FEDERAL COMMUNICATIONS COMMISSION

CLASS OF STATION FM LCJ

The following application is submitted for action by the Chief, Broadcast Bureau.

ST	FILE NUMBER	CALL	APPLICANT AND LOCATION	NATURE OF APPLICATION
VA	BMPED -920414IF	WRXT 90.3MHZ	VISION COMMUNICATIONS, INC. ROANOKE VA	MOD. OF CP (BPH-880801ME) TO MAKE CHANGES: HAAT: 339 METERS (H&V); TL: TAYLORS MOUNTAIN, 5 KM @ 90 DEGREES TRUE FROM MONTVALE (BEDFORD CTY), VIRGINIA.

LICENSE EXPIRATION DATE _____

Jen Lois C. Jones
CHIEF, LICENSE DIVISION

RECOMMENDATION: GRANT( ) CONSTRUCTION DATES, START _____ END _____

CONTESTED ( ) UNCONTESTED ( )

APPROVED _____

_____
FOR CHIEF, BROADCAST BUREAU

F.C.C.-WASHINGTON, D.C.

Form A-378
January 1980

Federal Communications Commission
Washington, D. C. 20554

FCC 340

Approved by OMB
3060-0034
Expires 4/30/92
See Page 23 for information regarding public burden estimate

APPLICATION FOR CONSTRUCTION PERMIT FOR NONCOMMERCIAL EDUCATIONAL BROADCAST STATION

(Carefully read instructions before filing form) Return only form to FCC

code: 32
PN: 4/24/92

For Commission Use Only
File No. BMPED-920414IF

Section I - GENERAL INFORMATION

RECEIVED

1. Name of Applicant			Send notices and communications to the following person at the address below:		
Vision Communications, Inc.			Name: Mac Miller		
Street Address or P.O. Box: 2023 Westvan Drive, NE			Street Address or P.O. Box: 2023 Westvan Drive, NE		
City: Roanoke	State: VA	ZIP Code: 24012	City: Roanoke	State: VA	ZIP Code: 24012
Telephone No. (Include Area Code): (703) 977-1710			Telephone No. (Include Area Code): (703) 977-1710		

APR 14 1992
Federal Communications Commission
Office of the Secretary

2. This application is for: [ ] AM [X] FM [ ] TV

(a) Channel No. or Frequency	(b) Principal Community	City	State
212 (90.3 mHz)		Roanoke	VA

(c) Check one of the following boxes:

RECEIVED
APR 15 1992

[ ] Application for **NEW** station

[ ] **MAJOR** change in licensed facilities; call sign: _____

[ ] **MINOR** change in licensed facilities; call sign: _____

[ ] **MAJOR** modification of construction permit; call sign: _____

File No. of construction permit: _____

[X] **MINOR** modification of construction permit; call sign: WRXT

File No. of construction permit: BPED-880801ME

[ ] **AMENDMENT** to pending application; application file number: _____

NOTE: It is not necessary to use this form to amend a previously filed application. Should you do so, however, please submit only Section I and those other portions of the form that contain the amended information.

3. Is this application mutually exclusive with a renewal application? [ ] Yes [X] No

If Yes, state:	Call letters	Community of License: City	State

90.3MHZ
BMPED -920414IF WRXT
ROANOKE VA
VISION COMMUNICATIONS, INC.

Section V-B - FM BROADCAST ENGINEERING DATA	FOR COMMISSION USE ONLY File No. _____ ASB Referral Date _____ Referred by _____

Name of Applicant

Vision Communications, Inc.

Call letters *(if issued)*	Is this application being filed in response to a window? [X] Yes [ ] No
WRXT	If Yes, specify closing date: April 14, 1992

Purpose of Application: *(check appropriate boxes)*

- [ ] Construct a new (main) facility
- [ ] Construct a new auxiliary facility
- [X] Modify existing construction permit for main facility
- [ ] Modify existing construction permit for auxiliary facility
- [ ] Modify licensed main facility
- [ ] Modify licensed auxiliary facility

If purpose is to modify, indicate below the nature of change(s) and specify the file number(s) of the authorizations affected.

- [X] Antenna supporting-structure height
- [ ] Effective radiated power
- [X] Antenna height above average terrain
- [ ] Frequency
- [X] Antenna location
- [ ] Class
- [ ] Main Studio location
- [ ] Other *(Summarize briefly)*

File Number(s) BPED-880801ME

1. Allocation:

Channel No.	Principal community to be served: City	County	State
212	Roanoke	Roanoke	VA

Class *(check only one box below)*

[ ] A [ ] B1 [ ] B [ ] C3
[X] C2 [ ] C1 [ ] C [ ] D

2. Exact location of antenna.

(a) Specify address, city, county and state. If no address, specify distance and bearing relative to the nearest town or landmark.

Taylors Mountain, 5 kilometers @ 90 degrees True from Montvale (Bedford Cty), Virginia.

(b) Geographical coordinates (to nearest second). If mounted on element of an AM array, specify coordinates of center of array. Otherwise, specify tower location. Specify South Latitude or East Longitude where applicable; otherwise, North Latitude or West Longitude will be presumed.

Latitude	37°	23'	09"	Longitude	79°	40'	10"

3. Is the supporting structure the same as that of another station(s) or proposed in another pending application(s)? [ ] Yes [X] No

If Yes, give call letter(s) or file number(s) or both. _____

If proposal involves a change in height of an existing structure, specify existing height above ground level including antenna, all other appurtenances, and lighting, if any.

_____

4. Does the application propose to correct previous site coordinates? ☐ Yes ☒ No
If Yes, list old coordinates.

Latitude ° ' "	Longitude ° ' "

5. Has the FAA been notified of the proposed construction? ☒ Yes ☐ No
If Yes, give date and office where notice was filed and attach as an Exhibit a copy of FAA determination, if available.

Exhibit No.

Date April 13, 1992 Office where filed AEA Jamaica, NY

6. List all landing areas within 8 km of antenna site. Specify distance and bearing from structure to nearest point of the nearest runway.

	Landing Area	Distance (km)	Bearing (degrees True)
(a)			
(b)			

7. (a) Elevation: *(to the nearest meter)*

(1) of site above mean sea level; 701 meters

(2) of the top of supporting structure above ground (including antenna, all other appurtenances, and lighting, if any); and 47 meters

(3) of the top of supporting structure above mean sea level [(a)(1) + (a)(2)] 748 meters

(b) Height of radiation center: *(to the nearest meter)* H = Horizontal; V = Vertical

(1) above ground 44 meters (H)
44 meters (V)

(2) above mean sea level [(a)(1) + (b)(1)] 745 meters (H)
745 meters (V)

(3) above average terrain 339 meters (H)
339 meters (V)

8. Attach as an Exhibit sketch(es) of the supporting structure, labelling all elevations required in Question 7 above, except item 7(b)(3). If mounted on an AM directional-array element, specify heights and orientations of all array towers, as well as location of FM radiator.

Exhibit No. E-1

9. Effective Radiated Power:
(a) ERP in the horizontal plane 2.4 kw (H*) 2.4 kw (V*)

(b) Is beam tilt proposed? ☐ Yes ☒ No

If Yes, specify maximum ERP in the plane of the tilted beam, and attach as an Exhibit a vertical elevational plot of radiated field.

Exhibit No.

_____ kw (H*) _____ kw (V*)

*Polarization

10. Is a directional antenna proposed? [X] Yes [ ] No

If Yes, attach as an Exhibit a statement with all data specified in 47 C.F.R. Section 73.316, including plot(s) and tabulations of horizontally and vertically polarized radiated components in terms of relative field. Exhibit No. E-2

11. Will the main studio be located within the 70 dBu or 3.16 mV/m contour? [X] Yes [ ] No

If No, attach as an Exhibit justification pursuant to 47 C.F.R. Section 73.1125. Exhibit No.

12. Are there: (a) within 60 meters of the proposed antenna, any proposed or authorized FM or TV transmitters, or any nonbroadcast *(except citizens band or amateur)* radio stations; or (b) within the blanketing contour, any established commercial or government receiving stations, cable head-end facilities, or populated areas; or (c) within ten (10) kilometers of the proposed antenna, any proposed or authorized FM or TV transmitters which may produce receiver-induced intermodulation interference? [ ] Yes [X] No

If Yes, attach as an Exhibit a description of any expected, undesired effects of operations and remedial steps to be pursued if necessary, and a statement accepting full responsibility for the elimination of any objectionable interference (including that caused by receiver-induced or other types of modulation) to facilities in existence or authorized or to radio receivers in use prior to grant of this application. *(See 47 C.F.R. Sections 73.315(b), 73.316(d) and 73.318.)* Exhibit No.

13. Attach as an Exhibit a 7.5 minute series U.S. Geological Survey topographic quadrangle map that shows clearly, legibly, and accurately, the location of the proposed transmitting antenna. This map must comply with the requirements set forth in Instruction D for Section V. Further, the map must clearly and legibly display the original printed contour lines and data as well as latitude and longitude markings, and must bear a scale of distance in kilometers. Exhibit No. E-3

14. Attach as an Exhibit *(name the source)* a map which shows clearly, legibly, and accurately, and with the original printed latitude and longitude markings and a scale of distance in kilometers: Exhibit No. E-4

(a) the proposed transmitter location, and the radials along with profile graphs have been prepared;

(b) the 1 mV/m predicted contour and, for noncommercial educational applicants applying on a commercial channel, the 3.16 mV/m contour; and

(c) the legal boundaries of the principal community to be served.

15. Specify area in square kilometers (1 sq. mi. = 2.59 sq. km.) and population (latest census) within the predicted 1 mV/m contour.

See E-4 - Figure 2

Area 2,788.3 sq. km. Population 235,992

16. Attach as an Exhibit a map *(Sectional Aeronautical charts where obtainable)* showing the present and proposed 1 mV/m (60 dbu) contours. Exhibit No. E-4

Enter the following from Exhibit above: Gain Area 318 sq. mi.
Loss Area 625 sq. mi.

Percent change (gain area plus loss area as percentage of present area) 41 %.
If 50% or more this constitutes a major change. Indicate in question 2(c), Section I, accordingly.

17. For an application involving an auxiliary facility only, attach as an Exhibit a map *(Sectional Aeronautical Chart or equivalent)* that shows clearly, legibly, and accurately, and with latitude and longitude markings and a scale of distance in kilometers:

Exhibit No.

(a) the proposed auxiliary 1 mV/m contour; and

(b) the 1 mV/m contour of the licensed main facility for which the applied-for facility will be auxiliary. Also specify the file number of the license. See 47 C.F.R. Section 73.1675. (File No.:_____)

18. Terrain and coverage data *(to be calculated in accordance with 47 C.F.R. Section 73.313).*

Source of terrain data: *(check only one box below)*

[X] Linearly interpolated 30-second database [ ] 7.5 minute topographic map

(Source: NGDC)

[ ] Other *(briefly summarize)*

Radial bearing (degrees True)	Height of radiation center above average elevation of radial from 3 to 16 km (meters)	Predicted Distances to the 1 mV/m contour (kilometers)
0	Please see Exhibit E-5	
45		
90		
135		
180		
225		
270		
315		

Allocation Studies

(See Subpart C of 47 C.F.R. Part 73)

19. Is the proposed antenna location within 320 kilometers (199 miles) of the common border between the United States and Mexico? [ ] Yes [X] No

If Yes, attach as an Exhibit a showing of compliance with all provisions of the Agreement between the United States of America and the United Mexican States concerning Frequency Modulation Broadcasting in the 88 to 108 MHz band.

Exhibit No.

20. Is the proposed antenna location within 320 kilometers of the common border between the United States and Canada? ☐ Yes ☒ No

If Yes, attach as an Exhibit a showing of compliance with all provisions of the Working Agreement for Allocation of FM Broadcasting Stations on Channels 201-300 under The Canada-United States FM Agreement of 1947. Exhibit No.

21. If the proposed operation is for a channel in the range from channel 201 through 220 (88.1 through 91.9 MHz), or if this proposed operation is for a class D station in the range from Channel 221 through 300 (92.1 through 107.9 MHz), attach as an Exhibit a complete allocation study to establish the lack of prohibited overlap of contours with other U.S. stations. The allocation study should include the following: Exhibit No. E-6

(a) The normally protected interference-free and the interfering contours for the proposed operation along all azimuths.
(b) Complete normally protected interference-free contours of all other proposals and existing stations to which objectionable interference would be caused.
(c) Interfering contours over pertinent arcs of all other proposals and existing stations from which objectionable interference would be received.
(d) Normally protected and interfering contours over pertinent arcs, of all other proposals and existing stations, which require study to show the absence of objectionable interference.
(e) Plot of the transmitter location of each station or proposal requiring investigation, with identifying call letters, file numbers and operating or proposed facilities.
(f) When necessary to show more detail, an additional allocation study will be attached utilizing a map with a larger scale to clearly show interference or absence thereof.
(g) A scale of kilometers and properly labeled longitude and latitude lines, shown across the entire Exhibit(s). Sufficient lines should be shown so that the location of the sites may be verified.
(h) The name of the map(s) used in the Exhibit(s).

22. With regard to any stations separated by 53 or 54 channels (10.6 or 10.8 MHz) attach as an Exhibit information required in 1/ *(separation requirements involving intermediate frequency (i.f.) interference)*. Exhibit No. E-6

23.(a) Is the proposed operation on Channel 218, 219, or 220? ☐ Yes ☒ No

(b) If the answer to (a) is yes, does the proposed operation satisfy the requirements of 47 C.F.R. Section 73.207? ☐ Yes ☐ No

(c) If the answer to (b) is yes, attach as an Exhibit information required in 1/ regarding separation requirements with respect to stations on Channels 221, 222 and 223. Exhibit No.

(d) If the answer to (b) is no, attach as an Exhibit a statement describing the short spacing(s) and how it or they arose. Exhibit No.

1/ A showing that the proposed operation meets the minimum distance separation requirements. Include existing stations, proposed stations, and cities which appear in the Table of Allotments; the location and geographic coordinates of each antenna, proposed antenna or reference point, as appropriate; and distance to each from proposed antenna location.

(e) If authorization pursuant to 47 C.F.R. Section 73.215 is requested, attach as an Exhibit a complete engineering study to establish the lack of prohibited overlap of contours involving affected stations. The engineering study must include the following:

Exhibit No.

(1) Protected and interfering contours, in all directions (360°), for the proposed operation.
(2) Protected and interfering contours, over pertinent arcs, of all short-spaced assignments, applications and allotments, including a plot showing each transmitter location, with identifying call letters or file numbers, and indication of whether facility is operating or proposed. For vacant allotments, use the reference coordinates as transmitter location.
(3) When necessary to show more detail, an additional allocation study utilizing a map with a larger scale to clearly show prohibited overlap will not occur.
(4) A scale of kilometers and properly labeled longitude and latitude lines, shown across the entire exhibit(s). Sufficient lines should be shown so that the location of the sites may be verified.
(5) The official title(s) of the map(s) used in the exhibits(s).

24. Is the proposed station for a channel in the range from Channel 201 to 220 (88.1 through 91.9 MHz) and the proposed antenna location within the distance to an affected TV Channel 6 station(s) as defined in 47 C.F.R. Section 73.525? [X] Yes [ ] No

If Yes, attach as an Exhibit either a TV Channel 6 agreement letter dated and signed by both parties or a map and an engineering statement with calculations demonstrating compliance with 47 C.F.R. Section 73.525 for each affected TV Channel 6 station.

Exhibit No. E-7

25. Is the proposed station for a channel in the range from Channel 221 to 300 (92.1-107.9 MHz)? [ ] Yes [X] No

If Yes, attach as an Exhibit information required in 1/. *(Except for Class D (secondary) proposals.)*

Exhibit No.

26. Environmental Statement *(See 47 C.F.R. Section 1.1301 et seq.)*

Would a Commission grant of this application come within Section 1.1307 of the FCC Rules, such that it may have a significant environmental impact? [ ] Yes [X] No

If you answer Yes, submit as an Exhibit an Environmental Assessment required by Section 1.1311.

Exhibit No. E-8

If No, explain briefly why not.

CERTIFICATION

I certify that I have prepared this Section of this application on behalf of the applicant, and that after such preparation, I have examined the foregoing and found it to be accurate and true to the best of my knowledge and belief.

Name *(Typed or Printed)* James E. Price	Relationship to Applicant *(e.g., Consulting Engineer)* Technical Consultant
Signature	Address *(Include ZIP Code)* P.O. Box 80484 Chattanooga, TN 37411
Date April 13, 1992	Telephone No. *(Include Area Code)* (615) 847-1212

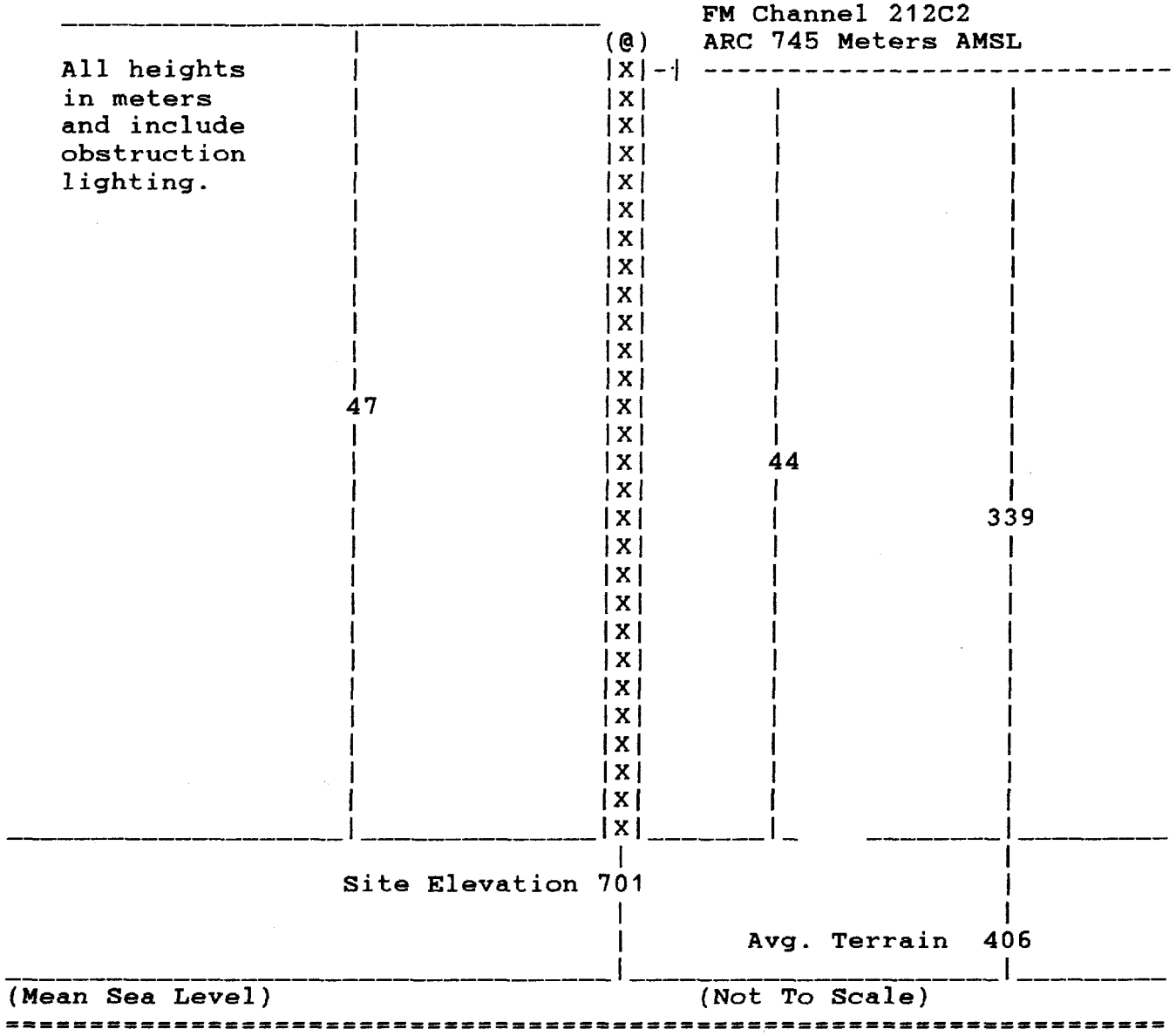
Exhibit E-1
Vision Communications, Inc.
Roanoke, Virginia
Vertical Plan Sketch

North Latitude 37-23-09
West Longitude 79-40-10

Overall Structure Height
748 Meters AMSL

FM Channel 212C2
ARC 745 Meters AMSL

All heights in meters and include obstruction lighting.



MARCH 19, 1991

DUAL POLARIZED DIRECTIONAL ANTENNA SYSTEM PROPOSED FOR THE NEW STATION LOCATED IN ROANOKE, VIRGINIA

Electronics Research Inc. proposes to provide a custom fabricated directional antenna system that is specially designed to meet the F.C.C. requirements and the general needs of the new station.

The antenna is the Continental Electronics G4D-1A-SP configuration. The horizontal component of the dual polarized system consists of two half-wavelength spaced horizontally polarized bays using two driven horizontal dipoles and 2 horizontal parasitic elements per bay. The vertical component of the system consists of one vertical radiating bay using one driven vertical dipole and 4 vertical parasitic elements. The vertical bay is interspursed between the horizontal bays. A power divider will be used near the bottom of the antenna to feed the system. The antenna will be tested on a 8 5/8" o.d. pole, which is the structure recommended to support the proposed array. All tests will be performed on a frequency of 90.3 megahertz which is the center of the FM broadcast channel assigned to the new station.

Pattern measurements will be made on a fifty-acre antenna pattern range which is owned and operated by Electronics Research, Inc. The tests will be performed under the direction of Thomas B. Silliman, president of Electronics Research, Inc. Mr. Silliman has both the Bachelor of Electrical Engineering and the Master of Electrical Engineering degrees from Cornell University, and is also a registered professional engineer in the states of Indiana, Maryland and Minnesota.

DESCRIPTION OF THE TEST PROCEDURE

The test antenna will consist of the complete dual polarized system with the associated horizontal and vertical parasitic elements. The elements and brackets that will be used in this test are electrically equivalent to those that will be supplied with the proposed antenna. Sections of 3 1/8 inch o.d. rigid coaxial line will be used to feed the test antenna, and sections of 3 1/8 inch o.d. rigid outer conductor only will be attached above the test antenna. The lines will be properly grounded during all tests.

MARCH 19, 1991

DUAL POLARIZED DIRECTIONAL ANTENNA SYSTEM
PROPOSED FOR THE NEW STATION
LOCATED IN ROANOKE, VIRGINIA

(Continued)

The proof-of-performance will be accomplished using a supporting structure of identical dimensions and configuration as the proposed 8 5/8" o.d. pole, including all braces, ladders, conduits, coaxial lines and other appurtenances that are included in the actual aperture at which the proposed antenna will be installed. The 8 5/8" o.d. pole will be erected vertically on a turntable mounted on a non-metalic building with the antenna centered vertically on the structure, making the center of radiation of the test approximately 25 feet above ground. The turntable is equipped with a motor drive and azimuth indicating mechanism, resolution of this azimuth measuring system is one-tenth of a degree.

The antenna under test will be operated in the transmitting mode and fed from a Wavetek Model 3000 signal generator. The frequency of the signal source will be set at 90.3Mhz and will be constantly monitored by an Anritsu Model ML521B measuring receiver.

A broad-band horizontal and vertical dipole system, located approximately 628 feet from the test antenna, and mounted at the same height above terrain as the center of the antenna under test, will be used to receive the emitted test signals. The signals received by the dipole system will be fed to test building by way of two buried Heliax cables to an Anritsu Model ML521B measuring receiver. This data will be interfaced to a Hewlett-Packard Model 9872C plotter by means of a Hewlett-Packard Model 86 computer system. Relative field strength will be plotted as a function of azimuth.

The measurements will be performed by rotating the test antenna in a counter-clockwise direction and plotting the received signal on polar co-ordinated graph paper in a clockwise direction. Both horizontal and vertical components will be recorded separately.

CONCLUSIONS

The horizontal component of the dual polarized system consists of two half-wavelength spaced horizontally polarized bays using two driven horizontal dipoles and 2 horizontal parasitic elements

MARCH 19, 1991

DUAL POLARIZED DIRECTIONAL ANTENNA SYSTEM
PROPOSED FOR THE NEW STATION
LOCATED IN ROANOKE, VIRGINIA

(Continued)

per bay. The vertical component of the system consists of one vertical radiating bay using one driven vertical dipole and 4 vertical parasitic elements. The vertical bay is interspursed between the horizontal bays. A power divider will be used near the bottom of the antenna to feed the system. The power distribution and phase relationship will be fixed when the antenna is manufactured. Proper maintenance of the elements should be all that is required to maintain the pattern in adjustment.

The pattern shown on figure # 1 is based on measured data with a similar array orientated on a similar structure at a bearing of north 0 degrees east. Actual antenna orientation will be determined when the antenna is tested. Blue prints provided with the antenna will show the proper antenna orientation alignment. The antenna alignment procedure should be directed by a licensed surveyor as prescribed by the FCC.

Deicers are not supplied and are not available. The use of radomes is recommended if icing conditions will exist at the proposed site.

Figure #1 represents the maximum value of either the horizontal or vertical component at any azimuth. A calculated vertical plane relative field pattern for the vertically polarized component is shown on Figure #3 attached. A calculated vertical plane relative field pattern for the horizontally polarized component is shown on Figure #3A attached. The power in the maximum will reach 2.4 kilowatts (3.802 DBK).

The RMS of the vertically polarized horizontal plane component does not exceed the RMS of the horizontally polarized horizontal plane component.

The envelope pattern obtained from the maximum individual horizontal or vertical components will not exceed a rate of change of 2 DB per any ten degree change in azimuth as measured in the horizontal plane.

The approximate weight of the antenna minus the mounting structure is 372 lbs. The approximate windload of the antenna

MARCH 19, 1991

DUAL POLARIZED DIRECTIONAL ANTENNA SYSTEM
PROPOSED FOR THE NEW STATION
LOCATED IN ROANOKE, VIRGINIA

(Continued)

minus the mounting structure is 658 lbs based on 50/33 PSF(112 MPH wind) with no ice build up. The clear vertical length of the structure required to support the antenna is 26 feet if the antenna is to be top mounted.

The directional antenna should not be mounted on the top of an antenna tower which includes a top-mounted platform larger than the cross-sectional area of the tower in the horizontal plane. No other obstructions other than those that are specified by the blue prints supplied with the antenna are to be mounted at the same tower level as the directional antenna. No obstruction of any type is to be within 75ft horizontally of the antenna system. The vertical distance to the nearest obstruction should be a minimum of 10ft from the directional antenna.

The calculated maximum power gain of the envelope pattern as shown on figure # 1 is .92 (-.36dB), which would require an input power of 2.604 kilowatts. A calculated power gain of an antenna that has a horizontal and vertical R.M.S. that is equal to 85% of the R.M.S. of the envelope would have a power gain of 1.27 and would require an input power of 1.881 kilowatts. The input flange to the antenna is 1 5/8 inch male.

Dan Drudle (B.E.)

ELECTRONICS RESEACH, INC.
108 Market Street
Newburgh, In 47630

Exhibit E-2, Cont'd
Vision Communications, Inc.
Roanoke, Virginia
Use Of Directional Antenna

Use Of Directional Antenna

FOR FIGURE: 1 MARCH 19, 1991
HORIZONTAL PLANE RELATIVE FIELD & DBK LIST
FOR A NEW STATION 90.3MHz

AZIMUTH	H POL RELATIVE FIELD	H POL DBK	H POL POWER KW	V POL RELATIVE FIELD	V POL DBK	V POL POWER KW	AZIMUTH	H POL RELATIVE FIELD	H POL DBK	H POL POWER KW	V POL RELATIVE FIELD	V POL DBK	V POL POWER KW
0.0	.600	-22.22	.86	.600	-22.22	.86	180.0	.447	-24.78	.48	.447	-24.78	.48
5.0	.600	-22.22	.86	.600	-22.22	.86	185.0	.456	-24.61	.50	.456	-24.61	.50
10.0	.600	-22.22	.86	.600	-22.22	.86	190.0	.476	-24.23	.54	.476	-24.23	.54
15.0	.600	-22.22	.86	.600	-22.22	.86	195.0	.508	-23.66	.62	.508	-23.66	.62
20.0	.600	-22.22	.86	.600	-22.22	.86	200.0	.552	-22.95	.73	.552	-22.95	.73
25.0	.600	-22.22	.86	.600	-22.22	.86	205.0	.607	-22.12	.88	.607	-22.12	.88
30.0	.600	-22.22	.86	.600	-22.22	.86	210.0	.674	-21.21	1.09	.674	-21.21	1.09
35.0	.609	-22.09	.89	.609	-22.09	.89	215.0	.740	-20.39	1.32	.740	-20.39	1.32
40.0	.630	-21.79	.95	.630	-21.79	.95	220.0	.795	-19.77	1.52	.795	-19.77	1.52
45.0	.664	-21.34	1.06	.664	-21.34	1.06	225.0	.839	-19.31	1.69	.839	-19.31	1.69
50.0	.709	-20.77	1.21	.709	-20.77	1.21	230.0	.871	-18.98	1.82	.871	-18.98	1.82
55.0	.767	-20.09	1.41	.767	-20.09	1.41	235.0	.891	-18.78	1.91	.891	-18.78	1.91
60.0	.833	-19.37	1.67	.833	-19.37	1.67	240.0	.900	-18.70	1.94	.900	-18.70	1.94
65.0	.891	-18.78	1.90	.891	-18.78	1.90	245.0	.900	-18.70	1.94	.900	-18.70	1.94
70.0	.936	-18.35	2.10	.936	-18.35	2.10	250.0	.900	-18.70	1.94	.900	-18.70	1.94
75.0	.970	-18.05	2.26	.970	-18.05	2.26	255.0	.900	-18.70	1.94	.900	-18.70	1.94
80.0	.991	-17.86	2.36	.991	-17.86	2.36	260.0	.900	-18.70	1.94	.900	-18.70	1.94
85.0	1.000	-17.78	2.40	1.000	-17.78	2.40	265.0	.900	-18.70	1.94	.900	-18.70	1.94
90.0	1.000	-17.78	2.40	1.000	-17.78	2.40	270.0	.900	-18.70	1.94	.900	-18.70	1.94
95.0	1.000	-17.78	2.40	1.000	-17.78	2.40	275.0	.900	-18.70	1.94	.900	-18.70	1.94
100.0	1.000	-17.78	2.40	1.000	-17.78	2.40	280.0	.900	-18.70	1.94	.900	-18.70	1.94
105.0	1.000	-17.78	2.40	1.000	-17.78	2.40	285.0	.900	-18.70	1.94	.900	-18.70	1.94
110.0	1.000	-17.78	2.40	1.000	-17.78	2.40	290.0	.900	-18.70	1.94	.900	-18.70	1.94
115.0	.992	-17.85	2.36	.992	-17.85	2.36	295.0	.900	-18.70	1.94	.900	-18.70	1.94
120.0	.974	-18.01	2.28	.974	-18.01	2.28	300.0	.894	-18.76	1.92	.894	-18.76	1.92
125.0	.945	-18.28	2.14	.945	-18.28	2.14	305.0	.863	-19.06	1.79	.863	-19.06	1.79
130.0	.905	-18.65	1.97	.905	-18.65	1.97	310.0	.808	-19.64	1.57	.808	-19.64	1.57
135.0	.855	-19.14	1.76	.855	-19.14	1.76	315.0	.729	-20.52	1.28	.729	-20.52	1.28
140.0	.795	-19.78	1.52	.795	-19.78	1.52	320.0	.662	-21.37	1.05	.662	-21.37	1.05
145.0	.723	-20.59	1.26	.723	-20.59	1.26	325.0	.618	-21.96	.92	.618	-21.96	.92
150.0	.652	-21.49	1.02	.652	-21.49	1.02	330.0	.600	-22.22	.86	.600	-22.22	.86
155.0	.592	-22.34	.84	.592	-22.34	.84	335.0	.600	-22.22	.86	.600	-22.22	.86
160.0	.542	-23.10	.70	.542	-23.10	.70	340.0	.600	-22.22	.86	.600	-22.22	.86
165.0	.502	-23.76	.61	.502	-23.76	.61	345.0	.600	-22.22	.86	.600	-22.22	.86
170.0	.473	-24.28	.54	.473	-24.28	.54	350.0	.600	-22.22	.86	.600	-22.22	.86
175.0	.455	-24.62	.50	.455	-24.62	.50	355.0	.600	-22.22	.86	.600	-22.22	.86

CITY OF LICENSE: ROANOKE, VIRGINIA
MOUNTING STRUCTURE: 8 5/8" O.D. POLE
ANTENNA TYPE: G4D-1A-SP NUMBER OF BAYS: 1
HORIZONTAL MAXIMUM RELATIVE FIELD= 1 AZIMUTH 85
HORIZONTAL MINIMUM RELATIVE FIELD= .447 AZIMUTH 180
VERTICAL MAXIMUM RELATIVE FIELD= 1 AZIMUTH 85
VERTICAL MIMIMUM RELATIVE FIELD= .447 AZIMUTH 180
HORIZONTAL R.M.S.=.77530 VERTICAL R.M.S.=.77526
MAXIMUM HORIZONTAL E.R.P.= 2.4000KW MAXIMUM VERTICAL E.R.P.= 2.4000KW
TOTAL POWER INPUT= 2.6041KW
MAXIMUM HORIZONTAL POWER GAIN OF COMPLETE ARRAY= .92 (-.36 db)
MAXIMUM VERTICAL POWER GAIN OF COMPLETE ARRAY= .92 (-.36 db)
ANTENNA ORIENTATION: NORTH 0 DEGREES EAST
PATTERN REFERENCE #WACMOD4477

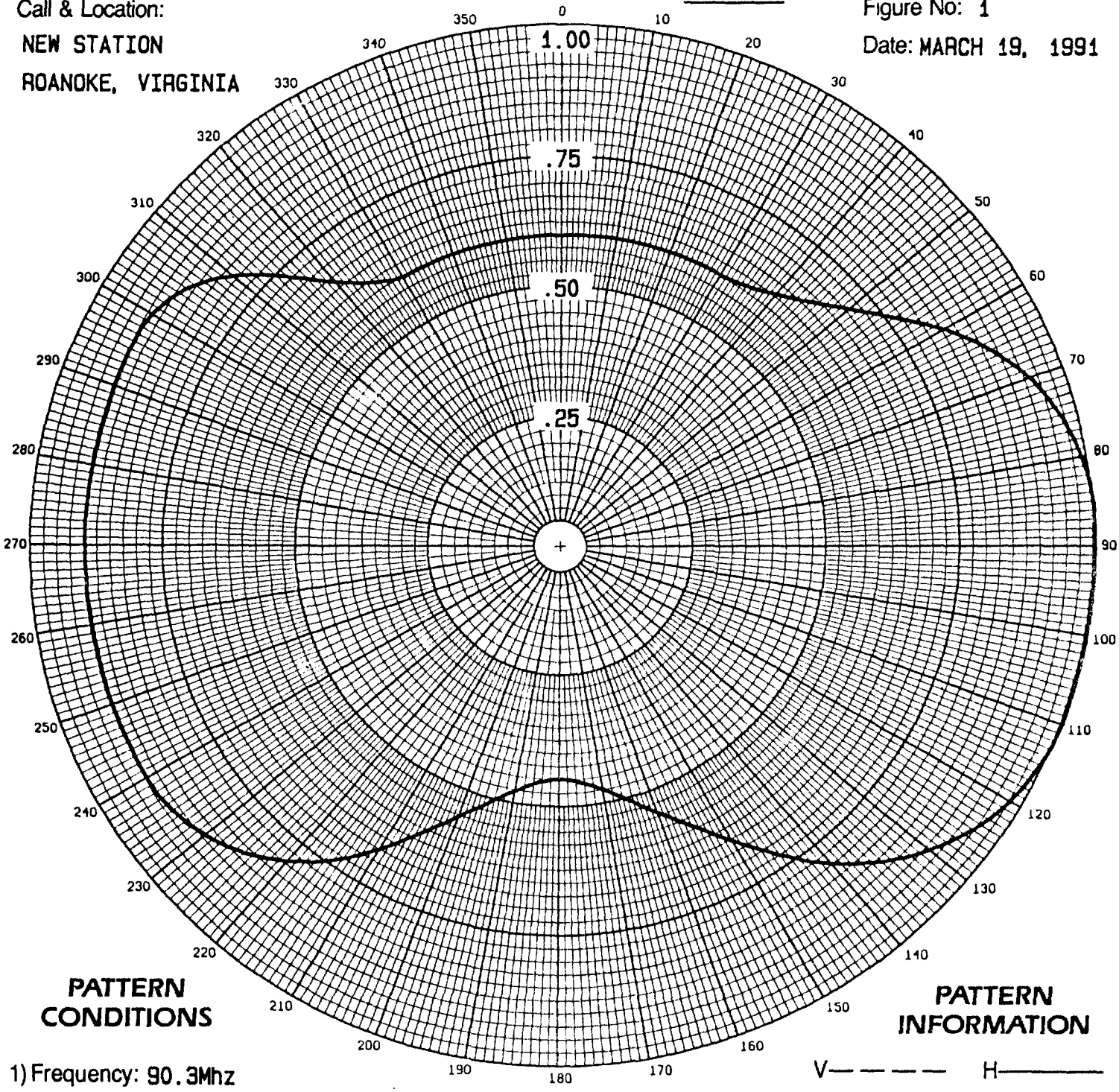
Exhibit E-2, Cont'd
Vision Communications, Inc.
Roanoke, Virginia
Use Of Directional Antenna

HORIZONTAL PLANE RELATIVE FIELD PATTERN

Call & Location:
NEW STATION
ROANOKE, VIRGINIA

MEASURED
CALCULATED

Figure No: 1
Date: MARCH 19, 1991



PATTERN CONDITIONS

1) Frequency: 90.3Mhz
2) Antenna Type: G4D-1A-SP
3) Antenna Orientation: North 0 Deg. East
4) Antenna Mounting: CUSTOM
5) Tower Type: 8 5/8" o.d. pole

PATTERN INFORMATION

V— — — — H————

VERTICAL	HORIZONTAL
Rms: .7753	Rms: .7753
Maximum: 1 N85°E	Maximum: 1 N85°E
Minimum: .447 N180°E	Minimum: .447 N180°E

6) Comments: CALCULATED DATA- The composite maximum achievable value of either horizontal or vertical component.

Exhibit E-2, Cont'd
Vision Communications, Inc.
Roanoke, Virginia
Use Of Directional Antenna

ERI Electronics Research Inc. 108 Market St. • Newburgh, In.

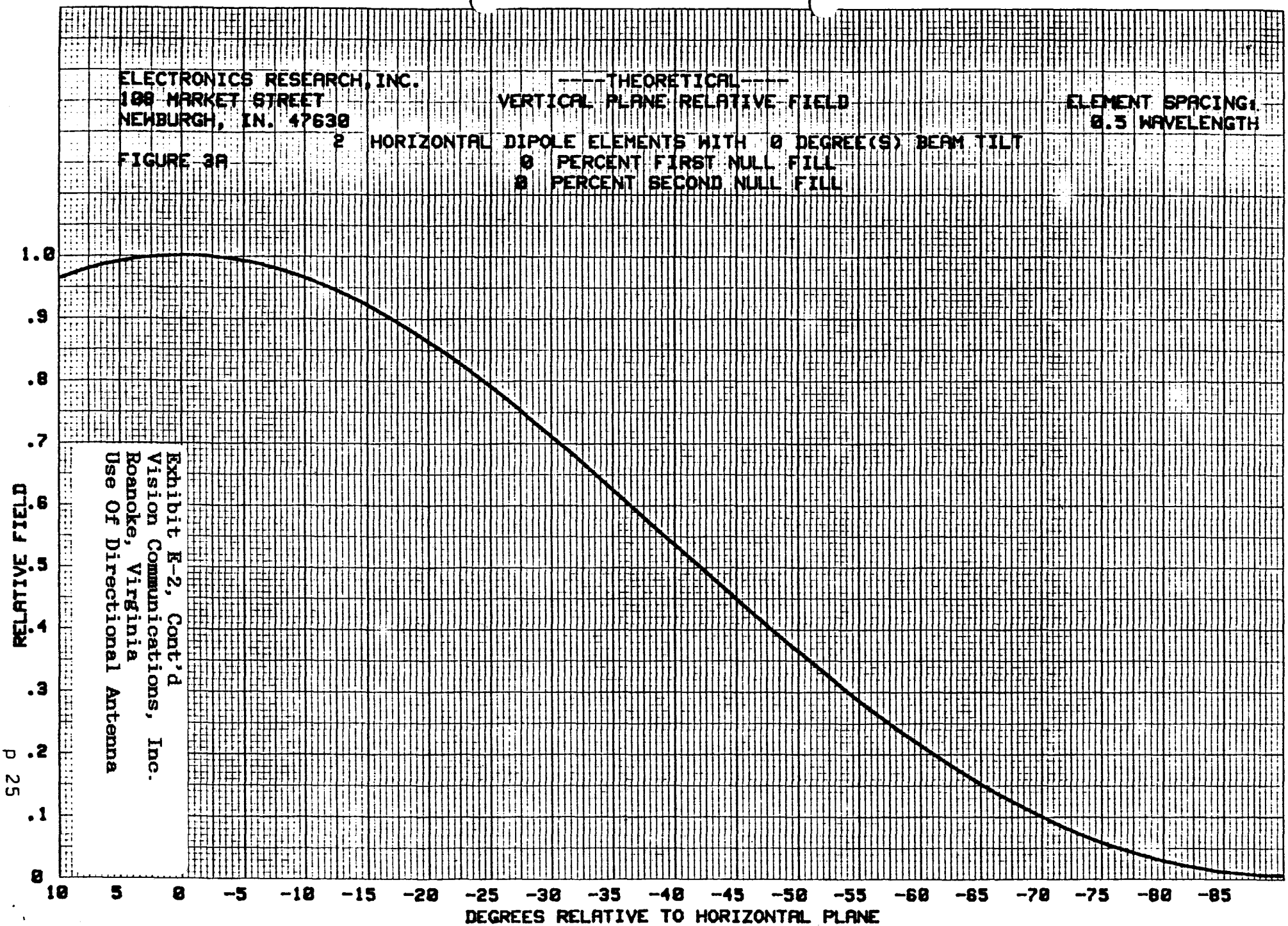


Exhibit E-2, Cont'd
Vision Communications, Inc.
Roanoke, Virginia
Use Of Directional Antenna

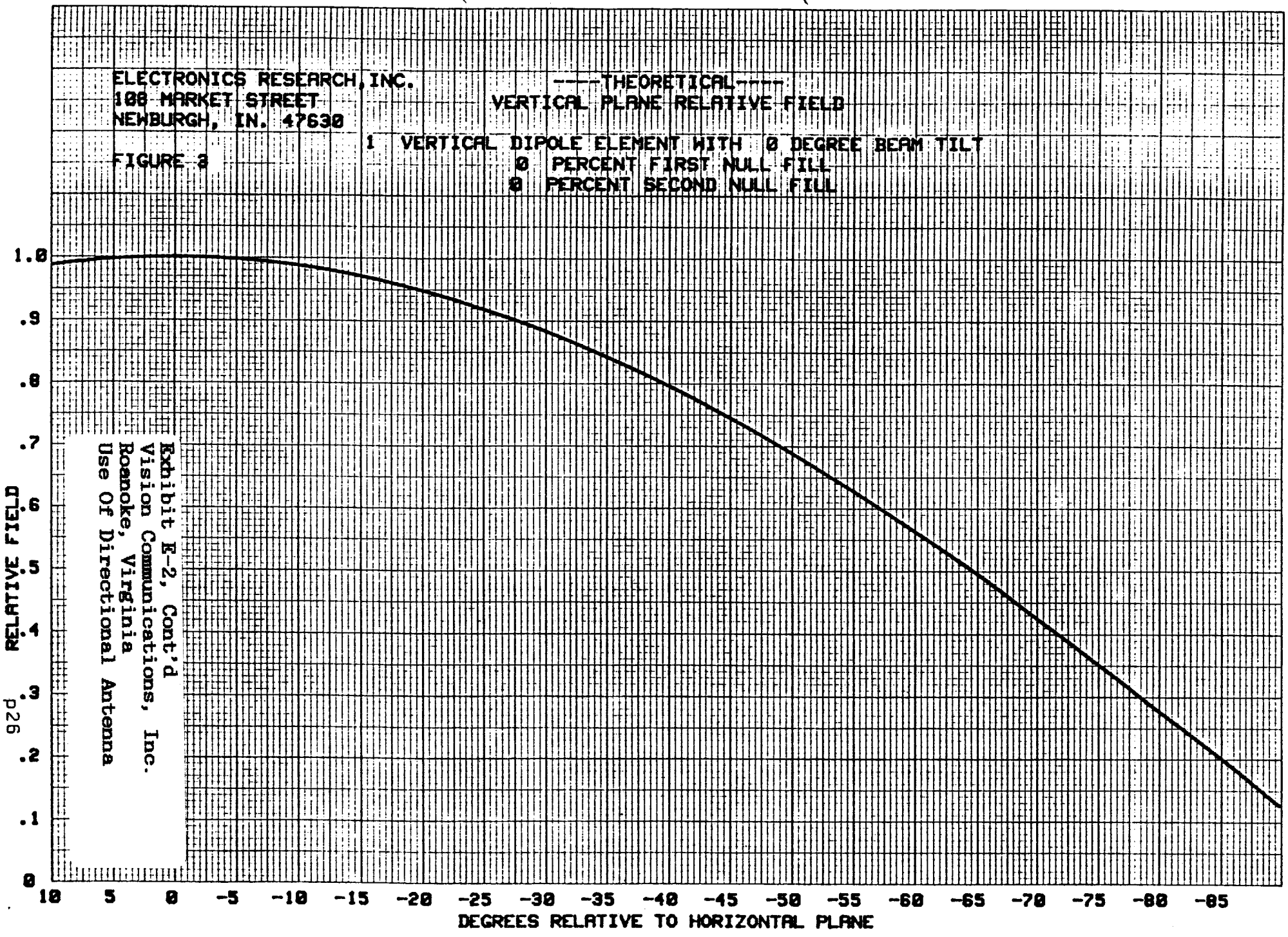


Exhibit E-2, Cont'd
Vision Communications, Inc.
Roanoke, Virginia
Use Of Directional Antenna

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

COMMONWEALTH OF VIRGINIA
DIVISION OF MINERAL RESOURCES

7.5 MINUTE SERIES (TOPOGRAPHIC)

Exhibit E-3 - Figure 1
Vision Communications, Inc.
Roanoke, Virginia
WRXT Roanoke, VA
Site Map - Reduced

Mapped, edited and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1966. Field checked 1967.

Projection and 10,000-foot grid ticks based on Virginia coordinate system, south zone

10,000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue. 1927 North American Datum

To place on the grid of North American Datum 1983 trace the grid ticks from 10 meters south and 200 meters east as shown by dashed corner ticks.

Fine red dashed lines indicate selected land and water areas officially known or used as parks, forests, and other areas administered by the National or State governments shown on this map.

There may be private holdings within the boundaries of the National or State reservations shown on this map.

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS

FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
AND VIRGINIA DIVISION OF MINERAL RESOURCES, CHARLOTTESVILLE, VIRGINIA 22903
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

MALCOLM BLUE PRINT
P. O. BOX 1176 – 240 S. 11th
ROANOKE, VA 24008
703 342-6044

ROAD CLASSIFICATION

Primary highway, all weather — Light duty road, all weather
Hard surface — Unimproved dirt

Interstate Route — U. S. Route — State Route

MONTVALE, VA

Exhibit E-3 - Figure 2
Vision Communications, Inc.
Roanoke, Virginia
WRXT Roanoke, VA
Site Map - Full Scale

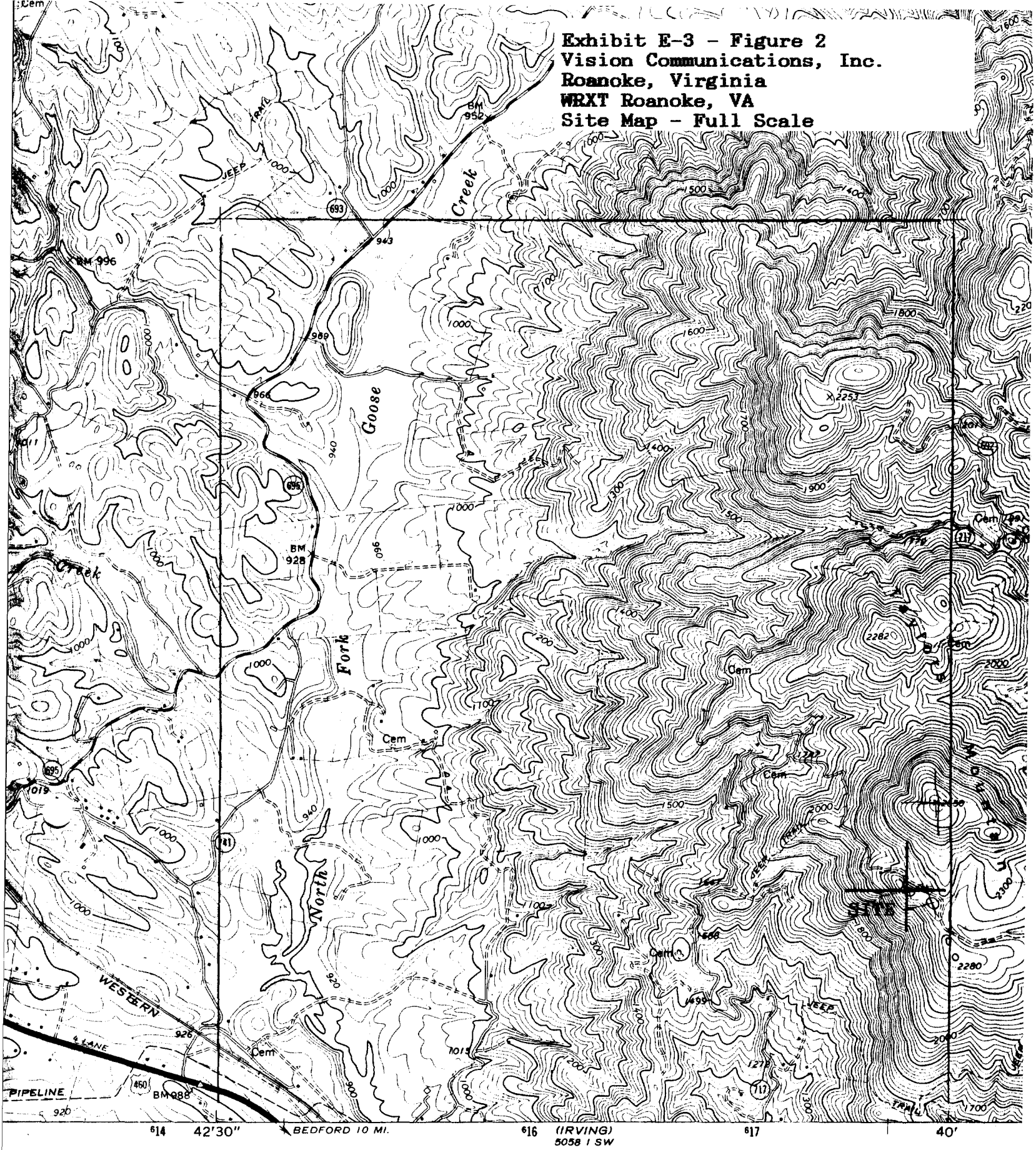


Exhibit E-4 - Figure 1
Vision Communications, Inc.
Roanoke, Virginia
60 dBu Service
Cincinnati Sectional

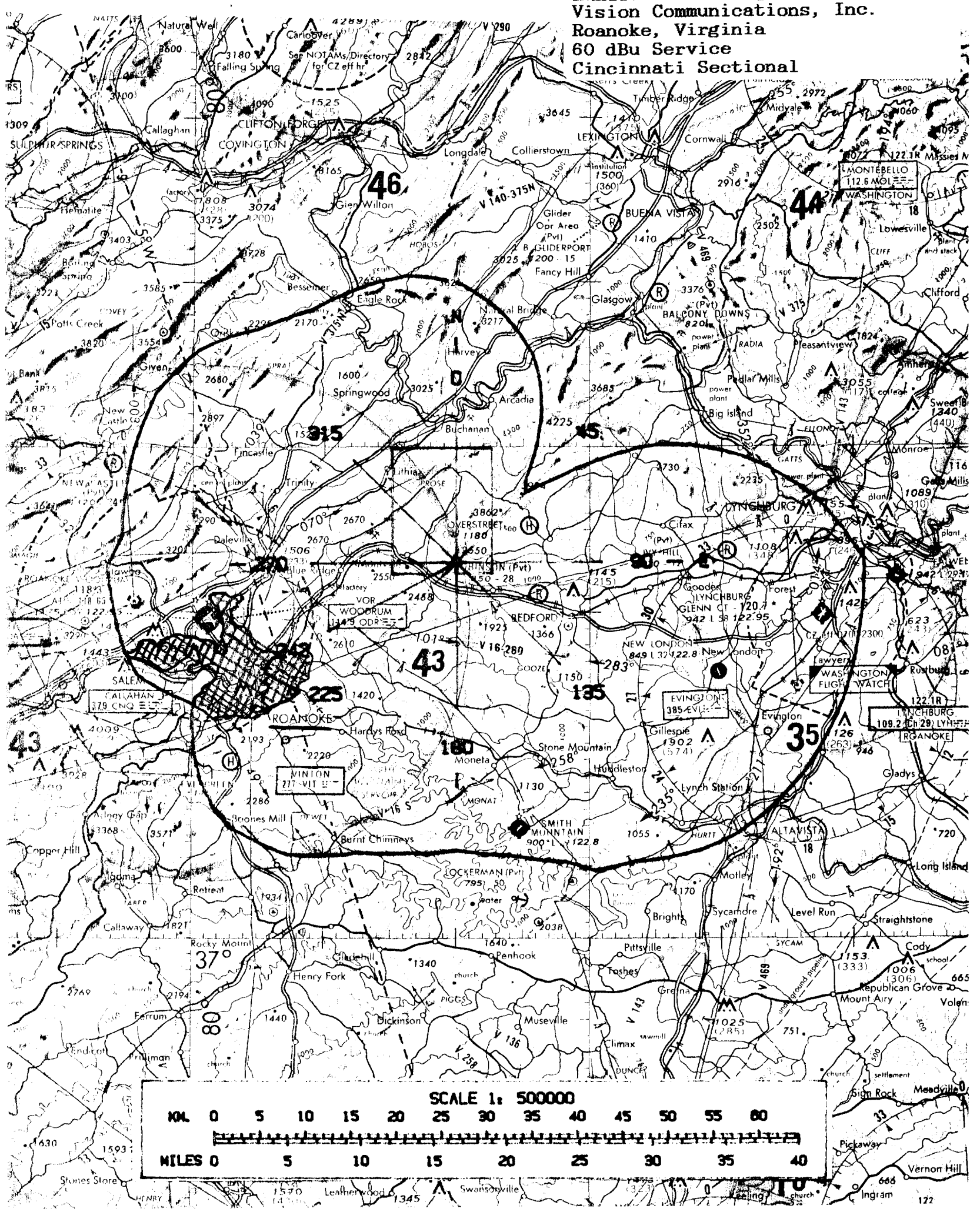
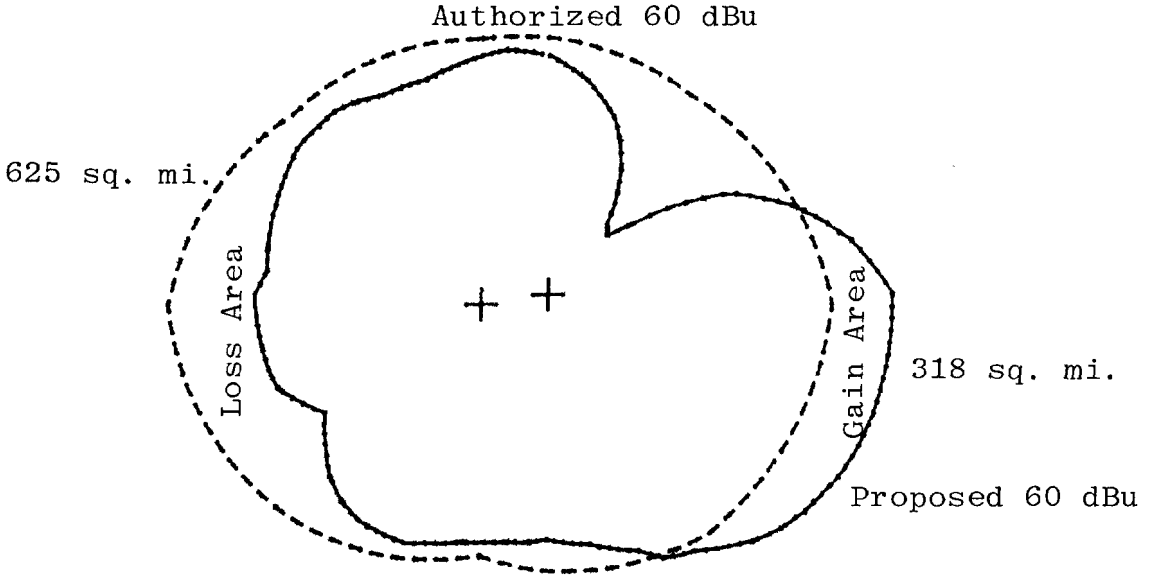


Exhibit E-4 - Figure 2
Vision Communications, Inc.
Roanoke, Virginia
Extent of Change



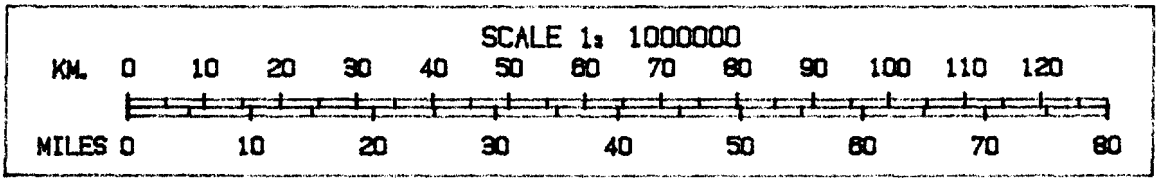


Exhibit E-5
Vision Communications, Inc.
Roanoke, Virginia
WRXT Roanoke, VA
Tabulation Of Contours

TABULATION OF TV/FM CONTOUR CALCULATIONS ON CHANNEL 212

AZIMUTH	ERP, KW.	HAAT (M)	70/50%	60/50%	40/10%	54/10%	80/10%	100/10%
0	.864	316.08	18.235	31.245	85.612	46.946	10.304	1.9299
45	1.0582	6.7057	5.7961	10.895	37.488	14.918	3.2118	.65944
90	2.4	439.22	27.838	45.271	114.16	68.36	15.216	3.1252
135	1.7545	457.21	26.524	43.456	111.01	65.714	14.423	2.7951
180	.47954	450.8	18.862	32.151	90.91	49.775	10.002	1.4348
225	1.6894	353.88	23.308	38.277	98.799	57.449	12.894	2.6557
270	1.944	339.25	23.606	38.652	99.276	57.833	13.098	2.7811
315	1.2755	349.61	21.562	35.752	94.277	53.862	11.962	2.357
10	.864	247.33	15.744	28.397	78.903	42.057	9.0287	1.8902
20	.864	178.58	13.888	24.67	70.927	35.673	7.4892	1.7666
25	.864	144.21	12.527	22.103	65.644	31.683	6.6738	1.6616
30	.864	109.83	10.846	18.894	60.175	28.17	5.8224	1.511
40	.95256	41.081	6.3331	11.987	41.565	16.306	3.5988	.7954
50	1.2064	54.764	7.8753	14.481	51.082	21.736	4.4872	1.2206
60	1.6653	150.88	14.702	26.258	75.716	38.539	8.0153	2.1964
70	2.1026	246.99	20.416	33.928	90.962	50.916	11.616	2.7433
80	2.357	343.12	24.832	40.43	102.68	60.365	13.749	2.9863
100	2.4	443.22	27.948	45.459	114.61	68.687	15.273	3.129
110	2.4	447.21	28.057	45.649	115.06	69.015	15.331	3.1329
120	2.2768	451.2	27.863	45.392	114.62	68.653	15.212	3.0785
130	1.9657	455.19	27.124	44.329	112.57	67.048	14.777	2.9194
140	1.5169	457.85	25.7	42.244	108.82	63.901	13.941	2.6339
150	1.0202	459.16	23.44	38.92	102.77	59.288	12.62	2.1942
156	.90038	459.95	22.738	37.89	100.9	57.859	12.207	2.0558
160	.70503	458.42	21.287	35.737	96.963	54.858	11.37	1.784
170	.53695	454.61	19.615	33.255	92.832	51.373	10.418	1.5192
185	.49905	455.88	19.22	32.676	91.935	50.58	10.184	1.4648
190	.54378	445.35	19.442	32.977	92.096	50.887	10.367	1.5266
199	.69338	426.73	20.349	34.256	93.585	52.479	10.977	1.7531
200	.73129	425.72	20.629	34.66	94.211	53.036	11.141	1.811
210	1.0903	415.63	22.656	37.58	99.002	57.034	12.33	2.2423
212	1.1344	413.62	22.832	37.824	99.404	57.36	12.435	2.2843
220	1.5169	376.86	23.482	38.611	99.829	58.146	12.918	2.5719
230	1.8207	321.87	22.643	37.202	96.372	55.648	12.634	2.6899
240	1.944	257.86	20.437	33.959	90.957	50.965	11.606	2.6799
242	1.944	245.06	19.891	33.173	89.697	49.882	11.348	2.666
250	1.944	309.56	22.597	37.089	96.046	55.382	12.648	2.7394
251	1.944	317.61	22.869	37.512	96.868	56.041	12.768	2.7504
255	1.944	327.97	23.221	38.056	98.003	56.895	12.925	2.765
260	1.944	331.72	23.348	38.254	98.421	57.206	12.982	2.7703
275	1.944	312.12	22.684	37.224	96.3	55.592	12.686	2.7428
280	1.944	316.81	22.841	37.47	96.783	55.975	12.756	2.7494
290	1.944	326.17	23.16	37.961	97.803	56.745	12.897	2.7624
300	1.9182	335.56	23.403	38.347	98.653	57.373	13	2.7621
310	1.5669	344.92	22.574	37.187	96.609	55.835	12.524	2.5656
320	1.0518	349.37	20.456	34.16	91.641	51.626	11.365	2.1559
330	.864	348.88	19.322	32.525	88.926	49.326	10.752	1.9505
340	.864	348.39	19.306	32.501	88.878	49.288	10.745	1.9502
350	.864	347.9	19.29	32.475	88.829	49.248	10.739	1.95
	AREAS, Sq. Km. :		1478.8	4046.4	27827	9205.7	446.5	17.335

OVERALL HEIGHT ABOVE AVERAGE TERRAIN = 339.09 (M)

ALL HEIGHTS IN METERS ALL CONTOUR DISTANCES IN KILOMETERS

ROANOKE VA | 041392 | CHANNEL 212C1 REF. N372309 W794010

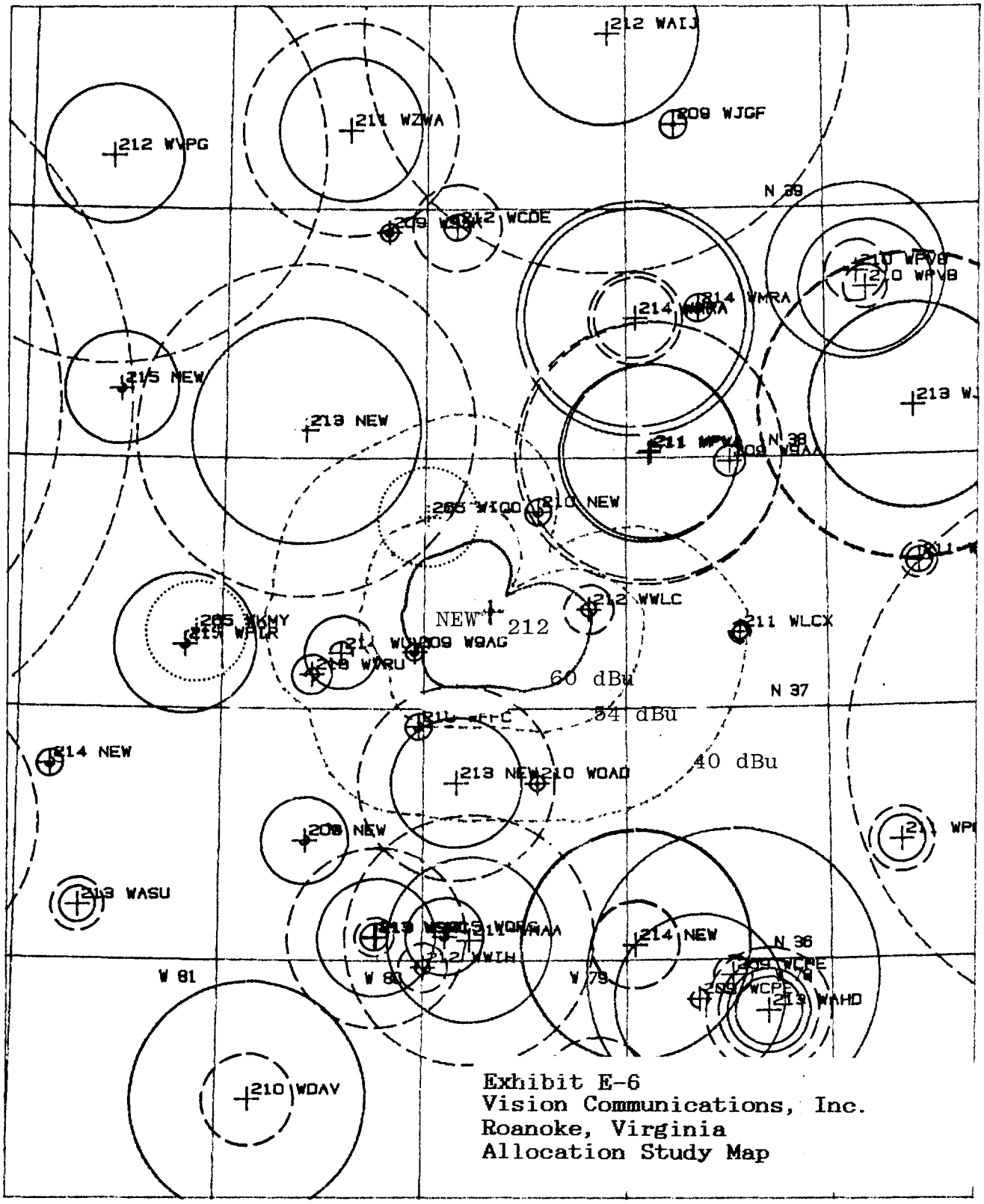


Exhibit E-6
Vision Communications, Inc.
Roanoke, Virginia
Allocation Study Map

SCALE OF MILES 2500000

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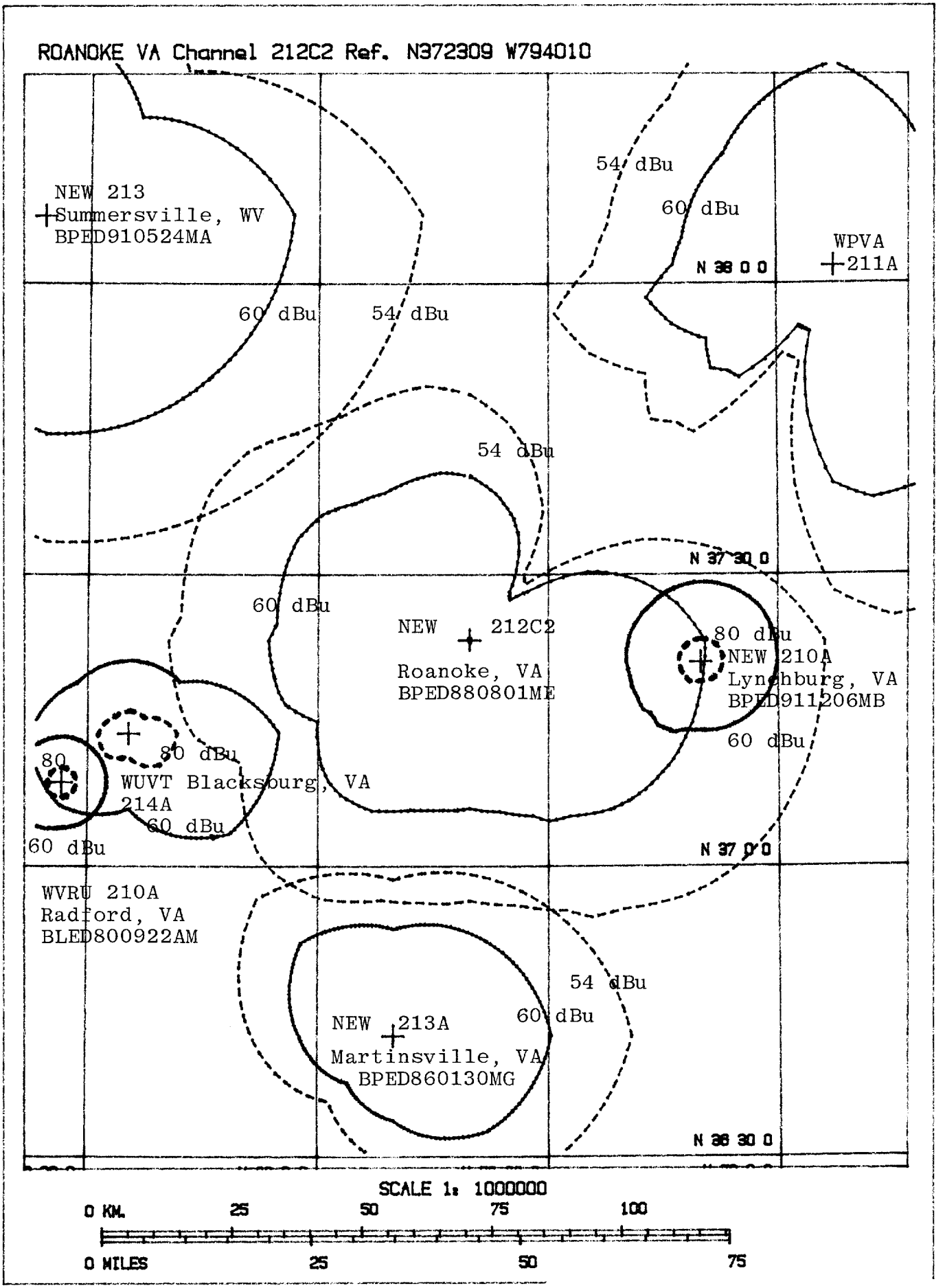

Exhibit E-6, Page 2
Vision Communications, Inc.
Roanoke, Virginia
Detailed Allocation Study Map

Detailed Allocation Study Map

IDENTIFICATION OF FACILITIES AND CONTOURS ON ALLOCATION MAP

ROANOKE VA ; 041392 ;

REFERENCE POINT: N LAT 37-23-09 W LNG 79-40-10

EDUCATIONAL FM ALLOCATION STUDY FOR CHANNEL 212 C1
(FREQUENCY 90.3 MHZ.)

CHAN	CALL	CITY AND STATE	CL/TYP	MILES	KM.	AZIMUTH	ERP	HAAT(M)	RELEVANT CONTOURS AND DISTANCES
209C3	NEW	Mount Airy NC	C3AP	80.572	129.66	218.98	7.4	39	PC1mv/m=11.885mi. INTF100mv/m=1.1935mi.
209C2	WCPE	Raleigh NC	C2LI	120.49	193.90	151.56	33	82	PC1mv/m=23.242mi. INTF100mv/m=2.4273mi.
209C1	WCPE	Raleigh NC	C1CP	119.61	192.49	146.2	100	207	PC1mv/m=39.986mi. INTF100mv/m=5.229mi.
209D	W9AA	CharlottesvilVA	D LI	77.173	124.19	57.154	.21	0	PC1mv/m=4.2698mi. INTF100mv/m=-.20121mi.
209A		Harrisonburg VA	A AD	86.317	138.91	29.526	0	0	
209D	W9AG	Roanoke, etc.VA	D LI	23.365	37.602	243.05	.02	0	PC1mv/m=2.3876mi. INTF100mv/m=-1.0315mi.
209D	W9AK	Buckhannon WV	D CP	108.95	175.33	345.02	.02	0	PC1mv/m=2.3876mi. INTF100mv/m=-1.0315mi.
209A	WJGF	Romney WV	A LI	143.73	231.31	19.947	.11	-105	PC1mv/m=3.6361mi. INTF100mv/m=-.42953mi.
210C1	WDAV	Davidson NC	C1CP	148.65	239.22	206.28	100	108	PC1mv/m=32.173mi. INTF10mv/m=12.608mi.
210C1	WDAV	Davidson NC	C1LI	148.65	239.22	206.28	100	107	PC1mv/m=32.042mi. INTF10mv/m=12.522mi.
210B1	WPVB	Culpeper VA	B1CP	135.93	218.75	48.325	12	78	PC1mv/m=18.375mi. INTF10mv/m=6.0287mi.
210B1	WPVB	Culpeper VA	B1AP	136.94	220.38	46.235	12	148	PC1mv/m=24.503mi. INTF10mv/m=8.4716mi.
210D	WOAD	Danville VA	D CP	48.635	78.270	164.69	.01	0	PC1mv/m=1.9759mi. INTF10mv/m=.34983mi.
210A	WFFC	Ferrum VA	A LI	37.065	59.650	211.88	.1	-12	PC1mv/m=3.5516mi. INTF10mv/m=1.1628mi.
210A	NEW	Lexington VA	A AP	30.633	49.299	24.518	.1	-60	PC1mv/m=3.5516mi. INTF10mv/m=1.1628mi.
210A	WVRU	Radford VA	A LI	51.558	82.974	251.04	.5	5	PC1mv/m=5.4136mi. INTF10mv/m=1.7311mi.
211A	WCCE	Buies Creek NC	A LI	145.77	234.59	158.97	3	32	PC1mv/m=8.7793mi. INTF.5mv/m=13.048mi.
211C3	WNAA	Greensboro NC	C3LI	90.02	144.87	183.53	10	132	PC1mv/m=22.455mi. INTF.5mv/m=34.055mi.
211A	WPGT	Roanoke RapidNC	A LI	128.42	206.67	119.05	.86	26	PC1mv/m=6.395mi. INTF.5mv/m=8.9036mi.
211D	WLCX	Farmville VA	D LI	68.216	109.78	94.381	.01	8	PC1mv/m=1.9759mi. INTF.5mv/m=2.8177mi.
211A	WDCE	Richmond VA	A LI	117.63	189.30	82.79	.1	26	PC1mv/m=3.5516mi. INTF.5mv/m=5.0098mi.
211D	W1AA	Roanoke, etc.VA	D LI	19.302	31.063	240.3	0	0	
211A	WPVA	Waynesboro VA	A CP	61.381	98.783	44.071	2.5	313	PC1mv/m=24.43mi. INTF.5mv/m=36.389mi.
211A	WPVA	Waynesboro VA	A AP	62.187	100.08	44.22	2.5	300	PC1mv/m=23.979mi. INTF.5mv/m=35.706mi.
211B1	WZWA	Clarksburg WV	B1CP	139	223.69	343.89	1.5	245	PC1mv/m=19.515mi. INTF.5mv/m=29.342mi.
212C1	WMKY	Morehead KY	C1LI	211.64	340.60	286.15	50	155	PC1mv/m=32.625mi. INTF.1mv/m=85.993mi.
212C1	WMKY	Morehead KY	C1CP	211.64	340.60	286.15	100	277	PC1mv/m=43.779mi. INTF.1mv/m=105.51mi.
212B	WAIJ	Grantsville MD	B LI	162.92	262.19	10.848	10	171	PC1mv/m=25.178mi. INTF.1mv/m=65.996mi.
212D	WWIH	High Point NC	D LI	99.143	159.55	190.52	.01	0	PC1mv/m=1.9759mi. INTF.1mv/m=6.6679mi.
212D	W2AL	Wilmington NC	D CP	241.82	389.17	156.03	.01	0	PC1mv/m=1.9759mi. INTF.1mv/m=6.6679mi.
212A	WCSK	Kingsport TN	A LI	171.97	276.75	250.66	.19	280	PC1mv/m=13.205mi. INTF.1mv/m=39.092mi.
212A	WHRO	Chesapeake VA	A LI	191.74	308.57	102.86	1.5	44	PC1mv/m=8.5093mi. INTF.1mv/m=30.386mi.
212D	WWLC	Lynchburg VA	D LI	26.791	43.115	88.124	.01	0	PC1mv/m=1.9759mi. INTF.1mv/m=6.6679mi.
212B	WHRO	Norfolk VA	B CP	179.35	288.63	101.91	23	192	PC1mv/m=30.862mi. INTF.1mv/m=78.225mi.
212C2	NEW	Roanoke VA	C2AP	5.5317	8.9024	261.63	2.4	410	PC1mv/m=27.287mi. INTF.1mv/m=68.947mi.
212A	WCDE	Elkins WV	A LI	107.02	172.23	354.87	.1	-105	PC1mv/m=3.5516mi. INTF.1mv/m=12.04mi.
212B1	WVPG	Parkersburg WV	B1LI	163.66	263.38	321.04	9	98	PC1mv/m=18.95mi. INTF.1mv/m=57.799mi.
213A	WASU	Boone NC	A LI	137.7	221.60	234.63	.34	-37	PC1mv/m=4.8205mi. INTF.5mv/m=7.2243mi.
213A	WDCC	Sanford NC	A LI	135.18	217.55	167.37	3	46	PC1mv/m=9.9276mi. INTF.5mv/m=15.537mi.

Exhibit E-6 - Page 3
Vision Communications, Inc.
Roanoke, Virginia
Identification Of Facilities
On Allocation Study Map