Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio

ENGINEERING EXHIBIT

Application for Digital Television Station Auxiliary Antenna Construction Permit

prepared for

Victory Television Network, Inc.
KVTJ-DT Jonesboro, AR
Facility ID 2784
Ch. 18 950 kW 243 m

Victory Television Network, Inc. ("VTN") is the licensee of digital television station KVTJ-DT, Facility ID 2784, Channel 18, Jonesboro AR (file# 0000064048). *VTN* herein seeks authorization for an auxiliary antenna for KVTJ-DT.

KVTJ-DT's main facility operates with a nondirectional antenna at 420 kW effective radiated power (ERP) and 296 meters height above average terrain (HAAT). The proposed auxiliary antenna is side-mounted on the same tower structure as the licensed main antenna, and will operate at 950 kW ERP (directional) and an antenna HAAT of 243 meters. The subject antenna was previously authorized for use as an interim facility during the TV repack[1] on KVTJ-DT's pre-auction Channel 48.

The KVTJ-DT tower structure is associated with FCC Antenna Structure Registration number 1048797. No change to the overall structure height will result from this proposal.

The proposed antenna is a horizontally polarized directional Dielectric model TFU-24WB-R S230. The directional antenna's azimuthal and elevation patterns are depicted in Figures 1 and 2, respectively.

Figure 3 shows that the 41 dBμ noise limited service contour of the proposed auxiliary facility does not extend beyond that of the main facility. Thus, the proposal complies with §73.1675(a).

---

[1] *Incentive Auction Closing and Channel Reassignment Public Notice*, DA 17-317, released April 13, 2017.

Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio

Human Exposure to Radiofrequency Electromagnetic Field (Environmental)

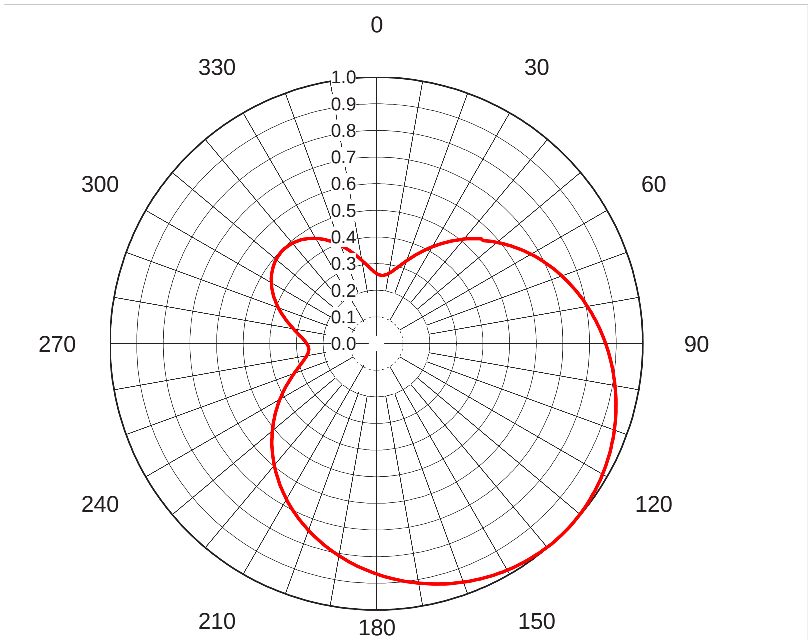
The proposed facility was evaluated for human exposure to RF energy using the procedures outlined in the FCC's OET Bulletin Number 65. Based on OET-65 equation (10) and 10 percent antenna relative field in downward elevations (pattern data shows 10 percent or less relative field at angles 30 to 90 degrees below the antenna), the calculated power density attributable to the proposed facility at locations near the transmitter site at a height of two meters above ground level is 5.4 $\mu W/cm^2$, which is 1.6 percent of the general population / uncontrolled maximum permissible exposure limit. This is 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.

List of Attachments

Figure 1	Antenna Azimuthal Pattern
Figure 2	Antenna Elevation Pattern
Figure 3	Proposed Auxiliary Contours
Form 2100	Saved Version of Engineering Sections of FCC Form at Time of Upload

Chesapeake RF Consultants, LLC
Joseph M. Davis, P.E. December 8, 2022
207 Old Dominion Road Yorktown, VA 23692 703-650-9600



AZIMUTH PATTERN
Horizontal Polarization

Proposal No.	20221205jmd
Date	5-Dec-22
Call Letters	KVTJ-DT
Channel	18
Frequency	497 MHz
Antenna Type	TFU-24WB-R S230
Gain	2.3 (3.61dB)
	Calculated

Pattern Number t r^îïìríô ,‰}(

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.263	36	0.475	72	0.755	108	0.943	144	0.993	180	0.865	216	0.629	252	0.313	288	0.376	324	0.481
1	0.261	37	0.484	73	0.761	109	0.947	145	0.992	181	0.860	217	0.621	253	0.306	289	0.384	325	0.478
2	0.259	38	0.494	74	0.767	110	0.950	146	0.990	182	0.854	218	0.613	254	0.299	290	0.391	326	0.474
3	0.257	39	0.503	75	0.774	111	0.954	147	0.989	183	0.849	219	0.605	255	0.292	291	0.399	327	0.470
4	0.257	40	0.512	76	0.780	112	0.957	148	0.987	184	0.843	220	0.597	256	0.286	292	0.406	328	0.466
5	0.257	41	0.521	77	0.786	113	0.961	149	0.985	185	0.838	221	0.588	257	0.280	293	0.413	329	0.461
6	0.257	42	0.530	78	0.792	114	0.964	150	0.982	186	0.832	222	0.580	258	0.275	294	0.419	330	0.456
7	0.259	43	0.539	79	0.798	115	0.967	151	0.980	187	0.826	223	0.571	259	0.270	295	0.426	331	0.451
8	0.261	44	0.548	80	0.804	116	0.970	152	0.978	188	0.821	224	0.563	260	0.266	296	0.432	332	0.445
9	0.264	45	0.556	81	0.810	117	0.973	153	0.975	189	0.815	225	0.554	261	0.262	297	0.439	333	0.439
10	0.267	46	0.556	82	0.816	118	0.976	154	0.972	190	0.809	226	0.545	262	0.259	298	0.444	334	0.433
11	0.271	47	0.565	83	0.822	119	0.978	155	0.969	191	0.803	227	0.537	263	0.257	299	0.450	335	0.427
12	0.276	48	0.574	84	0.828	120	0.981	156	0.966	192	0.797	228	0.528	264	0.256	300	0.455	336	0.420
13	0.281	49	0.582	85	0.833	121	0.983	157	0.963	193	0.791	229	0.519	265	0.255	301	0.460	337	0.414
14	0.287	50	0.591	86	0.839	122	0.985	158	0.960	194	0.785	230	0.510	266	0.255	302	0.465	338	0.407
15	0.293	51	0.599	87	0.844	123	0.987	159	0.957	195	0.778	231	0.501	267	0.255	303	0.470	339	0.400
16	0.300	52	0.607	88	0.850	124	0.989	160	0.953	196	0.772	232	0.492	268	0.257	304	0.474	340	0.392
17	0.307	53	0.615	89	0.855	125	0.991	161	0.950	197	0.766	233	0.482	269	0.259	305	0.477	341	0.385
18	0.314	54	0.624	90	0.860	126	0.992	162	0.946	198	0.759	234	0.473	270	0.262	306	0.481	342	0.378
19	0.322	55	0.632	91	0.866	127	0.994	163	0.942	199	0.753	235	0.464	271	0.265	307	0.484	343	0.370
20	0.330	56	0.639	92	0.871	128	0.995	164	0.938	200	0.746	236	0.455	272	0.269	308	0.487	344	0.362
21	0.338	57	0.647	93	0.876	129	0.996	165	0.935	201	0.739	237	0.445	273	0.273	309	0.489	345	0.355
22	0.347	58	0.655	94	0.881	130	0.997	166	0.930	202	0.732	238	0.436	274	0.278	310	0.491	346	0.347
23	0.355	59	0.663	95	0.886	131	0.998	167	0.926	203	0.726	239	0.427	275	0.284	311	0.493	347	0.340
24	0.364	60	0.670	96	0.891	132	0.999	168	0.922	204	0.719	240	0.418	276	0.289	312	0.494	348	0.332
25	0.373	61	0.678	97	0.896	133	0.999	169	0.918	205	0.712	241	0.408	277	0.296	313	0.495	349	0.325
26	0.382	62	0.685	98	0.900	134	1.000	170	0.913	206	0.704	242	0.399	278	0.302	314	0.496	350	0.318
27	0.391	63	0.692	99	0.905	135	1.000	171	0.909	207	0.697	243	0.390	279	0.309	315	0.496	351	0.311
28	0.401	64	0.700	100	0.910	136	1.000	172	0.904	208	0.690	244	0.381	280	0.316	316	0.496	352	0.304
29	0.410	65	0.707	101	0.914	137	1.000	173	0.900	209	0.683	245	0.372	281	0.323	317	0.495	353	0.297
30	0.419	66	0.714	102	0.918	138	0.999	174	0.895	210	0.675	246	0.363	282	0.331	318	0.494	354	0.291
31	0.428	67	0.721	103	0.923	139	0.999	175	0.890	211	0.668	247	0.354	283	0.338	319	0.493	355	0.285
32	0.438	68	0.728	104	0.927	140	0.998	176	0.885	212	0.660	248	0.346	284	0.346	320	0.491	356	0.280
33	0.447	69	0.735	105	0.931	141	0.997	177	0.880	213	0.653	249	0.337	285	0.354	321	0.489	357	0.275
34	0.456	70	0.741	106	0.935	142	0.996	178	0.875	214	0.645	250	0.329	286	0.361	322	0.487	358	0.271
35	0.466	71	0.748	107	0.939	143	0.995	179	0.870	215	0.637	251	0.321	287	0.369	323	0.484	359	0.267

Figure 1
Auxiliary Antenna Azimuthal Pattern
KVTJ-DT Jonesboro, AR
Facility ID 2784
Ch. 18 950 kW 243 m

prepared for
Victory Television Network, Inc.

December, 2022