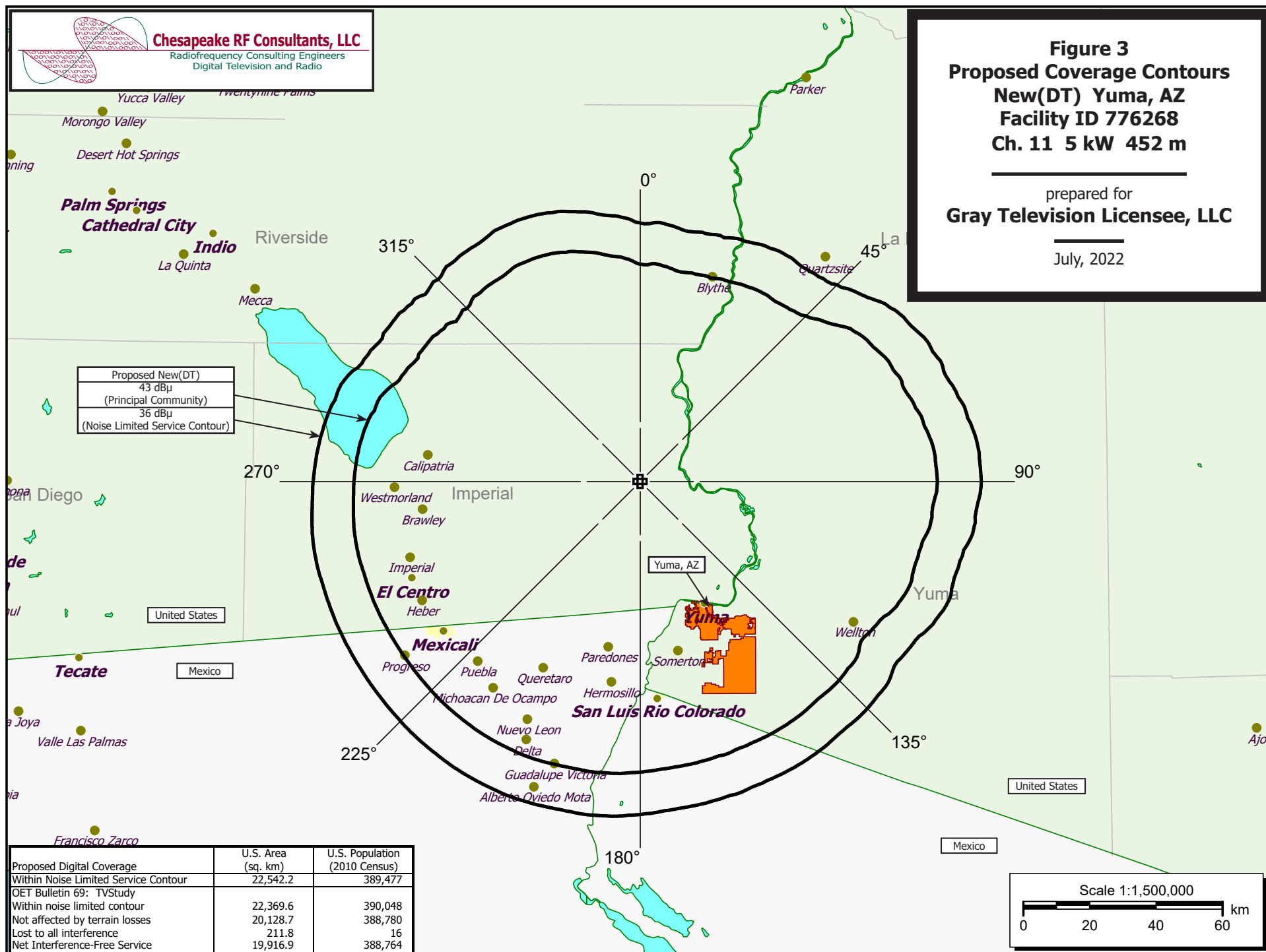


Table 1 New Ch. 11 TVStudy Analysis of Proposal
(page 1 of 4)



tvstudy v2.2.5 (4uoc83)
Database: localhost, Study: New-11 1225054 prop, Model: Longley-Rice
Start: 2022.07.23 14:04:09

Study created: 2022.07.23 14:04:09

Study build station data: LMS TV 2022-07-22

Proposal: NEW DTV-11 D11 DT APP YUMA, AZ
File number: New-11 1225054 prop
Facility ID: 999999
Station data: User record
Record ID: 4537
Country: U.S.
Zone: II

Build options:
Protect pre-transition records not on baseline channel

Search options:
Baseline record excluded if station has CP

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	KSAZ-TV	D10	DT	LIC	PHOENIX, AZ	BLANK0000106827	259.2 km
No	KGTV	D10	DT	CP	SAN DIEGO, CA	BLANK0000035697	227.0
No	KGTV	D10	DT	LIC	SAN DIEGO, CA	BLCDT20090410ANQ	227.0
No	KDTP	D11	DT	CP	HOLBROOK, AZ	BLANK0000036124	384.3
Yes	KTTV	D11	DT	LIC	LOS ANGELES, CA	BLANK0000194966	326.3
Yes	KTTV	D11	DT	LIC	LOS ANGELES, CA	BLANK0000166446	326.3
Yes	KLVX	D11	DT	LIC	LAS VEGAS, NV	BMLEDT20120124ACO	328.5

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D11
Latitude: 33 3 19.10 N (NAD83)
Longitude: 114 49 46.90 W
Height AMSL: 730.7 m
HAAT: 451.6 m
Peak ERP: 5.00 kW
Antenna: ERI ATW-WC Hi-VHF 200.0 deg
Elev Pattern: Generic
Elec Tilt: 1.00

36.0 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	0.800 kW	365.4 m	77.7 km
45.0	0.975	432.0	83.6
90.0	3.74	560.5	102.5
135.0	4.87	444.4	96.6
180.0	4.77	494.9	100.1
225.0	4.69	521.4	102.0
270.0	4.93	468.0	98.3
315.0	3.39	326.3	86.0

Distance to Canadian border: 1772.3 km

**Proposal is within coordination distance of Mexican border
Distance to Mexican border: 38.2 km

Conditions at FCC monitoring station: Douglas AZ
Bearing: 108.2 degrees Distance: 516.1 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 44.7 degrees Distance: 1159.2 km

Table 1 New Ch. 11 TVStudy Analysis of Proposal
(page 2 of 4)



Study cell size: 2.00 km
Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%
Maximum new IX to LPTV: 2.00%

Interference to BLANK0000194966 LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KTTV	D11	DT	LIC	LOS ANGELES, CA	BLANK0000194966	
Undesireds:	NEW DTV-11	D11	DT	APP	YUMA, AZ	New-11 1225054 prop	326.3 km
	KERO-TV	D10	DT	LIC	BAKERSFIELD, CA	BLCDT20100929AEF	144.9
	KGTV	D10	DT	CP	SAN DIEGO, CA	BLANK0000035697	171.5
	KGMC	D11	DT	LIC	MERCED, CA	BLANK0000156689	340.0
	KLVX	D11	DT	LIC	LAS VEGAS, NV	BMLEDT20120124ACO	341.3
	KDOC-TV	D12	DT	LIC	ANAHEIM, CA	BLANK0000068699	1.1
	Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
	55607.8 17,952,596	48162.1	17,591,882	46911.5	17,292,073	46907.5 17,292,073	0.01 0.00
Undesired			Total IX	Unique IX, before		Unique IX, after	
NEW DTV-11	D11	DT	APP	8.0	0	4.0	0
KERO-TV	D10	DT	LIC	8.0	15	4.0	14
KGTV	D10	DT	CP	423.0	188,969	423.0	188,969
KGMC	D11	DT	LIC	115.2	278	107.2	277
KLVX	D11	DT	LIC	354.1	40,861	350.1	40,861
KDOC-TV	D12	DT	LIC	358.3	69,687	354.3	69,687

Interference to BLANK0000194966 LIC scenario 2

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KTTV	D11	DT	LIC	LOS ANGELES, CA	BLANK0000194966	
Undesireds:	NEW DTV-11	D11	DT	APP	YUMA, AZ	New-11 1225054 prop	326.3 km
	KERO-TV	D10	DT	LIC	BAKERSFIELD, CA	BLCDT20100929AEF	144.9
	KGTV	D10	DT	LIC	SAN DIEGO, CA	BLCDT20090410ANQ	171.5
	KGMC	D11	DT	LIC	MERCED, CA	BLANK0000156689	340.0
	KLVX	D11	DT	LIC	LAS VEGAS, NV	BMLEDT20120124ACO	341.3
	KDOC-TV	D12	DT	LIC	ANAHEIM, CA	BLANK0000068699	1.1
	Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
	55607.8 17,952,596	48162.1	17,591,882	47147.0	17,438,836	47143.0 17,438,836	0.01 0.00
Undesired			Total IX	Unique IX, before		Unique IX, after	
NEW DTV-11	D11	DT	APP	8.0	0	4.0	0
KERO-TV	D10	DT	LIC	8.0	15	4.0	14
KGTV	D10	DT	LIC	187.5	42,206	187.5	42,206
KGMC	D11	DT	LIC	115.2	278	107.2	277
KLVX	D11	DT	LIC	354.1	40,861	350.1	40,861
KDOC-TV	D12	DT	LIC	358.3	69,687	354.3	69,687

Interference to BLANK0000166446 LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KTTV	D11	DT	LIC	LOS ANGELES, CA	BLANK0000166446	
Undesireds:	NEW DTV-11	D11	DT	APP	YUMA, AZ	New-11 1225054 prop	326.3 km
	KERO-TV	D10	DT	LIC	BAKERSFIELD, CA	BLCDT20100929AEF	144.9
	KGTV	D10	DT	CP	SAN DIEGO, CA	BLANK0000035697	171.5
	KGMC	D11	DT	LIC	MERCED, CA	BLANK0000156689	340.0
	KLVX	D11	DT	LIC	LAS VEGAS, NV	BMLEDT20120124ACO	341.3
	KDOC-TV	D12	DT	LIC	ANAHEIM, CA	BLANK0000068699	1.1
	Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
	55607.8 17,952,596	48162.1	17,591,882	46911.5	17,292,073	46907.5 17,292,073	0.01 0.00
Undesired			Total IX	Unique IX, before		Unique IX, after	

Table 1 New Ch. 11 TVStudy Analysis of Proposal
(page 3 of 4)



NEW DTV-11 D11 DT APP	8.0	0		4.0	0
KERO-TV D10 DT LIC	8.0	15	4.0	14	4.0
KGTV D10 DT CP	423.0	188,969	423.0	188,969	423.0
KGMC D11 DT LIC	115.2	278	107.2	277	107.2
KLVX D11 DT LIC	354.1	40,861	354.1	40,861	350.1
KDOC-TV D12 DT LIC	358.3	69,687	354.3	69,687	354.3

Interference to BLANK0000166446 LIC scenario 2

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KTTV	D11	DT	LIC	LOS ANGELES, CA	BLANK0000166446	
Undesireds:	NEW DTV-11D11	DT	APP		YUMA, AZ	New-11 1225054 prop	326.3 km
	KERO-TV	D10	DT	LIC	BAKERSFIELD, CA	BLCDT20100929AEF	144.9
	KGTV	D10	DT	LIC	SAN DIEGO, CA	BLCDT20090410ANQ	171.5
	KGMC	D11	DT	LIC	MERCED, CA	BLANK0000156689	340.0
	KLVX	D11	DT	LIC	LAS VEGAS, NV	BMLED20120124ACO	341.3
	KDOC-TV	D12	DT	LIC	ANAHEIM, CA	BLANK0000068699	1.1

	Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
55607.8	17,952,596	48162.1	17,591,882	47147.0	17,438,836	47143.0	0.01 0.00

Undesired	Total IX		Unique IX, before		Unique IX, after	
NEW DTV-11 D11 DT APP	8.0	0	4.0	14	4.0	0
KERO-TV D10 DT LIC	8.0	15	4.0	14	4.0	14
KGTV D10 DT LIC	187.5	42,206	187.5	42,206	187.5	42,206
KGMC D11 DT LIC	115.2	278	107.2	277	107.2	277
KLVX D11 DT LIC	354.1	40,861	354.1	40,861	350.1	40,861
KDOC-TV D12 DT LIC	358.3	69,687	354.3	69,687	354.3	69,687

Interference to BMLED20120124ACO LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KLVX	D11	DT	LIC	LAS VEGAS, NV	BMLED20120124ACO	
Undesireds:	NEW DTV-11D11	DT	APP		YUMA, AZ	New-11 1225054 prop	328.5 km
	KDTP	D11	DT	CP	HOLBROOK, AZ	BLANK0000036124	406.5
	KTTV	D11	DT	LIC	LOS ANGELES, CA	BLANK0000194966	341.3

	Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
44190.9	2,044,150	30982.1	1,936,083	30978.1	1,936,083	30954.2	0.08 0.00

Undesired	Total IX		Unique IX, before		Unique IX, after	
NEW DTV-11 D11 DT APP	23.9	14	23.9	14	23.9	14
KTTV D11 DT LIC	4.0	0	4.0	0	4.0	0

Interference to BMLED20120124ACO LIC scenario 2

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KLVX	D11	DT	LIC	LAS VEGAS, NV	BMLED20120124ACO	
Undesireds:	NEW DTV-11D11	DT	APP		YUMA, AZ	New-11 1225054 prop	328.5 km
	KDTP	D11	DT	CP	HOLBROOK, AZ	BLANK0000036124	406.5
	KTTV	D11	DT	LIC	LOS ANGELES, CA	BLANK0000166446	341.3

	Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
44190.9	2,044,150	30982.1	1,936,083	30978.1	1,936,083	30954.2	0.08 0.00

Undesired	Total IX		Unique IX, before		Unique IX, after	
NEW DTV-11 D11 DT APP	23.9	14	23.9	14	23.9	14
KTTV D11 DT LIC	4.0	0	4.0	0	4.0	0

Interference to proposal scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	NEW DTV-11D11	DT	APP		YUMA, AZ	New-11 1225054 prop	
Undesireds:	KDTP	D11	DT	CP	HOLBROOK, AZ	BLANK0000036124	384.3 km
	KTTV	D11	DT	LIC	LOS ANGELES, CA	BLANK0000194966	326.3

Table 1 New Ch. 11 TVStudy Analysis of Proposal
(page 4 of 4)



KL VX		D11	DT	LIC	LAS VEGAS, NV		BMLEDT20120124ACO		328.5
Service area		Terrain-limited			IX-free		Percent IX		
22369.6	390,048	20128.7		388,780	19916.9	388,764	1.05	0.00	
5255.7	1,089,817	5195.3		1,089,817	5195.3	1,089,817	0.00	0.00	(in Mexico)
Undesired		Total IX			Unique IX		Prcnt Unique IX		
KDTP	D11 DT CP	12.0		0	12.0	0	0.06	0.00	
KTTV	D11 DT LIC	151.8		16	135.7	16	0.67	0.00	
KL VX	D11 DT LIC	64.1		0	48.1	0	0.24	0.00	

Interference to proposal scenario 2

Desired:		Call	Chan	Svc	Status	City, State	File Number	Distance
		NEW DTV-11	D11	DT	APP	YUMA, AZ	New-11 1225054 prop	
Undesireds:		KDTP	D11	DT	CP	HOLBROOK, AZ	BLANK0000036124	384.3 km
		KTTV	D11	DT	LIC	LOS ANGELES, CA	BLANK0000166446	326.3
		KL VX	D11	DT	LIC	LAS VEGAS, NV	BMLEDT20120124ACO	328.5
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**Channel and
Facility
Information**

Section	Question	Response
Facility ID	776268	
State	Arizona	
City	YUMA	
DTV Channel	11	
Facility Type	Facility Type	Commercial
	Station Type	Main
Zone	Zone	2

Primary station proposed to be rebroadcast:

Facility Id	Call Sign	City	State
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**Antenna Location
Data**

Section	Question	Response
Antenna Structure Registration	Do you have an FCC Antenna Structure Registration (ASR) Number?	Yes
	ASR Number	1225054
Coordinates (NAD83)	Latitude	33° 03' 19.1" N+
	Longitude	114° 49' 46.9" W-
	Structure Type	TOWER-A free standing or guyed struct
	Overall Structure Height	152.0 meters
	Support Structure Height	152.0 meters
	Ground Elevation (AMSL)	624.0 meters
Antenna Data	Height of Radiation Center Above Ground Level	106.7 meters
	Height of Radiation Center Above Average Terrain	451.6 meters
	Height of Radiation Center Above Mean Sea Level	730.7 meters
	Effective Radiated Power	5 kW

**Antenna
Technical Data**

Section	Question	Response
Antenna Type	Antenna Type	Directional Custom
	Do you have an Antenna ID?	No
	Antenna ID	
Antenna Manufacturer and Model	Manufacturer:	ERI
	Model	ATW4V4-ESWC-11H
	Rotation	200 degrees
	Electrical Beam Tilt	1.0
	Mechanical Beam Tilt	Not Applicable
	toward azimuth	
	Polarization	Elliptical
DTV and DTS: Elevation Pattern	Does the proposed antenna propose elevation radiation patterns that vary with azimuth for reasons other than the use of mechanical beam tilt?	No
	Uploaded file for elevation antenna (or radiation) pattern data	

Directional Antenna Relative Field Values (Pre-rotated Pattern)

Degree	Value	Degree	Value	Degree	Value	Degree	Value
0	1.000	90	0.970	180	0.331	270	0.970
10	0.992	100	0.928	190	0.349	280	0.990
20	0.977	110	0.865	200	0.400	290	0.993
30	0.959	120	0.783	210	0.483	300	0.981
40	0.951	130	0.689	220	0.586	310	0.962
50	0.962	140	0.586	230	0.689	320	0.951
60	0.981	150	0.483	240	0.783	330	0.959
70	0.993	160	0.400	250	0.865	340	0.977
80	0.990	170	0.349	260	0.928	350	0.992

Additional Azimuths

Degree	V _A
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