

**Technical Certifications**

This exhibit for the minor modification of W225AH demonstrates compliance with all engineering standards and requirements specified in the applicable FCC rules and regulations. This application proposes a change in the ERP as a fill-in of WDRM. This change is indicated below:

	Licensed	Minor Mod
Channel / Class	225D	225D
ASRN	1027232	1027232
Geographical Coordinates	34-47-37.9 86-37-51.0	34-47-37.9 86-37-51.0
Tower AGL	180.6m	180.6m
Site AMSL	360.3	360.3
COR AGL	134m	134m
COR AMSL	494.3m	494.3m
HAAT	252.2m	252.2m
ERP	0.075 kW (H&V, non-DA)	0.110 kW (H&V, non-DA)

GLOBE terrain data

### Channel Study

REFERENCE		CH# 225D - 92.9 MHz, Pwr= 0.09 kW, HAAT= 252.2 M, COR= 494 M								DISPLAY DATES	
34 47 37.9 N.		Average Protected F(50-50)= 15.9 km								DATA 01-23-23	
86 37 51.0 W.		Omni-directional								SEARCH 01-31-23	
CH CITY	CALL	TYPE STATE	ANT FILE #	AZI. --	DIST FILE #	LAT. LNG.	Pwr (kW) HAAT (M)	INT (km) COR (M)	PRO (km) LICENSEE	*IN* (Overlap in km)	*OUT*
225D Huntsville	W225AH!	LIC CN AL	0.0 0.00 0.0 0000189189			34 47 37.90 86 37 51.00	0.075		---Reference---		
227C2 New Market	WWFF-FM	LIC ZCN AL	0.0 0.00 0.0 BLH20071228ABT			34 47 37.30 86 37 51.00	14.500 279	5.3 512	50.6 Cumulus Licensing LLC	-20.9*	-51.3*
225C Nashville	WJXA	LIC CN TN	348.4 150.64 168.2 BLH19861204KB			36 07 14.20 86 58 07.00	100.000 321	172.7 507	72.9 Midwest Communications, In	-37.6*	26.6
222D Huntsville	W222AK	LIC CN AL	180.0 0.04 0.0 BLFT20000412ADD			34 47 36.30 86 37 51.00	0.008 280	0.2 515	8.9 Carol C. Parham	-17.3*	-9.5*
224A Arab	WAFN-FM	LIC NCN AL	160.6 52.91 340.8 0000202072			34 20 40.90 86 26 23.30	1.150 202	39.7 470	25.6 Fun Media Group, Inc.	-3.8	0.3
223A Trinity	WVNN-FM	LIC NCN AL	257.4 42.22 77.1 BLH19921019KD			34 42 36.30 87 04 54.00	3.100 129	2.4 315	26.3 Cumulus Licensing LLC	23.3	15.2
225C1 Northport	AL4065	RSV-A AL	203.9 211.02 23.4 RM10323*			33 03 20.45 87 32 59.02	100.000 299	169.2 373	69.9 From CDBS	24.7	85.7
225C1 Northport	WTUG-FM	LIC NCN AL	203.9 211.14 23.4 BLH20050624AAS			33 03 15.40 87 32 57.00	100.000 299	169.1 372	69.9 Townsquare License, LLC	24.9	86.0
225D Florence	W225AB	LIC CN AL	270.7 95.41 90.1 BLFT20130812ACM			34 47 59.30 87 40 33.10	0.080 38	17.9 201	5.5 William P. Rogers	61.5	37.5
226D Loretto	W226AF	LIC CN TN	299.5 77.84 119.0 BLFT20180319AAX			35 08 09.20 87 22 35.00	0.250	17.5 343	11.9 Prospect Communications	44.9	42.3
222C0 Chattanooga	WDEF-FM	LIC CN TN	72.0 125.00 252.7 BMLH20050831ADG			35 08 06.30 85 19 24.90	100.000 360	10.7 743	74.9 Jackson Telecasters, Inc.	98.4	45.4

Terrain database is GLOBE 30 Sec, R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM

In & Out distances between contours are shown at closest points. Reference Zone= East Zone, Co to 3rd adjacent.

All separation margins (if shown) include rounding. Call signs with exclamation marks need not be protected.

Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, \_= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)

\*\*\*affixed to 'IN' or 'OUT' values = site inside restricted contour.

Educational Media Foundation

FMCommander Single Allocation Study - 01-31-2023 - GLOBE 30 Sec  
W225AH's Overlaps (In= -3.83 km, Out= 0.28 km)

W225AH CH 225 D

Lat= 34 47 37.90, Lng= 86 37 51.00

0.09 kW 252.2 m HAAT, 494 m COR

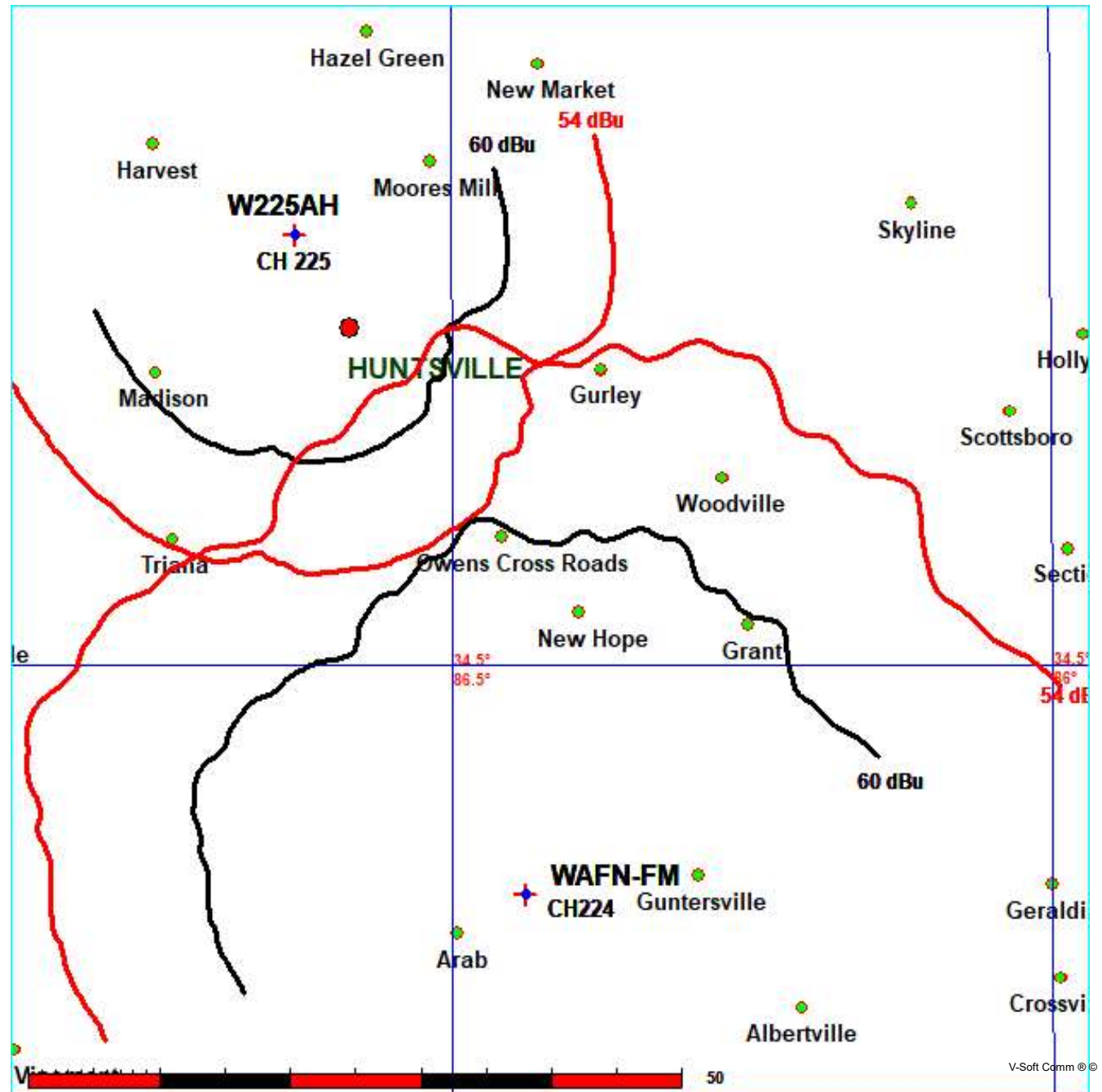
Prot.= 60 dBu, Intef.= 54 dBu

WAFN-FM CH 224 A 73.215 N 0000202072

Lat= 34 20 40.90, Lng= 86 26 23.30

1.15 kW 202 m HAAT, 470 m COR

Prot.= 60 dBu, Intef.= 54 dBu



Educational Media Foundation

FMCommander Single Allocation Study - 01-31-2023 - GLOBE 30 Sec  
W225AH's Overlaps (In= -3.83 km, Out= 0.28 km)

W225AH CH 225 D

Lat= 34 47 37.90, Lng= 86 37 51.00

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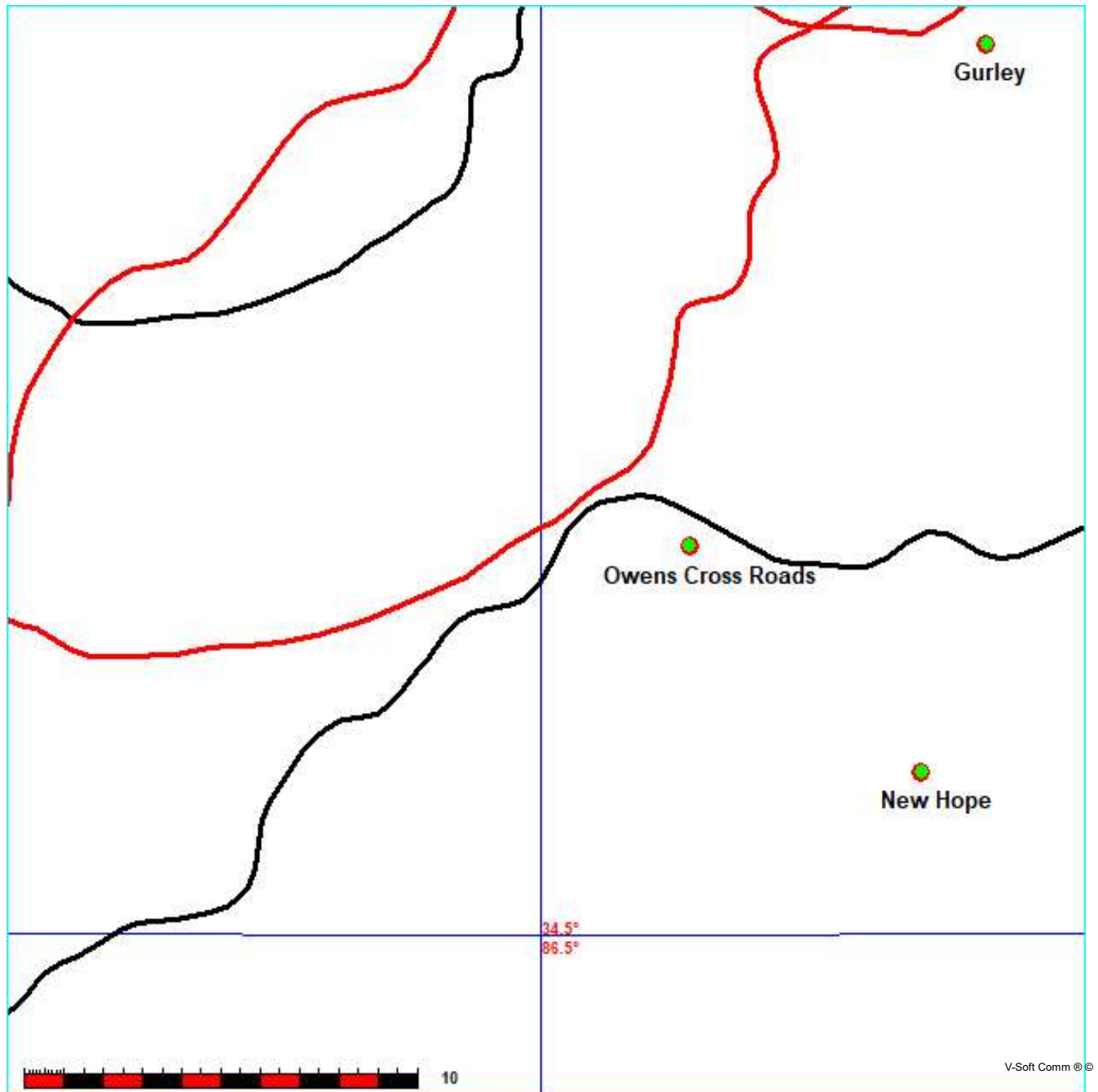
Prot.= 60 dBu, Intef.= 54 dBu

WAFN-FM CH 224 A 73.215 N 0000202072

Lat= 34 20 40.90, Lng= 86 26 23.30

1.15 kW 202 m HAAT, 470 m COR

Prot.= 60 dBu, Intef.= 54 dBu



**Educational Media Foundation**

5700 W Oaks Blvd  
Rocklin, CA 95765

*Exhibit 1-A  
Huntsville, AL*

**Compliance with C.F.R. 74.1204**

The proposed FM Translator to operate on channel 225D is located within the protected 60dBu contour of second adjacent station WWFF-FM, channel 227C2, New Market, AL. According to 74.1204(a)(3), in order to protect second and third adjacent facilities, the difference in dBu between the two facilities must not exceed 40dBu.

The proposed ERP for W225AH:	90 watts
The proposed COR AGL for W225AH:	134 meters
WWFF-FM F(50/50) contour at proposed site:	149.5dBu
The F(50/10) contour of proposed W225AH:	189.5dbu

W225AH and WWFF-FM are collocated on the same tower structure at a vertical separation distance of 18.4 meters. The predicted distance to the 189.5dbu interfering contour is 0.02 meters. When taking into account the vertical elevation pattern of the two bay circularly polarized antenna and the height above ground of 134m, it has been determined that the interfering contour of 189.5dbu does not reach the ground. As seen in Exhibit 1-A1, the lowest elevation for this interfering contour is 133.994m above ground.

There are no surrounding structures which are tall enough to enter the interfering contour within the 0.02m distance from the antenna.

Therefore, EMF respectfully requests a waiver of C.F.R. 74.1204 based on no population within the area of predicted interference.

EXHIBIT 1 - A1  
74.1204(d) Showing  
W225AH  
Huntsville, AL

ERP (kw): 0.09  
Height of Antenna above Ground (m): 134  
Translator's IX Contour: 189.5  
Antenna Type: Nic BKG77 2-0.85 spaced

<u>Depression Angle from Horizon</u>	<u>Antenna Relative Field</u>	<u>ERP (kw) from the Antenna RF</u>	<u>Dist. To IX Contour (m)</u>	<u>Height IX Contour Above Ground (m)</u>
0	1.000	0.0900	0.0223	134.000
5	0.967	0.0842	0.0216	133.998
10	0.871	0.0683	0.0194	133.997
15	0.711	0.0455	0.0158	133.996
20	0.518	0.0241	0.0115	133.996
25	0.310	0.0086	0.0069	133.997
30	0.112	0.0011	0.0025	133.999
35	0.062	0.0003	0.0014	133.999
40	0.198	0.0035	0.0044	133.997
45	0.288	0.0075	0.0064	133.995
50	0.336	0.0102	0.0075	133.994
55	0.349	0.0110	0.0078	133.994
60	0.331	0.0099	0.0074	133.994
65	0.295	0.0078	0.0066	133.994
70	0.246	0.0054	0.0055	133.995
75	0.197	0.0035	0.0044	133.996
80	0.151	0.0021	0.0034	133.997
85	0.122	0.0013	0.0027	133.997
90	0.117	0.0012	0.0026	133.997

**Educational Media Foundation**

5700 W Oaks Blvd  
Rocklin, CA 95765

*Exhibit 1-A  
Huntsville, AL*

**Compliance with C.F.R. 74.1204**

The proposed FM Translator to operate on channel 225D is located within the protected 60dBu contour of third adjacent translator K222AK, channel 222D, Huntsville, AL.

According to 74.1204(a)(3), in order to protect second and third adjacent facilities, the difference in dBu between the two facilities must not exceed 40dBu.

The proposed ERP for W225AH:	90 watts
The proposed COR AGL for W225AH:	134 meters
W222AK F(50/50) contour at proposed site:	116.1dBu
The F(50/10) contour of proposed W222AH:	156.1dbu

W225AH and W222AK are collocated on the same tower structure at a vertical distance separation of 21 meters. The predicted distance to the 156.1dbu interfering contour is 1.04 meters. When taking into account the vertical elevation pattern of the two bay circularly polarized antenna and the height above ground of 134m, it has been determined that the interfering contour of 156.1dbu does not reach the ground. As seen in Exhibit 1-A1, the lowest elevation for this interfering contour is 133.7m above ground.

There are no surrounding structures which are tall enough to enter the interfering contour within the 1.04m distance from the antenna.

Therefore, EMF respectfully requests a waiver of C.F.R. 74.1204 based on no population within the area of predicted interference.

EXHIBIT 1 - A1  
74.1204(d) Showing  
W225AH  
Huntsville, AL

ERP (kw): 0.09  
Height of Antenna above Ground (m): 134  
Translator's IX Contour: 156.1  
Antenna Type: Nic BKG77 2-0.85 spaced

<u>Depression Angle from Horizon</u>	<u>Antenna Relative Field</u>	<u>ERP (kw) from the Antenna RF</u>	<u>Dist. To IX Contour (m)</u>	<u>Height IX Contour Above Ground (m)</u>
0	1.000	0.0900	1.0426	134.000
5	0.967	0.0842	1.0082	133.912
10	0.871	0.0683	0.9081	133.842
15	0.711	0.0455	0.7413	133.808
20	0.518	0.0241	0.5401	133.815
25	0.310	0.0086	0.3232	133.863
30	0.112	0.0011	0.1168	133.942
35	0.062	0.0003	0.0646	133.963
40	0.198	0.0035	0.2064	133.867
45	0.288	0.0075	0.3003	133.788
50	0.336	0.0102	0.3503	133.732
55	0.349	0.0110	0.3639	133.702
60	0.331	0.0099	0.3451	133.701
65	0.295	0.0078	0.3076	133.721
70	0.246	0.0054	0.2565	133.759
75	0.197	0.0035	0.2054	133.802
80	0.151	0.0021	0.1574	133.845
85	0.122	0.0013	0.1272	133.873
90	0.117	0.0012	0.1220	133.878



### **Human exposure to excess levels of radiofrequency radiation**

The proposed facility is to be built using a 2-bay circularly polarized 0.85-wave spaced antenna.

According to OET 65, "Applicants and licensees should be able to calculate, based on considerations of frequency, power and antenna characteristics the distance from their transmitter where their signal produces an RF field equal to, or greater than, the 5% threshold limit. The applicant or licensee then shares responsibility for compliance in any accessible area or areas within this 5% "contour" where the appropriate limits are found to be exceeded."

As can be seen in Exhibit 3-A, the proposed facility's maximum contribution to RF on the site is  $0.017\mu\text{W}/\text{cm}^2$  at a distance of 50 meters from the tower, which is less than 0.01% of the uncontrolled (public) exposure limit.

Therefore, because the proposed facility will not cause an RF field that is equal to or greater than 5% of the  $200\mu\text{W}/\text{cm}^2$  limit for uncontrolled exposure at any point, the proposed facility complies with the requirements of OET 65.

EMF will fully cooperate with other site users to temporarily reduce power or cease broadcasting, as necessary, to protect workers and others having access to the site from excessive levels of RF Radiation.

## Specific Antenna RF Power Density Calculator

Based on Equation 10 of OET-65

Exhibit 2-A / Detailed Report

<b>ERP</b>	0.09 kW	% of OET-65
<b>Height above ground</b>	134.0 meters	0.0% Uncontrolled
<b>Height above head</b>	132.0 meters	0.0% Controlled
<b>Antenna Brand</b>	Nicom	
<b>Antenna Model</b>	BKG77-2/.85	

Horizontal distance from tower (meters)	Angle (°)	Distance (m)	Field	Power (W)	Power Density (uW/cm2)
0	90	132.0	0.117	10.53	0.002
10	86	132.4	0.151	13.59	0.004
20	81	133.5	0.151	13.59	0.004
30	77	135.4	0.246	22.14	0.010
40	73	137.9	0.246	22.14	0.010
50	69	141.2	0.331	29.79	0.017
60	66	145.0	0.331	29.79	0.016
70	62	149.4	0.331	29.79	0.015
80	59	154.4	0.336	30.24	0.014
90	56	159.8	0.336	30.24	0.013
100	53	165.6	0.336	30.24	0.012

