

EXHIBIT 42
ENGINEERING STATEMENT RE:
DTV INTERFERENCE ANALYSIS
KTAJ-DT 1000 KW-MAX DA, 321 M AGL CH. 21
ST. JOSEPH, MISSOURI
OCTOBER, 2004

INTRODUCTION

The applicant, Trinity Broadcasting Network (Trinity), requests authority to modify the permitted facility of Digital TV station KTAJ-DT, Channel 21, St. Joseph, MO. Specifically, the applicant proposes to change the location, ERP and antenna pattern and height. The new facilities specified for KTAJ-DT involve a maximum ERP of 1000 kW at an antenna height of 321 meters AGL. The antenna is an Andrew Model ATW16H3-HSC3-21S pylon that will be tower mounted on the top of a candelabra tower at 321 meters above ground level.

DTV INTERFERENCE ANALYSIS

This application requires a technical response to Item 11 of Section III-D of FCC Form 301 to demonstrate compliance with the interference protection provisions of Section 73.623(a) of the FCC Rules. An interference analysis was conducted to evaluate the impact of the DTV Channel 21 proposal on other DTV and NTSC services. Interference was examined using an exact duplication of the Commission's DTV Interference Model software and computer hardware and operating system used in the FCC DTV allotment planning in the DTV Sixth Report and Order (1997).

In accordance with Section 73.623 of the FCC Rules, the proposed DTV facility on Channel 21 meets the *de minimis* interference standard with respect to all NTSC stations and DTV allotments, including all allotments, non-checklist authorizations and non-checklist

applications filed prior to this proposal. Tables 1 and 2 summarize the proposal's impact on analog TV and DTV, respectively. Population lost to interference was determined using the procedures outlined in the Commission's *OET Bulletin No. 69*, based on the recommended cell size of 2 kilometers on a side. Current FCC database records were relied on to evaluate the affect on analog TV and non-checklist DTV stations while the reference facilities contained in the DTV Allotment Plan were used to determine the impact on DTV allotments.

TABLE 1
KTAJ-DT PATTERN BEFORE (ALLOTMENT)

Analysis of: 21A MO ST. JOSEPH

HAAT 326.0 m, ATV ERP 245.7 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	1570346	17958.2
not affected by terrain losses	1569316	17922.1
lost to NTSC IX	299	32.1
lost to additional IX by ATV	143	32.1
lost to ATV IX only	202	48.1
lost to all IX	442	64.2

Analysis of: 19N MO KANSAS CITY

	POPULATION	AREA (sq km)
within Noise Limited Contour	1753135	19171.7
not affected by terrain losses	1750425	18964.2
lost to NTSC IX	16615	167.6
lost to additional IX by ATV	27499	2737.7
lost to all IX	44114	2905.3

Analysis of: 29N MO KANSAS CITY

	POPULATION	AREA (sq km)
within Noise Limited Contour	1865594	25629.7
not affected by terrain losses	1862611	25262.5
lost to NTSC IX	6245	475.0
lost to additional IX by ATV	20859	1349.1
lost to all IX	27104	1824.1

Analysis of: 21N MO SPRINGFIELD

	POPULATION	AREA (sq km)
within Noise Limited Contour	514587	28392.0
not affected by terrain losses	503292	27596.1
lost to NTSC IX	0	0.0
lost to additional IX by ATV	1038	180.0
lost to all IX	1038	180.0

TABLE 1 (CONTINUED)
KTAJ-DT PATTERN BEFORE (ALLOTMENT)

Analysis of: 21A IL MACOMB

HAAT 131.0 m, ATV ERP 75.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	229632	13422.1
not affected by terrain losses	229560	13382.0
lost to NTSC IX	96	16.0
lost to additional IX by ATV	1071	124.4
lost to ATV IX only	1167	140.4
lost to all IX	1167	140.4

Analysis of: 21A KS WICHITA

HAAT 300.0 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	681324	31354.0
not affected by terrain losses	681085	30984.5
lost to NTSC IX	0	0.0
lost to additional IX by ATV	1443	771.0
lost to ATV IX only	1443	771.0
lost to all IX	1443	771.0

Analysis of: 22A MO COLUMBIA

HAAT 348.0 m, ATV ERP 53.9 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	414070	20656.4
not affected by terrain losses	413251	20504.0
lost to NTSC IX	517	48.1
lost to additional IX by ATV	306	56.1
lost to ATV IX only	362	64.2
lost to all IX	823	104.2

Analysis of: 21A NE HASTINGS

HAAT 223.0 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	207180	24211.8
not affected by terrain losses	207150	24191.8
lost to NTSC IX	0	0.0
lost to additional IX by ATV	26	36.0
lost to ATV IX only	26	36.0
lost to all IX	26	36.0

Analysis of: 22N KS TOPEKA (App)

	POPULATION	AREA (sq km)
within Noise Limited Contour	474168	21733.5
not affected by terrain losses	470237	21457.8
lost to NTSC IX	4711	83.9
lost to additional IX by ATV	31427	2573.3
lost to all IX	36138	2657.3

TABLE 1 (CONTINUED)
KTAJ-DT PATTERN BEFORE (ALLOTMENT)

Analysis of: 22N KS TOPEKA (Allotment)

	POPULATION	AREA (sq km)
within Noise Limited Contour	446545	20063.9
not affected by terrain losses	438386	19832.1
lost to NTSC IX	7095	12.0
lost to additional IX by ATV	34872	3224.8
lost to all IX	41967	3236.8

Analysis of: 20A MO JEFFERSON CITY

HAAT 293.0 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	474363	25719.7
not affected by terrain losses	468237	25418.5
lost to NTSC IX	780	92.4
lost to additional IX by ATV	1351	36.1
lost to ATV IX only	1562	44.2
lost to all IX	2131	128.5

TABLE 2
KTAJ-DT ERI C-3 PATTERN 1000kw ERP (AFTER)

Analysis of: 21A MO ST. JOSEPH

HAAT 315.8 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	1889805	27153.2
not affected by terrain losses	1889214	27053.4
lost to NTSC IX	1626	175.6
lost to additional IX by ATV	265	35.9
lost to ATV IX only	975	119.7
lost to all IX	1891	211.5

Analysis of: 19N MO KANSAS CITY

	POPULATION	AREA (sq km)	
within Noise Limited Contour	1753135	19171.7	
not affected by terrain losses	1750425	18964.2	
lost to NTSC IX	16615	167.6	
lost to additional IX by ATV	27499	2737.7	NEW POPULATION = 0
lost to all IX	44114	2905.3	NEW PERCENT = 0

Analysis of: 29N MO KANSAS CITY

	POPULATION	AREA (sq km)	
within Noise Limited Contour	1865594	25629.7	
not affected by terrain losses	1862611	25262.5	
lost to NTSC IX	6245	475.0	
lost to additional IX by ATV	13069	1345.1	NEW POPULATION = LESS
lost to all IX	19314	1820.1	NEW PERCENT = LESS

TABLE 2
KTAJ-DT ERI C-3 PATTERN 1000kw ERP (AFTER)

Analysis of: 21N MO SPRINGFIELD

	POPULATION	AREA (sq km)	
within Noise Limited Contour	514587	28392.0	
not affected by terrain losses	503292	27596.1	
lost to NTSC IX	0	0.0	
lost to additional IX by ATV	6496	623.9	NEW POPULATION = 5458
lost to all IX	6496	623.9	NEW PERCENT = 1.06

Analysis of: 21A IL MACOMB

HAAT 131.0 m, ATV ERP 75.0 kW

	POPULATION	AREA (sq km)	
within Noise Limited Contour	229632	13422.1	
not affected by terrain losses	229560	13382.0	
lost to NTSC IX	96	16.0	
lost to additional IX by ATV	1079	128.4	
lost to ATV IX only	1175	144.4	NEW POPULATION = 8
lost to all IX	1175	144.4	NEW PERCENT = 0.01

Analysis of: 21A KS WICHITA

HAAT 300.0 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)	
within Noise Limited Contour	681324	31354.0	
not affected by terrain losses	681085	30984.5	
lost to NTSC IX	0	0.0	
lost to additional IX by ATV	1512	907.5	
lost to ATV IX only	1512	907.5	NEW POPULATION = 69
lost to all IX	1512	907.5	NEW PERCENT = 0.01

Analysis of: 22A MO COLUMBIA

HAAT 348.0 m, ATV ERP 53.9 kW

	POPULATION	AREA (sq km)	
within Noise Limited Contour	414070	20656.4	
not affected by terrain losses	413251	20504.0	
lost to NTSC IX	517	48.1	
lost to additional IX by ATV	306	56.1	
lost to ATV IX only	362	64.2	NEW POPULATION = 0
lost to all IX	823	104.2	NEW PERCENT = 0

Analysis of: 21A NE HASTINGS

HAAT 223.0 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)	
within Noise Limited Contour	207180	24211.8	
not affected by terrain losses	207150	24191.8	
lost to NTSC IX	0	0.0	
lost to additional IX by ATV	26	36.0	
lost to ATV IX only	26	36.0	NEW POPULATION = 0
lost to all IX	26	36.0	NEW PERCENT = 0

TABLE 2
KTAJ-DT ERI C-3 PATTERN 1000kw ERP (AFTER)

Analysis of: 22N KS TOPEKA (APP)

	POPULATION	AREA (sq km)	
within Noise Limited Contour	474168	21733.5	
not affected by terrain losses	470237	21457.8	
lost to NTSC IX	4711	83.9	
lost to additional IX by ATV	33638	2725.2	NEW POPULATION = 2211
lost to all IX	38349	2809.1	NEW PERCENT = 0.47
			TOTAL PERCENT = 7.09

Analysis of: 22N KS TOPEKA (Allotment)

	POPULATION	AREA (sq km)	
within Noise Limited Contour	446545	20063.9	
not affected by terrain losses	438386	19832.1	
lost to NTSC IX	7095	12.0	
lost to additional IX by ATV	37589	3260.7	NEW POPULATION = 2717
lost to all IX	44684	3272.7	NEW PERCENT = 0.61
			TOTAL PERCENT = 8.42

Analysis of: 20A MO JEFFERSON CITY

HAAT 293.0 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)	
within Noise Limited Contour	474363	25719.7	
not affected by terrain losses	468237	25418.5	
lost to NTSC IX	780	92.4	
lost to additional IX by ATV	1351	36.1	
lost to ATV IX only	1562	44.2	NEW POPULATION = 0
lost to all IX	2131	128.5	NEW PERCENT = 0

CONCLUSION

The maximum predicted new interference of 1.06% of population, remains below 2% new interference. The total percentage of interference remains below 10% of population.

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