

Exhibit 10 - Statement A  
**NATURE OF THE PROPOSAL**  
**ANTENNA SYSTEM DESCRIPTION**

prepared for  
**Willow Farm, Inc.**  
WNSH Beverly, Massachusetts  
Facility Id 22798  
1570 kHz 50 kW DA-D U

**Nature of the Proposal**

Willow Farm, Inc. (“*Willow Farm*”) is the licensee of Standard Broadcast Radio Station WNSH, 1570 kHz, Beverly, Massachusetts (FCC File Number BL-20021217ACH, Facility Id 22798). WNSH is presently licensed to operate with 0.5 kW daytime utilizing a directional antenna pattern and with 0.085 kW non-directional at night. *Willow Farm* proposes herein to increase the WNSH daytime power to 50 kW using different directional antenna parameters with the existing daytime towers. No change in the tower locations is proposed.

The licensee of standard broadcast station WPEP, 1570 kHz, Taunton, Massachusetts (Facility Id 61601) has entered into an agreement with *Willow Farm* which conditionally provides for the surrender of the WPEP license prior to the commencement of operation by *Willow Farm* of the facilities requested herein. Therefore, the instant application does not protect the licensed facilities of WPEP. In accordance with the guidelines set forth in MM Docket 89-46 and Section 73.3517(c) of the Rules, the instant application is a permissible “contingent application” that is being filed pursuant to an interference reduction arrangement. No “white” or “grey” areas will be created by the deletion of WPEP. It will also be shown that WPEP has significant existing contour overlap to other AM stations and WPEP’s deletion will permit increased service to be realized by those affected stations. Further, no new prohibited interference is predicted to occur to any other pertinent stations as a result of the WNSH power increase as proposed herein.

**Antenna System Description**

The daytime antenna system consists of three towers, each 56 electrical degrees tall. Each of the towers are identically constructed above the base insulator with small variations in concrete base height to compensate for terrain. Each tower is top loaded with approximately 10° of apparent electrical height accomplished by adding six, ten foot horizontal arms attached to the top plate of the tower. Current distribution measurements included in BL-20021217ACH show an effective

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electrical height of 66°. There are no physical changes to the tower locations or top loading proposed herein.

According to information provided by the applicant and that included in the license (File Number BL-20021217ACH), the ground system consists of 120 radial wires of #10 soft drawn copper, spaced as evenly as possible around the base of each tower. Each wire is approximately 47.8 meters (1/4 wavelength) long except where the radials from one tower intersect those of another. At such points of intersection, the radial wires are truncated and attached to a four-inch copper strap which bisects the intersection arc. Buffer zones of 100 feet were required to protect wetland areas. Where ground radials would encroach into these buffer zones along the north and west edges of the ground system, radials were turned back. Due to the lack of soil at the transmitter site, the majority of the ground system is laid across the bare rock ground surface.

The proposed daytime antenna parameters and standard pattern radiation values are shown in **Exhibit 10-Table I**. The resulting daytime antenna pattern is shown in **Exhibit 10-Figure 1**. No changes are proposed to the 0.085 kW nighttime operation.

Exhibit 10 - Table I

**PROPOSED DAYTIME DIRECTIONAL ANTENNA PARAMETERS  
DAYTIME STANDARD RADIATION PATTERN DATA**

prepared for

**Willow Farm, Inc.**

WNSH(AM) Beverly, Massachusetts

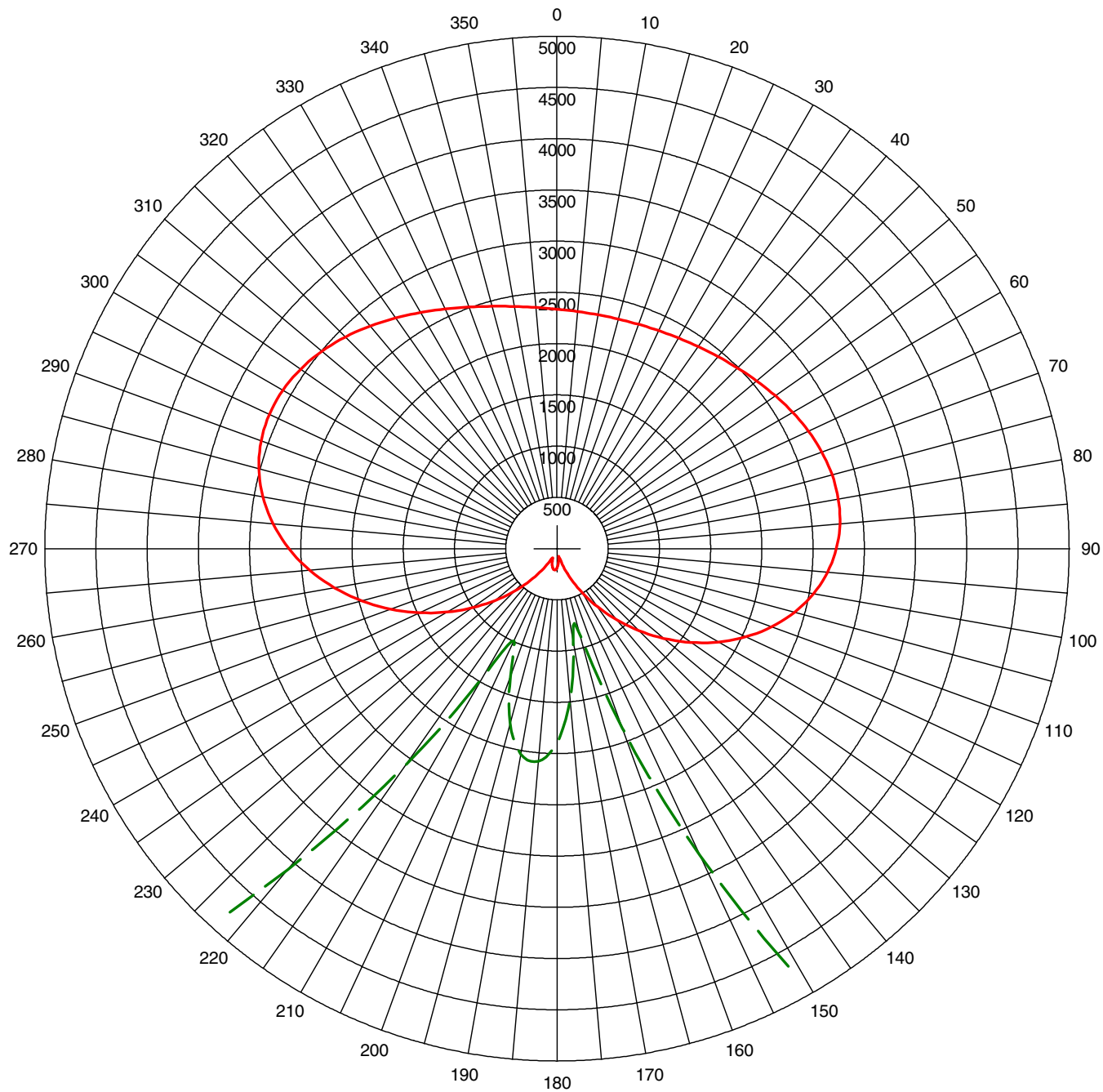
Facility ID 22798

1570 kHz 50 kW DA-D U

Tower Number	Field Ratio	Phase (deg)	Spacing (deg)	Bearing (deg)	A (deg)	B (deg)
1	1.000	0.0	0.0	0.0	56.0	10.0
2	0.675	81.6	90.5	182.1	56.0	10.0
3	0.355	32.6	183.1	190.2	56.0	10.0

Input Power (kW)	Loop Loss (Ohms)	Theoretical		Q Factor (mV/m)	Standard RMS (mV/m)
		RMS (mV/m)	RSS (mV/m)		
50	1.00	2023	2001	70.7	2126

Azimuth (deg)	Field (mV/m)	Azimuth (deg)	Field (mV/m)	Azimuth (deg)	Field (mV/m)	Azimuth (deg)	Field (mV/m)
0	2337	90	2728	180	189	270	2616
5	2322	95	2651	185	208	275	2782
10	2316	100	2542	190	204	280	2915
15	2318	105	2401	195	176	285	3012
20	2329	110	2231	200	133	290	3073
25	2347	115	2036	205	99	295	3097
30	2373	120	1822	210	144	300	3090
35	2406	125	1596	215	259	305	3054
40	2446	130	1363	220	409	310	2995
45	2493	135	1132	225	587	315	2920
50	2546	140	907	230	786	320	2836
55	2601	145	696	235	1005	325	2747
60	2657	150	502	240	1238	330	2661
65	2709	155	331	245	1480	335	2580
70	2752	160	187	250	1726	340	2508
75	2780	165	88	255	1970	345	2448
80	2789	170	92	260	2204	350	2399
85	2773	175	148	265	2422	355	2363



Theo RMS: 2023.262 mV/m @ 1km  
 Std RMS: 2125.722 mV/m @ 1km

**Exhibit 10 - FIGURE 1  
 PROPOSED DAYTIME  
 STANDARD RADIATION PATTERN**

prepared November 2003 for  
**Willow Farm, Inc.**  
**WNSH(AM) Beverly, Massachusetts**

**1570 kHz 50 kW DAD U**

**Cavell, Mertz & Davis, Inc.**  
 Manassas, Virginia

— Pattern (mV/m @ 1km)  
 - - - Pattern X10