Transmitter Sites

There are two transmitter sites covered by the instant application – the existing site at Mt Penn, overlooking Reading (DTS Site 1), currently operating under the Interim DTS Policy STA issued to the station, and the currently authorized site in Roxborough (DTS Site 2 on the Form 301 application),. Their locations are shown on the map in Figure 2. The reference point for WTVE remains at the location established in the Appendix B DTV Table of Allotments,[4] at a site known as Fancy Hill North, also shown in Figure 2.

The Roxborough site was used for the most powerful transmitter in the DTS network in order to collocate it with an adjacent channel station in the same market, thereby overcoming, to the greatest extent possible, the interference from that adjacent channel neighbor to the service from WTVE. Collocation was required to avoid the loss of about 50 percent of the potential audience of the station to adjacent-channel interference that otherwise would have occurred. Roxborough is the site for which an application already has been filed for a license to cover the facilities authorized in the construction permit currently held by the station.

The Site 1 transmitter location at Reading, on Mt Penn, is the site from which the station has operated throughout its history, starting on Channel 51 with its analog facilities. It does now and will continue to provide service to the principal community of Reading, PA. WTVE currently has a licensed, full-service but low-power, DTV facility at the Reading site (in File No. BLCDT-20040323ATZ). That original facility was supplanted by the DTS transmitter placed at the site under the Interim DTS Policy STA.

Facilities

The facilities requested in this application include continued operation at 763 W ERP at 225.4 meters HAAT at Site 1 in Reading and continued operation at 126 kW ERP at a height above average terrain (HAAT) of 378.4 meters at Site 2 in the Roxborough antenna farm. Both sites meet the requirements for maximum allowable facilities specified by §73.622(f)(8)(ii) of the Commission's Rules, as further permitted for DTS

[4] Memorandum Opinion and Order on Reconsideration of the Seventh Report and Order and the Eighth Report and Order *In the Matter of Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service*, MB Docket No. 87-268 (FCC 08-72, released March 6, 2008).

operations by the DTS R&O.[5] The basic characteristics of the transmitters proposed for authorization herein are given in Figures 1a and 1b for Sites 1 and 2, respectively, at the end of this Technical Statement and in the related DTS Engineering portions of the Form 301 application – one for each transmitter.

Two fundamental antenna designs are included in the WTVE DTS network. The Site 1 antenna at Reading is a corporate-fed, cavity-slot design with parasitic radiators. It has a medium cardioid-shaped pattern intended to maximize the service in the Reading region to the north and west of Mt Penn. Because of the need to protect an in-market, adjacent-channel station, an unusual elevation pattern was used for the Reading antenna. It comprises a very narrow main beam near the horizontal (with a small amount of electrical beam tilt) and a pattern below the main beam shaped to result in nearly uniform field strength at locations from those in the peak of the beam to those near the base of the tower, assuming level terrain. The shape of the beam, relative to depression angle, follows that of the cosecant, turned upside down, with respect to relative field, and of the cosecant squared, turned upside down, with respect to power. Thus, the pattern can be described as an inverted cosecant-squared shape. The shape used makes the field strength, in the region around a transmitter using it, a parameter of the network design, at least in areas where the terrain is level.

The Site 2 antenna at Roxborough is a four-sided, corporate-fed, panel array design with differing numbers of panels (8 and 12, respectively) on pairs of its faces. It has characteristics primarily intended to maximize service within the WTVE authorized service area plus DTS service circle, while constraining its contour to that limit to the extent possible, and originally also was intended to provide interference protection to analog co-channel stations in two adjacent markets and to a Class A station within its own market[6] by reducing field strength in their directions. The array pattern includes different electrical beam tilt values on different faces and notches above the main beams in the elevation patterns on two faces to aid in controlling both the contour location and

[5] DTS R&O ¶41.

[6] Protected stations included WNYE-TV, Channel 25, in New York City; WHAG-TV, Channel 25, in Hagerstown, MD; and W25AW, Channel 25, in Trenton, NJ. With respect to the latter, see the section below on Considerations Regarding Class A Stations.

interference to other stations. As a consequence, the pattern is quite complex and very difficult to describe in text and charts. A more complete description is included in the data supplied with the Form 301 application in the Commission's CDBS Electronic Filing System, as described below.

Since it does not use an elevation pattern that varies with azimuth, the Reading antenna can be characterized by the combination of a single azimuth pattern and a single elevation pattern. Figure 3 contains a plot of the azimuth pattern used at Site 1. The tabulated relative field values used in the preparation of that pattern are given in Figure 4. The elevation pattern used at Reading is part of a family of patterns having the inverted cosecant squared shape and a set of electrical beam tilt angles that can be applied according to network design requirements. The family member used for the Reading DTS Site 1 transmitter has 0.7 degrees depression of the peak of the main beam and is plotted in Figures 5a and 5b, with two levels of detail. A portion of the tabulated data from which the Figure 5 plots were derived is given in Figure 6. (Complete pattern data are not included herein because of their size. But more complete elevation pattern data are included in the file uploaded to the CDBS Electronic Filing System [EFS], and full data are available upon request.) It should be noted that the azimuth pattern in Figures 3 and 4 are normalized to zero degrees and require rotation to the value given in Figure 1a and the Form 301 DTS for Site 1 (i.e., 302 degrees).

Given its greater complexity, the Roxborough (Site 2) antenna requires more charts to document it. A plot of its relative field azimuthal radiation pattern at the depression angles having maximum radiation in each direction is provided as Figure 7a. Shown in Figure 7b is the relative field azimuthal radiation pattern at a depression angle of 0.8 degrees, which is the depression angle of the main beam from the 8-panel (southwest and northwest) faces. Plotted in Figure 7c is the relative field azimuthal radiation pattern at a depression angle of 3.4 degrees, which is the depression angle of the main beam from the 12-panel (northeast and southeast) faces. The tabulated azimuthal relative field values used in the derivation of Figures 7a, 7b, and 7c appear in Figure 8. The plots and data for the Roxborough antenna all are presented after necessary rotation of the antenna.

Because of the use of different electrical beam tilt values on the four faces, four elevation radiation patterns in relative field values are included as Figures 9a, 9b, 9c, and 9d for the 45-, 135-, 225, and 315-degree azimuths, respectively. The related tabulated elevation relative field values are given in Figure 10. The elevation patterns have been normalized at the elevation of maximum radiation in each azimuthal direction, so the azimuth relative field values depicted in Figure 7a and the elevation relative field values must be multiplied together to obtain the actual field at any particular combination of azimuth and elevation. While the elevation patterns are shown herein at bearings radiating directly out from the four faces of the antenna, the elevation patterns generated at azimuths between those bearings are quite complex. Consequently, in the file uploaded to the CDBS Electronic Filing System that characterizes the Roxborough antenna, data are provided for azimuths every 5 degrees around the compass, and even more detailed data (every degree of azimuth and every tenth of a degree of depression angle, throughout the array) can be supplied, if needed.

A plot of the PNLCs[7] of the transmitters is provided in Figure 2. Since the Roxborough transmitter facility authorized by the outstanding construction permit (herein DTS Site 2) already covers the entire, currently authorized service area of the station,[8] the provisions of §73.626(f)(1) are met by that facility alone. By virtue of the overlap of the contours of the two transmitters, they are contiguous, thereby meeting the requirements of §73.626(f)(3). Also shown in Figure 2 are the 48 dBu contours (in blue) of both the DTS Site 1 and DTS Site 2 facilities, both of which can be seen to encompass the principal community of Reading, PA. There is a major obstruction in the path over the principal community from Site 2 but not from Site 1; thus, the requirements of §73.626(f)(4) are met by the DTS Site 1 transmitter alone. These factors are discussed in more detail in the section below on Principal Community Coverage. Both transmitters in the proposed DTS network are located within the WTVE authorized service area, consequently meeting the requirements of §73.626(f)(6).

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[7] To account for the dipole correction factor, the PNLCs are plotted at 39.85 dBu, with service statistics of F(50,90).

[8] Per §73.626(b), "For purposes of compliance with this section, a station's 'authorized service area' is defined as the area within its predicted noise-limited service contour determined using the facilities authorized for the station in a license or construction permit for non-DTS, single-transmitter-location operation."

Given the complexity of the Site 2 antenna pattern, a large array of elevation data has been supplied for that antenna, using the complex data filing format specified for the Form 301 DTS application. It has been found in earlier filings for other stations that inclusion of azimuth pattern relative field or rotation data in the Form 301 DTS interferes with the correct determination of the amplitude characteristics and orientation of the pattern in the Commission's processing software. For this reason, the Site 2 Form 301 DTS has been marked that the antenna is "Non-Directional." The antenna, however, is directional, with the alternate settings being required to make the Commission's input processing software correctly represent the data that describes the antenna. The actual azimuth rotation for the antenna at DTS Site 2 is provided in Figure 1b below and built into the complex elevation pattern data uploaded to the EFS.

Both of the transmitters used in the WTVE DTS network are Type Verified as per Section 73.1660 of the Commission's Rules. Both transmitters are of solid state designs. They are synchronized using the methods specified in the ATSC Synchronization Standard for Distributed Transmission (A/110B), and they emit the RF Watermark transmitter identification signal defined in the A/110B document.

Service Area

Section 73.622(f)(5) provides that stations may exceed the limits on power and antenna height included in §73.622(f)(6) through (8) "up to that needed to provide the same geographic coverage area as the largest station within their market." The DTS R&O applies the same exception to DTS operations. In ¶35 "Largest Station" Alternative, it states, "As an alternative to the Table of Distances Approach for determining the hypothetically maximized service area, full-power stations may use the 'largest station' provision in section 73.622(f)(5) of the rules."[9]

To implement the provisions of §73.622(f)(5), a method has been followed to determine the radius of a circle that matches the area contained within the contour of the largest station in the same market as that of the applicant. The market has been defined by the

[9] *Digital Television Distributed Transmission System Technologies*, Report and Order, MB Docket No. 05-312 (FCC 08-256, released November 7, 2008) ¶35.

Figure 1a — Technical Specifications — Proposed WTVE DTS Facility Channel 25 — Reading, PA — Site 1: Reading

Frequency

Channel	25
Frequency Band	536 – 542 MHz
Center Frequency	539 MHz

Location

Site	Atop Mt Penn, east of Reading, PA
Geographic Coordinates (NAD27)	40° 21’ 15.57” N 75° 53’ 56.96” W
Tower Registration (FAA Study Number)	1254286 (2006-AEA-2348-OE)

Elevation

Elevation of site above mean sea level	335.2 m
Overall height of tower above site elevation	66.7 m
Overall height of tower above mean sea level	401.9 m
Height of antenna radiation center above site elevation	30.5 m
Elevation of average terrain (45-degree-spaced radials, 3.2-16.1 km)	140.4 m
Height of antenna radiation center above mean sea level	365.7 m
Height of antenna radiation center above average terrain (HAAT)	225.3 m

Antenna

Manufacturer	Radio Frequency Systems
Model	DX32B-07
Description	Side-Mounted, Corporate-Fed, UHF Cavity-Slot
Orientation (rotation around vertical axis)	302 degrees true
Electrical beam tilt	0.70°
Mechanical beam tilt	None
Polarization	Horizontal
Gain (peak of beam – 0.70° depression)	70.96 (18.51 dBd)
Gain (in horizontal plane – 0° depression)	47.64 (16.78 dBd)

Power

Effective radiated power (ERP) (main beam – 0.70° depression)	0.763 kW
Effective radiated power (ERP) (horizontal plane)	0.512 kW

RFS DX32B–25

Field at Depression Angle of Maximum Radiation

Pattern Normalized to Zero Degree Orientation

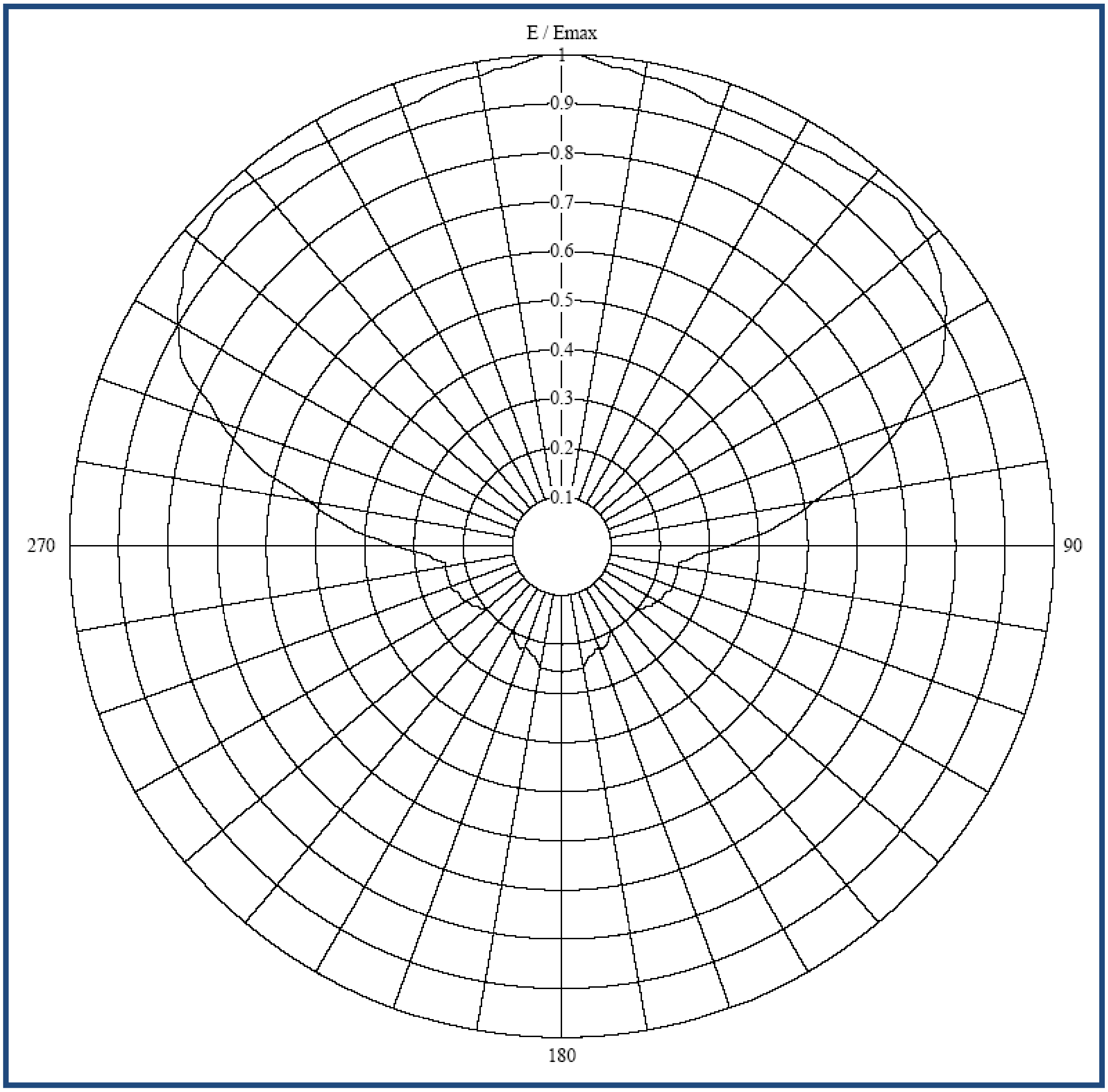

Figure 3 — WTVE Site 1 Azimuth Pattern in Relative Field Values

Figure 4 — Tabulated Data for RFS DX Azimuth Relative Field Pattern Type B – Normalized to Zero Degrees

Az.	B Pattern	Az.	B Pattern	Az	B Pattern	Az.	B Pattern	Az.	B Pattern	Az	B Pattern	Az.	B Pattern	Az.	B Pattern	Az	B Pattern
0	1.0000	40	0.9700	80	0.5200	120	0.2250	160	0.2200	200	0.2200	240	0.2250	280	0.5200	320	0.9700
1	1.0000	41	0.9725	81	0.5050	121	0.2225	161	0.2200	201	0.2225	241	0.2275	281	0.5400	321	0.9675
2	1.0000	42	0.9750	82	0.4900	122	0.2200	162	0.2200	202	0.2250	242	0.2300	282	0.5600	322	0.9650
3	0.9950	43	0.9775	83	0.4700	123	0.2200	163	0.2250	203	0.2225	243	0.2300	283	0.5900	323	0.9625
4	0.9900	44	0.9800	84	0.4500	124	0.2200	164	0.2300	204	0.2200	244	0.2300	284	0.6200	324	0.9600
5	0.9850	45	0.9800	85	0.4350	125	0.2150	165	0.2300	205	0.2175	245	0.2300	285	0.6400	325	0.9600
6	0.9800	46	0.9800	86	0.4200	126	0.2100	166	0.2300	206	0.2150	246	0.2300	286	0.6600	326	0.9600
7	0.9800	47	0.9750	87	0.3950	127	0.2100	167	0.2350	207	0.2100	247	0.2350	287	0.6800	327	0.9575
8	0.9800	48	0.9700	88	0.3700	128	0.2100	168	0.2400	208	0.2050	248	0.2400	288	0.7000	328	0.9550
9	0.9750	49	0.9700	89	0.3550	129	0.2050	169	0.2455	209	0.2025	249	0.2400	289	0.7200	329	0.9525
10	0.9700	50	0.9700	90	0.3400	130	0.2000	170	0.2510	210	0.2000	250	0.2400	290	0.7400	330	0.9500
11	0.9700	51	0.9650	91	0.3200	131	0.2000	171	0.2515	211	0.2000	251	0.2400	291	0.7550	331	0.9500
12	0.9700	52	0.9600	92	0.3000	132	0.2000	172	0.2520	212	0.2000	252	0.2400	292	0.7700	332	0.9500
13	0.9675	53	0.9550	93	0.2850	133	0.2000	173	0.2525	213	0.2000	253	0.2400	293	0.7950	333	0.9500
14	0.9650	54	0.9500	94	0.2700	134	0.2000	174	0.2530	214	0.2000	254	0.2400	294	0.8200	334	0.9500
15	0.9625	55	0.9400	95	0.2650	135	0.2000	175	0.2535	215	0.2000	255	0.2400	295	0.8400	335	0.9500
16	0.9600	56	0.9300	96	0.2600	136	0.2000	176	0.2540	216	0.2000	256	0.2400	296	0.8600	336	0.9500
17	0.9550	57	0.9250	97	0.2500	137	0.2000	177	0.2545	217	0.2000	257	0.2400	297	0.8700	337	0.9500
18	0.9500	58	0.9200	98	0.2400	138	0.2000	178	0.2550	218	0.2000	258	0.2400	298	0.8800	338	0.9500
19	0.9500	59	0.9100	99	0.2400	139	0.2000	179	0.2555	219	0.2000	259	0.2400	299	0.8900	339	0.9500
20	0.9500	60	0.9000	100	0.2400	140	0.2000	180	0.2560	220	0.2000	260	0.2400	300	0.9000	340	0.9500
21	0.9500	61	0.8900	101	0.2400	141	0.2000	181	0.2555	221	0.2000	261	0.2400	301	0.9100	341	0.9500
22	0.9500	62	0.8800	102	0.2400	142	0.2000	182	0.2550	222	0.2000	262	0.2400	302	0.9200	342	0.9500
23	0.9500	63	0.8700	103	0.2400	143	0.2000	183	0.2545	223	0.2000	263	0.2500	303	0.9250	343	0.9550
24	0.9500	64	0.8600	104	0.2400	144	0.2000	184	0.2540	224	0.2000	264	0.2600	304	0.9300	344	0.9600
25	0.9500	65	0.8400	105	0.2400	145	0.2000	185	0.2535	225	0.2000	265	0.2650	305	0.9400	345	0.9625
26	0.9500	66	0.8200	106	0.2400	146	0.2000	186	0.2530	226	0.2000	266	0.2700	306	0.9500	346	0.9650
27	0.9500	67	0.7950	107	0.2400	147	0.2000	187	0.2525	227	0.2000	267	0.2850	307	0.9550	347	0.9675
28	0.9500	68	0.7700	108	0.2400	148	0.2000	188	0.2520	228	0.2000	268	0.3000	308	0.9600	348	0.9700
29	0.9500	69	0.7550	109	0.2400	149	0.2000	189	0.2515	229	0.2000	269	0.3200	309	0.9650	349	0.9700
30	0.9500	70	0.7400	110	0.2400	150	0.2000	190	0.2510	230	0.2000	270	0.3400	310	0.9700	350	0.9700
31	0.9525	71	0.7200	111	0.2400	151	0.2025	191	0.2455	231	0.2050	271	0.3550	311	0.9700	351	0.9750
32	0.9550	72	0.7000	112	0.2400	152	0.2050	192	0.2400	232	0.2100	272	0.3700	312	0.9700	352	0.9800
33	0.9575	73	0.6800	113	0.2350	153	0.2100	193	0.2350	233	0.2100	273	0.3950	313	0.9750	353	0.9800
34	0.9600	74	0.6600	114	0.2300	154	0.2150	194	0.2300	234	0.2100	274	0.4200	314	0.9800	354	0.9800
35	0.9600	75	0.6400	115	0.2300	155	0.2175	195	0.2300	235	0.2150	275	0.4350	315	0.9800	355	0.9850
36	0.9600	76	0.6200	116	0.2300	156	0.2200	196	0.2300	236	0.2200	276	0.4500	316	0.9800	356	0.9900
37	0.9625	77	0.5900	117	0.2300	157	0.2225	197	0.2250	237	0.2200	277	0.4700	317	0.9775	357	0.9950
38	0.9650	78	0.5600	118	0.2300	158	0.2250	198	0.2200	238	0.2200	278	0.4900	318	0.9750	358	1.0000
39	0.9675	79	0.5400	119	0.2275	159	0.2225	199	0.2200	239	0.2225	279	0.5050	319	0.9725	359	1.0000

RFS DX32 — All Types — 0.7 Degree Depression

Field at Azimuth of Maximum Radiation

-90 to +90 degrees Depression Angle

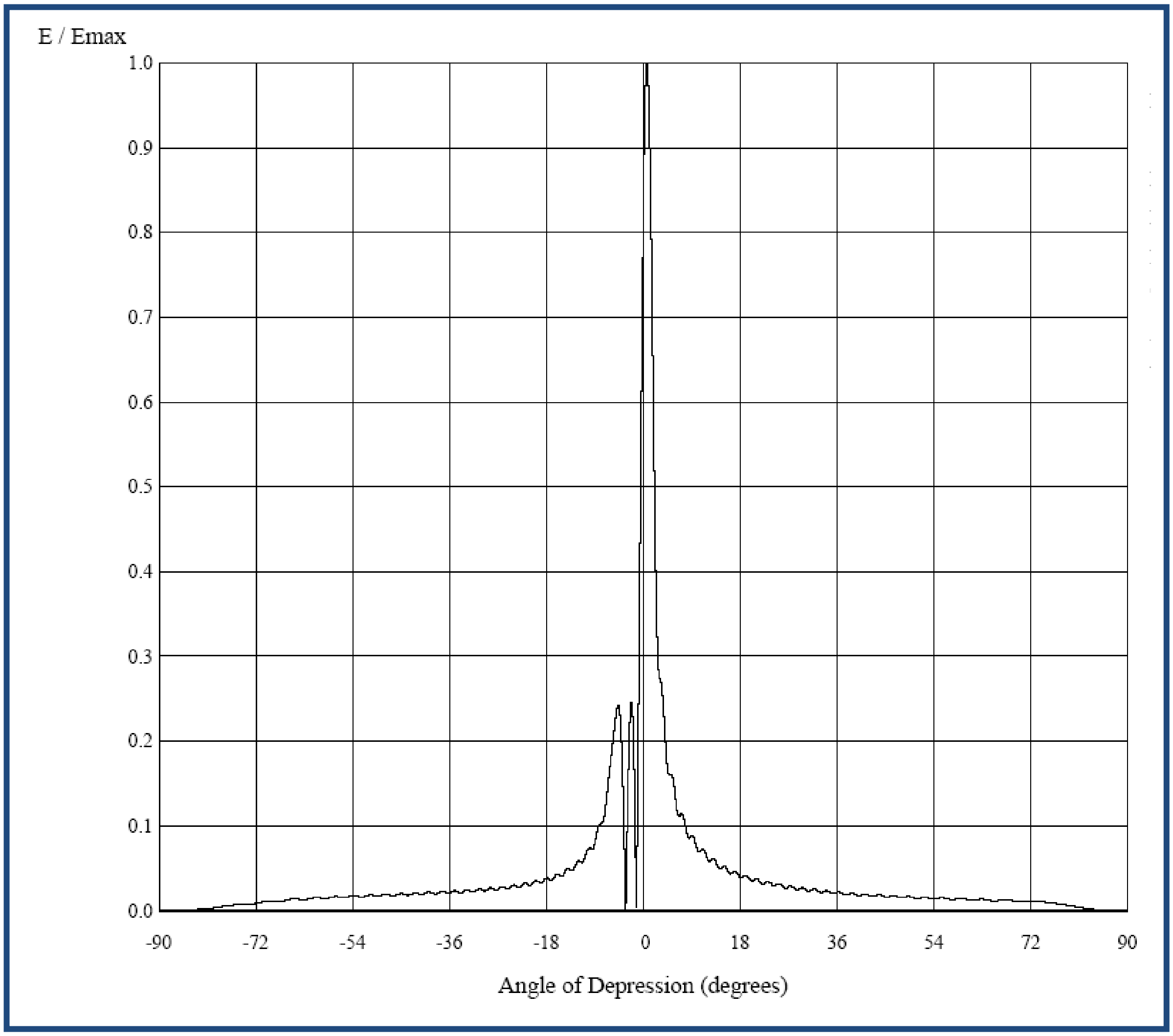

Figure 5a — Inverted Cosecant Elevation Relative Field Pattern

RFS DX32 — All Types — 0.7 Degree Depression

Field at Azimuth of Maximum Radiation

-10 to +20 degrees Depression Angle

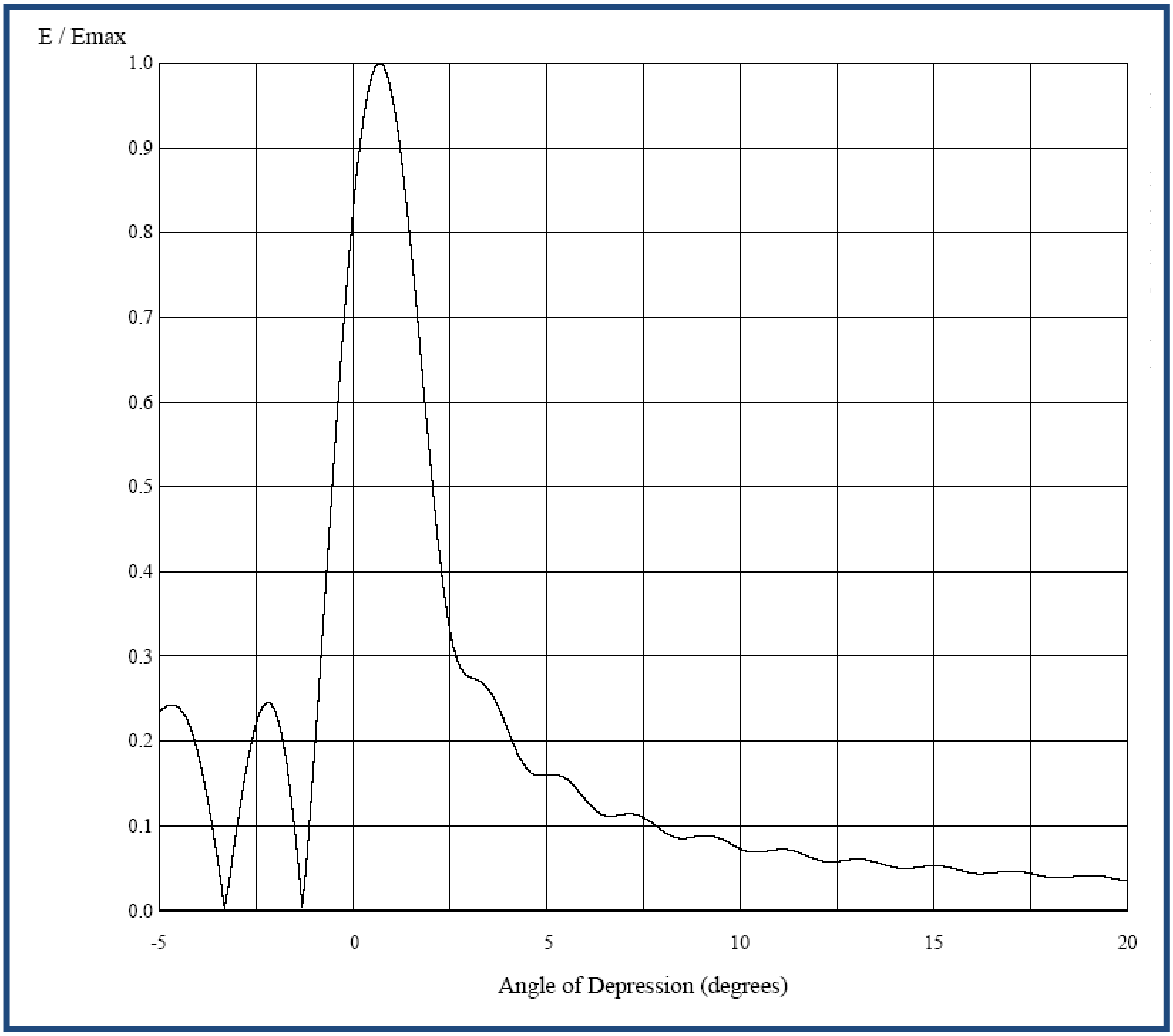

Figure 5b — Inverted Cosecant Elevation Relative Field Pattern

Figure 6 — Tabulated Data for RFS DX32 Elevation Relative Field Patterns – 0.7 Degree Depression

Dprsn	0.7 dg	Dprsn	0.7 dg	Dprsn	0.7 dg	Dprsn	0.7 dg	Dprsn	0.7 dg	Dprsn	0.7 dg	Dprsn	0.7 dg	Dprsn	0.7 dg	Dprsn	0.7 dg	Dprsn	0.7 dg	Dprsn	0.7 dg
-5.0	0.2338	-1.7	0.1744	1.6	0.7372	4.9	0.1601	8.2	0.0888	11.5	0.0691	22.0	0.0330	38.5	0.0212	55.0	0.0155	71.5	0.0112	88.0	0.0032
-4.9	0.2382	-1.6	0.1410	1.7	0.6865	5.0	0.1606	8.3	0.0870	11.6	0.0674	22.5	0.0329	39.0	0.0212	55.5	0.0158	72.0	0.0113	88.5	0.0032
-4.8	0.2415	-1.5	0.1014	1.8	0.6347	5.1	0.1611	8.4	0.0859	11.7	0.0655	23.0	0.0349	39.5	0.0197	56.0	0.0154	72.5	0.0114	89.0	0.0032
-4.7	0.2433	-1.4	0.0560	1.9	0.5829	5.2	0.1612	8.5	0.0855	11.8	0.0636	23.5	0.0340	40.0	0.0186	56.5	0.0145	73.0	0.0114	89.5	0.0032
-4.6	0.2431	-1.3	0.0053	2.0	0.5322	5.3	0.1605	8.6	0.0857	11.9	0.0618	24.0	0.0307	40.5	0.0192	57.0	0.0138	73.5	0.0112	90.0	0.0032
-4.5	0.2408	-1.2	0.0504	2.1	0.4837	5.4	0.1588	8.7	0.0863	12.0	0.0603	24.5	0.0300	41.0	0.0202	57.5	0.0137	74.0	0.0110		
-4.4	0.2359	-1.1	0.1103	2.2	0.4386	5.5	0.1562	8.8	0.0871	12.1	0.0591	25.0	0.0319	41.5	0.0201	58.0	0.0142	74.5	0.0107		
-4.3	0.2284	-1.0	0.1737	2.3	0.3979	5.6	0.1526	8.9	0.0880	12.2	0.0583	25.5	0.0317	42.0	0.0187	58.5	0.0148	75.0	0.0103		
-4.2	0.2180	-0.9	0.2400	2.4	0.3628	5.7	0.1481	9.0	0.0886	12.3	0.0580	26.0	0.0287	42.5	0.0176	59.0	0.0150	75.5	0.0099		
-4.1	0.2046	-0.8	0.3082	2.5	0.3338	5.8	0.1429	9.1	0.0888	12.4	0.0581	26.5	0.0273	43.0	0.0180	59.5	0.0147	76.0	0.0095		
-4.0	0.1883	-0.7	0.3776	2.6	0.3115	5.9	0.1373	9.2	0.0886	12.5	0.0585	27.0	0.0290	43.5	0.0191	60.0	0.0139	76.5	0.0091		
-3.9	0.1690	-0.6	0.4472	2.7	0.2955	6.0	0.1317	9.3	0.0879	12.6	0.0591	27.5	0.0297	44.0	0.0192	60.5	0.0132	77.0	0.0086		
-3.8	0.1468	-0.5	0.5161	2.8	0.2851	6.1	0.1263	9.4	0.0867	12.7	0.0598	28.0	0.0275	44.5	0.0181	61.0	0.0129	77.5	0.0082		
-3.7	0.1220	-0.4	0.5834	2.9	0.2791	6.2	0.1215	9.5	0.0850	12.8	0.0604	28.5	0.0255	45.0	0.0168	61.5	0.0131	78.0	0.0077		
-3.6	0.0949	-0.3	0.6482	3.0	0.2759	6.3	0.1175	9.6	0.0829	12.9	0.0609	29.0	0.0265	45.5	0.0169	62.0	0.0136	78.5	0.0073		
-3.5	0.0658	-0.2	0.7096	3.1	0.2742	6.4	0.1146	9.7	0.0805	13.0	0.0612	29.5	0.0278	46.0	0.0179	62.5	0.0140	79.0	0.0067		
-3.4	0.0351	-0.1	0.7669	3.2	0.2728	6.5	0.1127	9.8	0.0781	13.5	0.0586	30.0	0.0265	46.5	0.0184	63.0	0.0140	79.5	0.0062		
-3.3	0.0034	0.0	0.8192	3.3	0.2706	6.6	0.1119	9.9	0.0756	14.0	0.0518	30.5	0.0242	47.0	0.0178	63.5	0.0137	80.0	0.0056		
-3.2	0.0290	0.1	0.8658	3.4	0.2671	6.7	0.1119	10.0	0.0734	14.5	0.0515	31.0	0.0241	47.5	0.0166	64.0	0.0130	80.5	0.0051		
-3.1	0.0613	0.2	0.9061	3.5	0.2620	6.8	0.1125	10.1	0.0716	15.0	0.0540	31.5	0.0257	48.0	0.0159	64.5	0.0124	81.0	0.0045		
-3.0	0.0930	0.3	0.9397	3.6	0.2551	6.9	0.1133	10.2	0.0702	15.5	0.0507	32.0	0.0256	48.5	0.0165	65.0	0.0120	81.5	0.0040		
-2.9	0.1233	0.4	0.9661	3.7	0.2465	7.0	0.1141	10.3	0.0695	16.0	0.0451	32.5	0.0235	49.0	0.0173	65.5	0.0121	82.0	0.0035		
-2.8	0.1517	0.5	0.9850	3.8	0.2365	7.1	0.1146	10.4	0.0692	16.5	0.0454	33.0	0.0221	49.5	0.0174	66.0	0.0124	82.5	0.0032		
-2.7	0.1776	0.6	0.9963	3.9	0.2255	7.2	0.1146	10.5	0.0694	17.0	0.0476	33.5	0.0232	50.0	0.0165	66.5	0.0128	83.0	0.0032		
-2.6	0.2001	0.7	1.0000	4.0	0.2140	7.3	0.1139	10.6	0.0700	17.5	0.0447	34.0	0.0242	50.5	0.0154	67.0	0.0130	83.5	0.0032		
-2.5	0.2189	0.8	0.9961	4.1	0.2025	7.4	0.1126	10.7	0.0708	18.0	0.0401	34.5	0.0233	51.0	0.0150	67.5	0.0130	84.0	0.0032		
-2.4	0.2332	0.9	0.9847	4.2	0.1916	7.5	0.1106	10.8	0.0716	18.5	0.0406	35.0	0.0213	51.5	0.0157	68.0	0.0127	84.5	0.0032		
-2.3	0.2425	1.0	0.9662	4.3	0.1819	7.6	0.1079	10.9	0.0723	19.0	0.0428	35.5	0.0210	52.0	0.0164	68.5	0.0122	85.0	0.0032		
-2.2	0.2464	1.1	0.9411	4.4	0.1737	7.7	0.1048	11.0	0.0727	19.5	0.0404	36.0	0.0223	52.5	0.0165	69.0	0.0117	85.5	0.0032		
-2.1	0.2446	1.2	0.9097	4.5	0.1675	7.8	0.1014	11.1	0.0728	20.0	0.0361	36.5	0.0227	53.0	0.0158	69.5	0.0112	86.0	0.0032		
-2.0	0.2366	1.3	0.8729	4.6	0.1633	7.9	0.0978	11.2	0.0724	20.5	0.0363	37.0	0.0212	53.5	0.0148	70.0	0.0109	86.5	0.0032		
-1.9	0.2223	1.4	0.8313	4.7	0.1609	8.0	0.0944	11.3	0.0717	21.0	0.0384	37.5	0.0197	54.0	0.0143	70.5	0.0109	87.0	0.0032		
-1.8	0.2016	1.5	0.7858	4.8	0.1600	8.1	0.0913	11.4	0.0706	21.5	0.0368	38.0	0.0200	54.5	0.0147	71.0	0.0110	87.5	0.0032		