APPENDIX 1

TESTING OF THE GRAND ALLIANCE HDTV TRANSMISSION SUBSYSTEM

CONTRIBUTORS TO THE FIELD TESTING PROJECT

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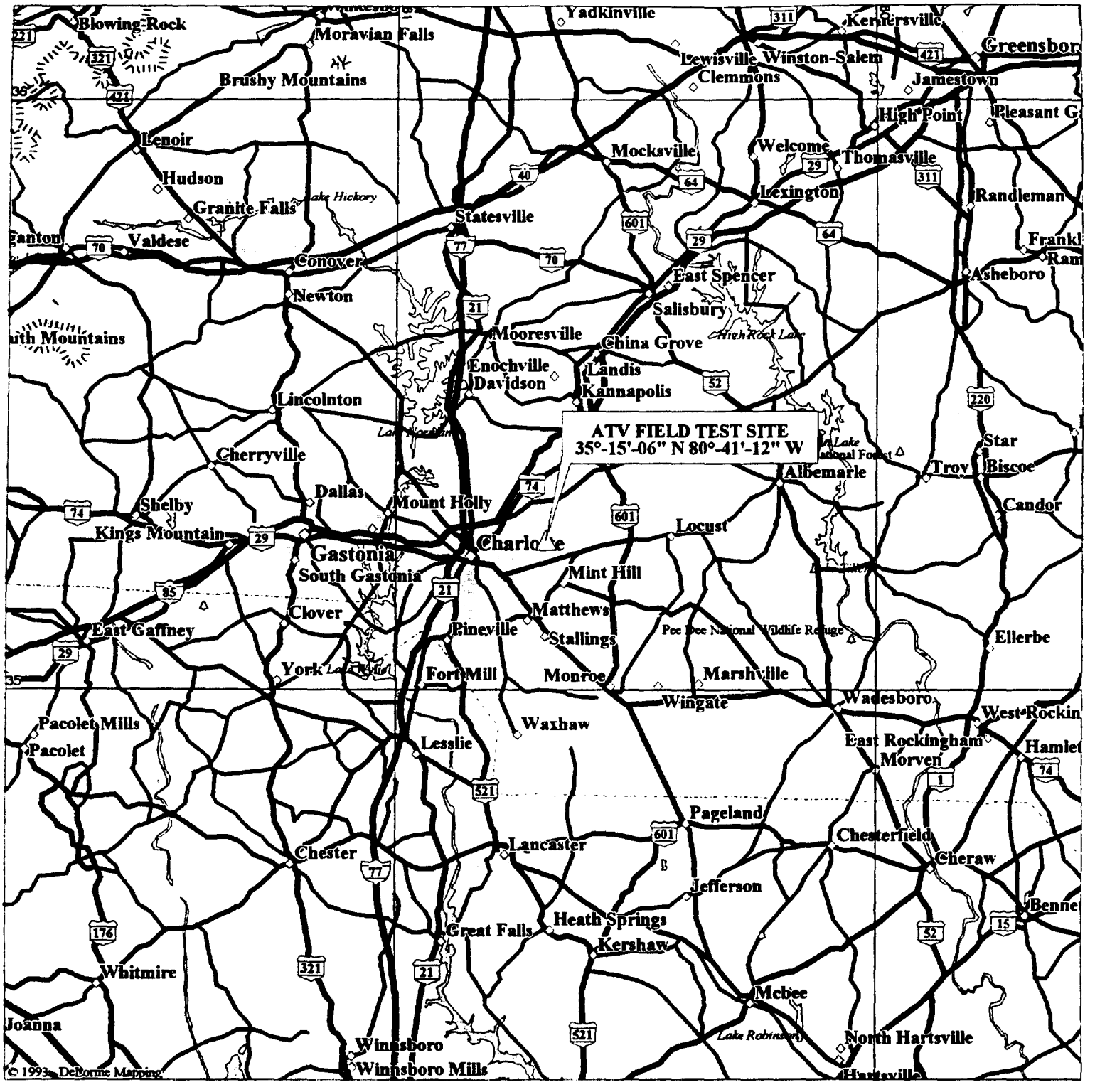
ADC Telecommunications
Altronic Research, Inc.
Amphenol Corporation
Andrew Corporation
Belden Wire and Cable
Bird Electronics
Boonton Electronics
Cablewave Systems, Inc.
Coastel Cable
Coaxial Dynamics, Inc.
Comark Communications, Inc.
CRL Systems, Inc.
Dielectric Communications, Inc.
English Electric Valve (EEV), Inc
Fuji Photo Film USA, Inc.
Gentner Electronics
Grass Valley Corporation
Harris Allied Systems Div.
Harris Broadcast Corporation
Hewlett Packard Co
ITS Corporation
JBL Professional
Journal Broadcasting of Charlotte
Jules Cohen & Associates, P.C.
Kings Electronics
Kline Towers
Larcan Communications Equipment Co.
Leitch, Inc.
Lightning Master
Lodestar Site Management
Micro Communications, Inc.
Modulation Sciences, Inc.
Motorola, Inc.
Panasonic Broadcast
Passive Power Products, Inc.
Philips Laboratories
Shure Brothers, Inc.
Tektronix, Inc.
Telex Communications
Toshiba ATV Center
University of North Carolina
Center for Public Television

APPENDIX 2

TESTING OF THE GRAND ALLIANCE HDTV TRANSMISSION SUBSYSTEM

MAPS SHOWING TEST SITE AND LOCATIONS OF OBSERVATION POINTS



LEGEND

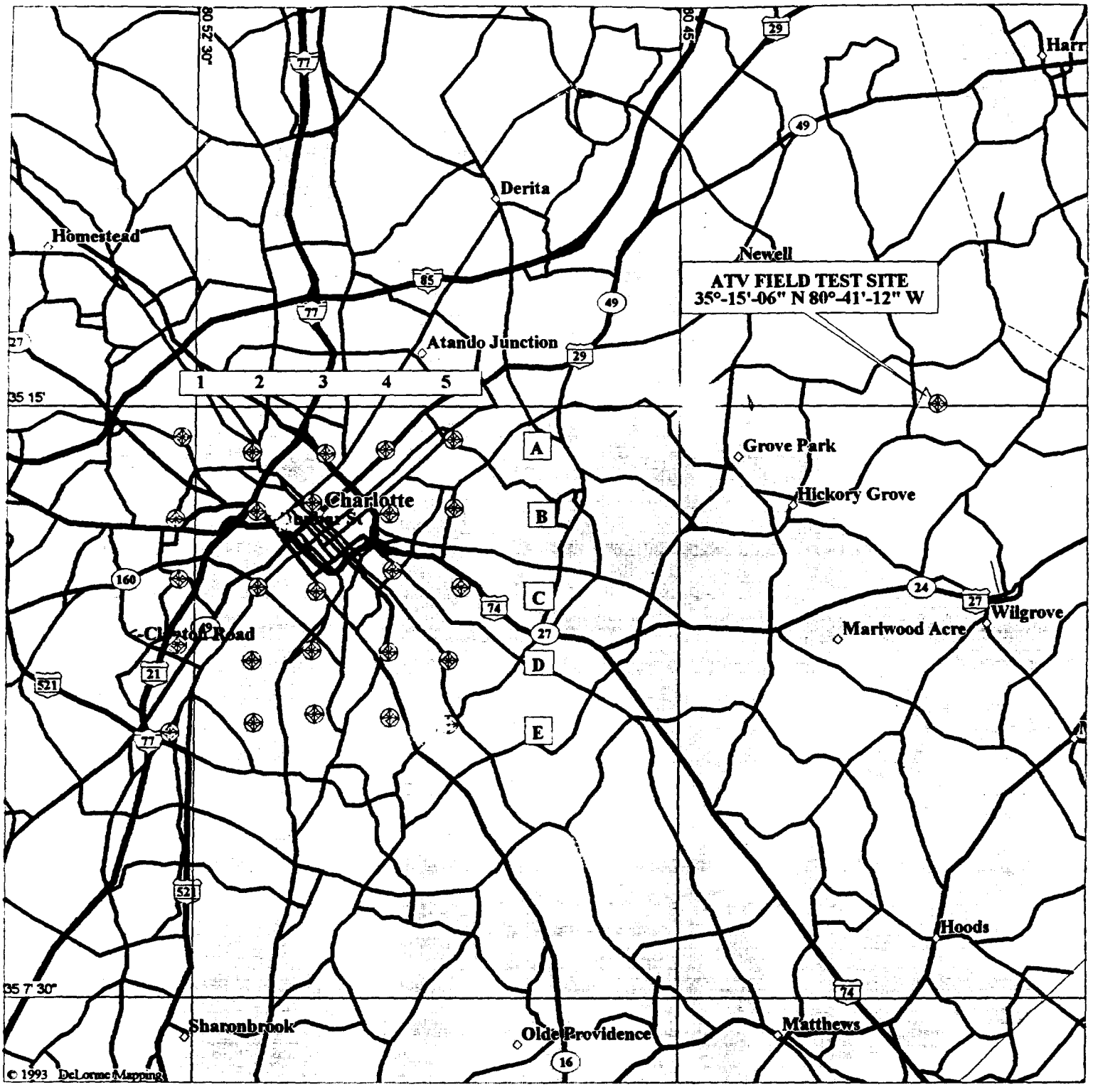
- Population Center
- Town, Small City
- Large City
- Park
- Interstate, Turnpike
- US Highway
- State/Prov Boundary
- Major Street/Road
- State Route
- Interstate Highway
- US Highway
- Land Mass

Scale 1:1,000,000 (at center)

20 Miles

20 KM

ATV FIELD TEST SITE
Mag 9.00
Fri Sep 02 12:50:44 1994



LEGEND

- Population Center
- State Route
- Town, Small City
- Large City
- Interstate, Turnpike
- US Highway
- County Boundary
- Major Street/Road
- State Route
- Interstate Highway
- US Highway
- Airfield

Scale 1:125,000 (at center)

2 Miles

2 KM

CHARLOTTE,N.C.-GRID-1
Mag 12.00
Fri Sep 02 14:12:36 1994

LEGEND

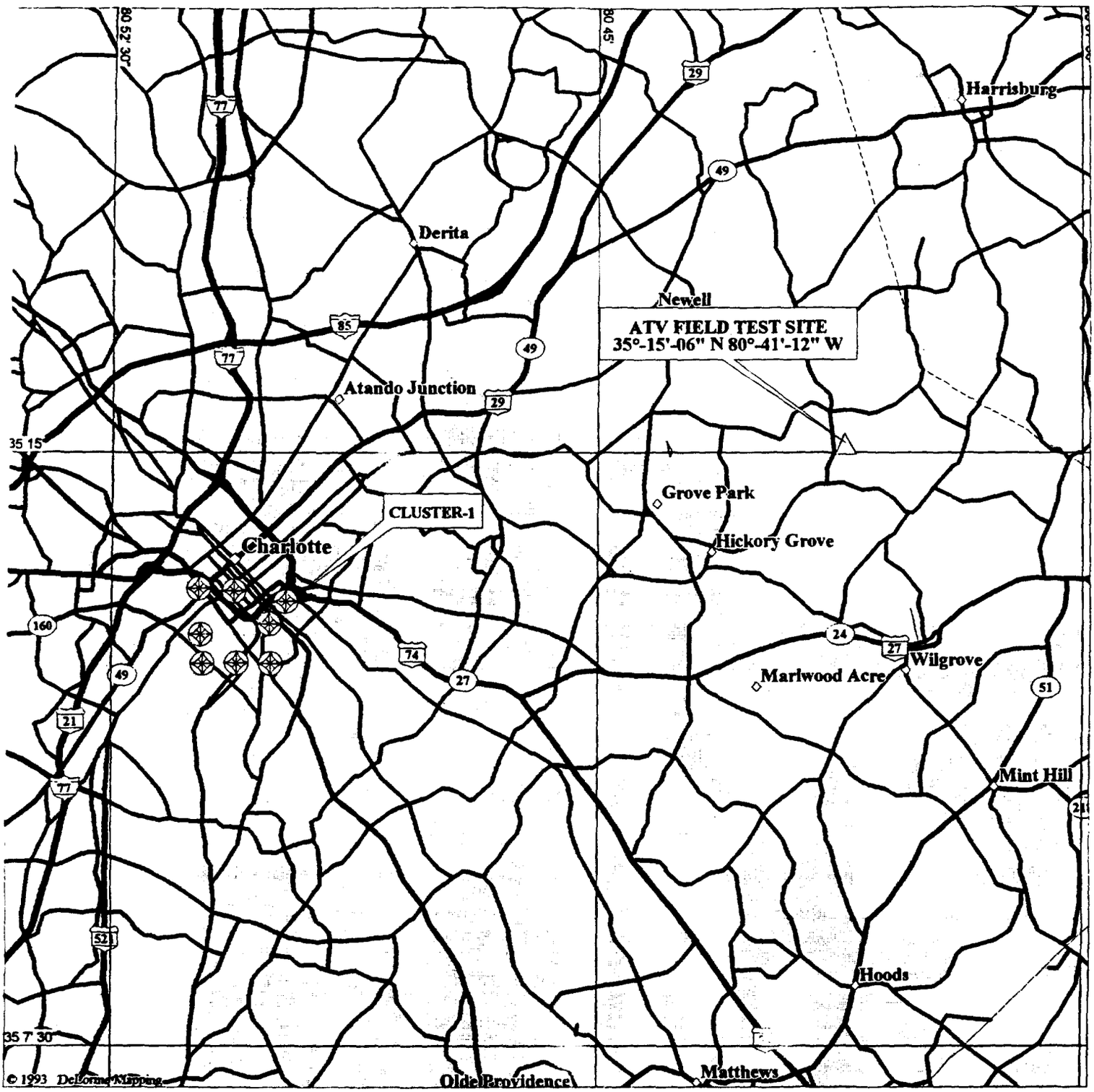
- Population Center
- State Route
- Town, Small City
- Interstate, Turnpike
- US Highway
- Airfield
- County Boundary
- Major Street/Road
- State Route
- Interstate Highway
- US Highway
- Open Water

Scale 1:125,000 (at center)

2 Miles

2 KM

ROCKHILL,S.C.-GRID-2
Mag 12.00
Fri Sep 02 14:18:19 1994



LEGEND

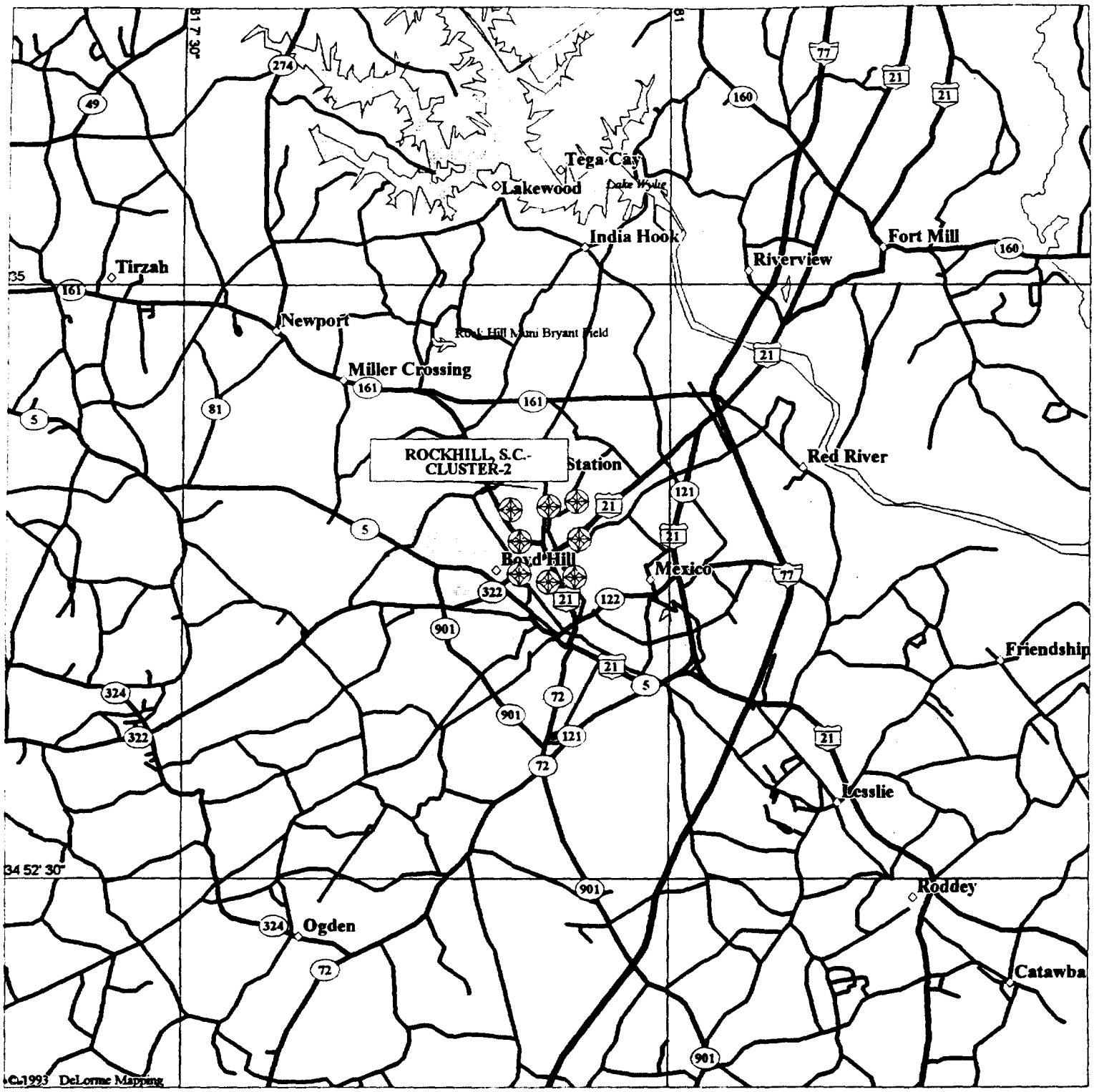
- Population Center
- State Route
- Town, Small City
- Large City
- Interstate, Turnpike
- US Highway
- County Boundary
- Major Street/Road
- State Route
- Interstate Highway
- US Highway
- Airfield

Scale 1:125,000 (at center)

2 Miles

2 KM

CHARLOTTE,N.C.- CLUSTER-1
Mag 12.00
Fri Sep 02 13:50:50 1994



LEGEND

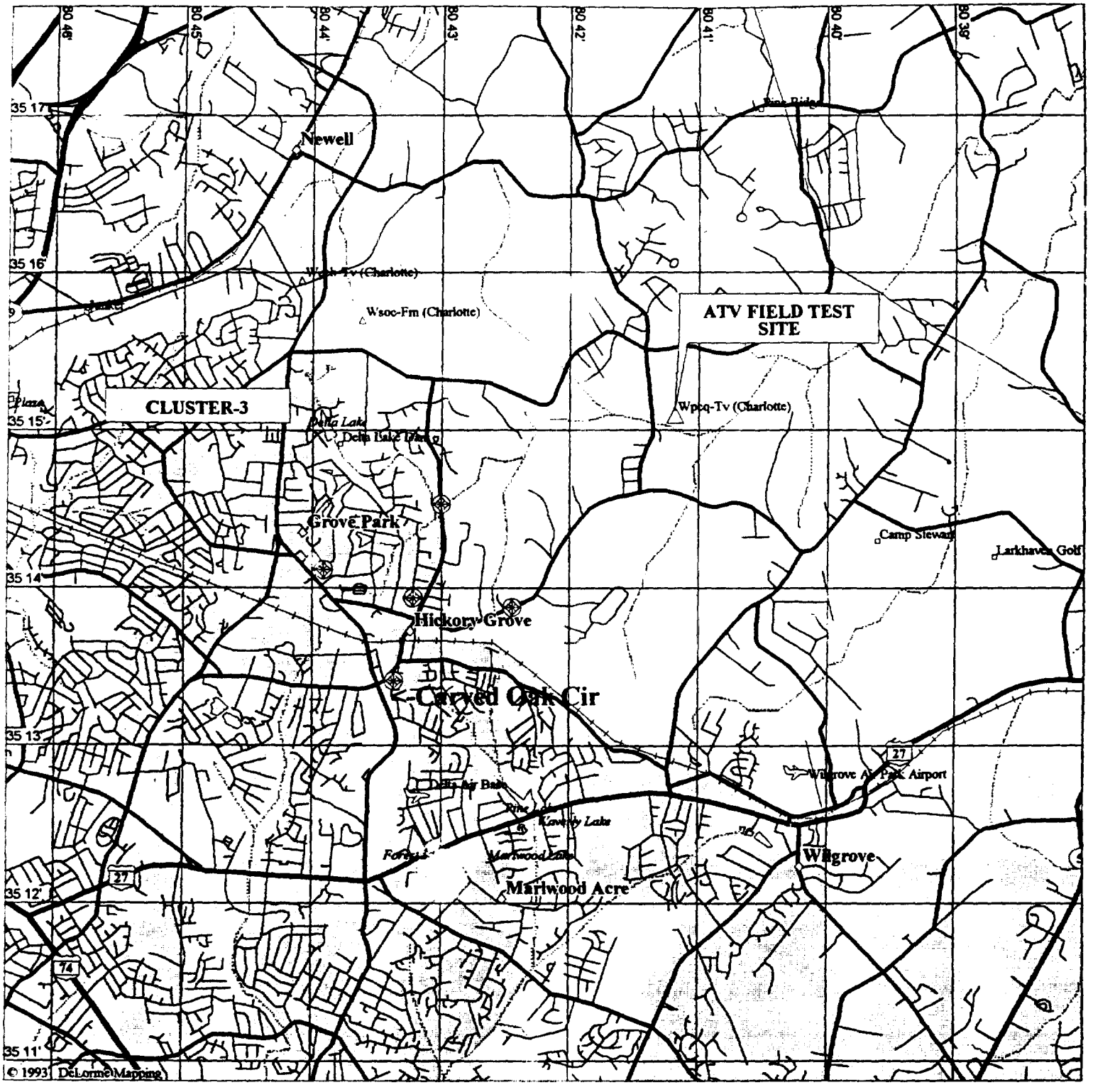
- Population Center
- State Route
- Town, Small City
- Interstate, Turnpike
- US Highway
- Airfield
- County Boundary
- Major Street/Road
- State Route
- Interstate Highway
- US Highway
- Open Water

Scale 1:125,000 (at center)

2 Miles

2 KM

ROCKHILL,S.C.-CLUSTER-2
Mag 12.00
Fri Sep 02 13:56:53 1994



LEGEND

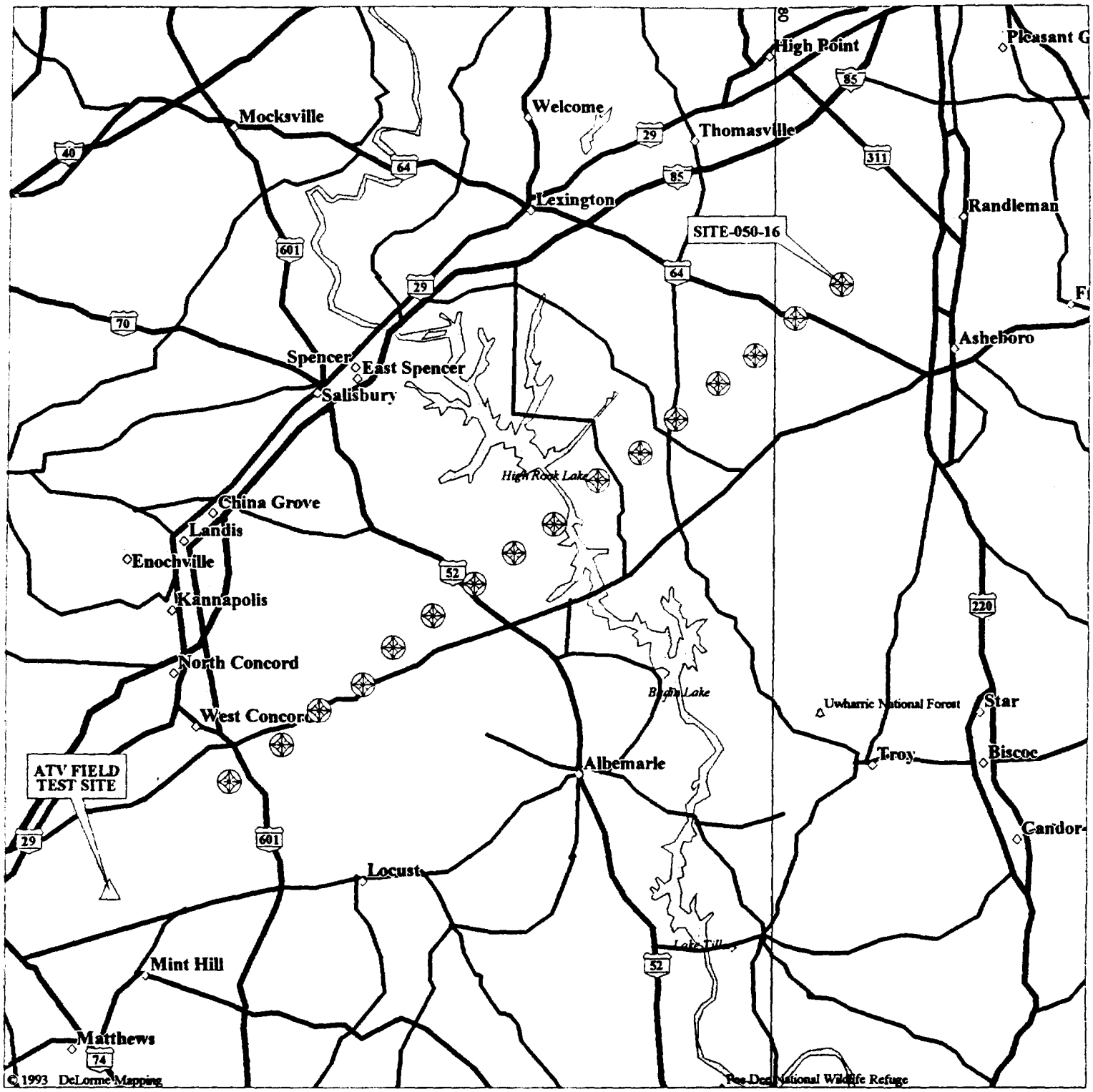
- Population Center
- State Route
- Geo Feature
- Town, Small City
- Hill
- US Highway
- Airfield
- County Boundary
- Street, Road
- Hwy Ramps
- Major Street/Road
- State Route
- Interstate Highway
- US Highway
- Railroad
- River
- Airfield
- Open Water

CHARLOTTE,N.C.-CUSTER-3
Mag 13.00
Fri Sep 02 15:31:10 1994

Scale 1:62,500 (at center)

1 Miles

2 KM



LEGEND

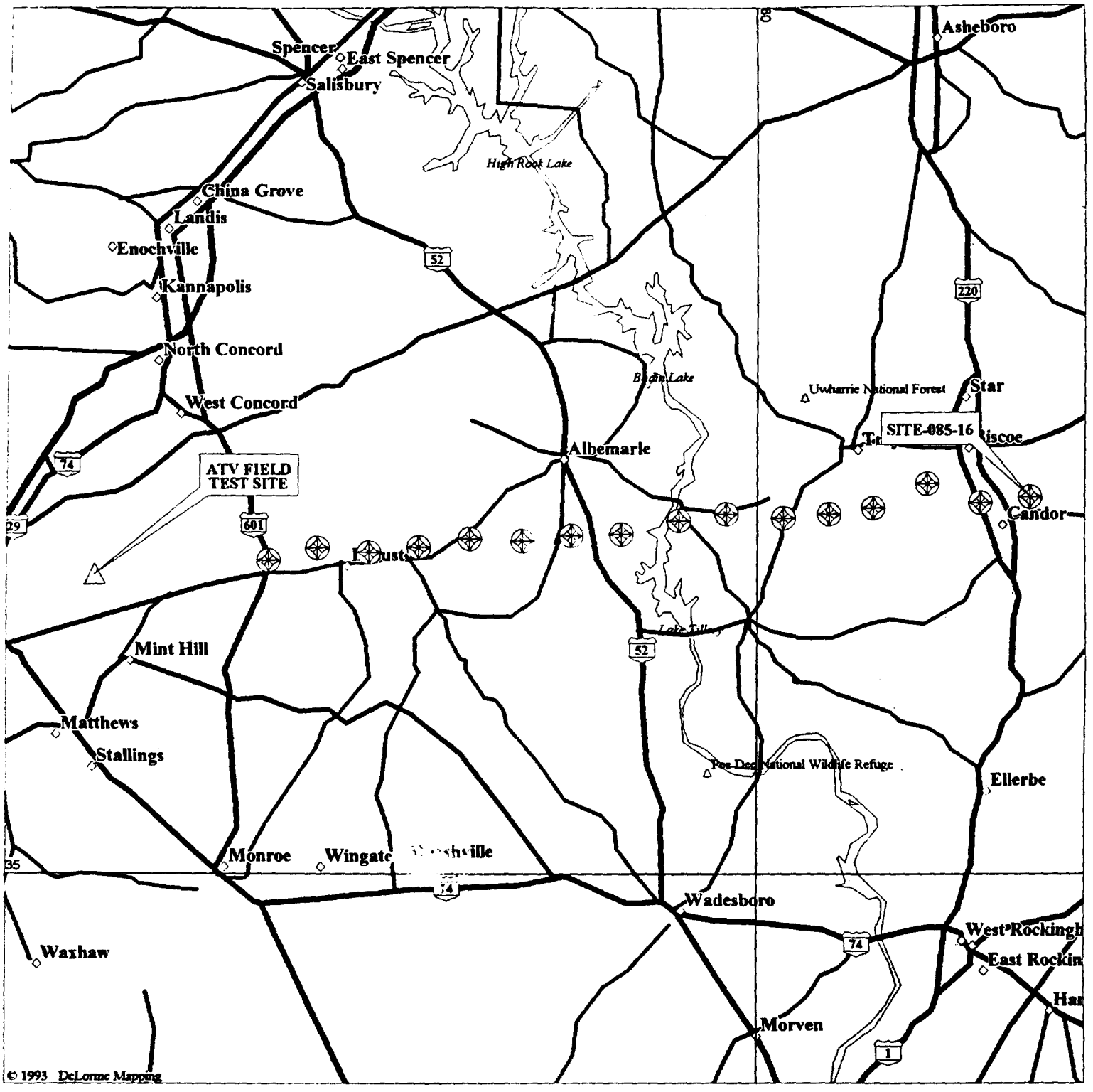
- Population Center
- Town, Small City
- Park
- Interstate, Turnpike
- US Highway
- Major Street/Road
- State Route
- Interstate Highway
- US Highway
- Land Mass
- Open Water

Scale 1:500,000 (at center)

10 Miles

10 KM

RADIAL-50°
Mag 10.00
Fri Sep 02 14:35:11 1994



LEGEND

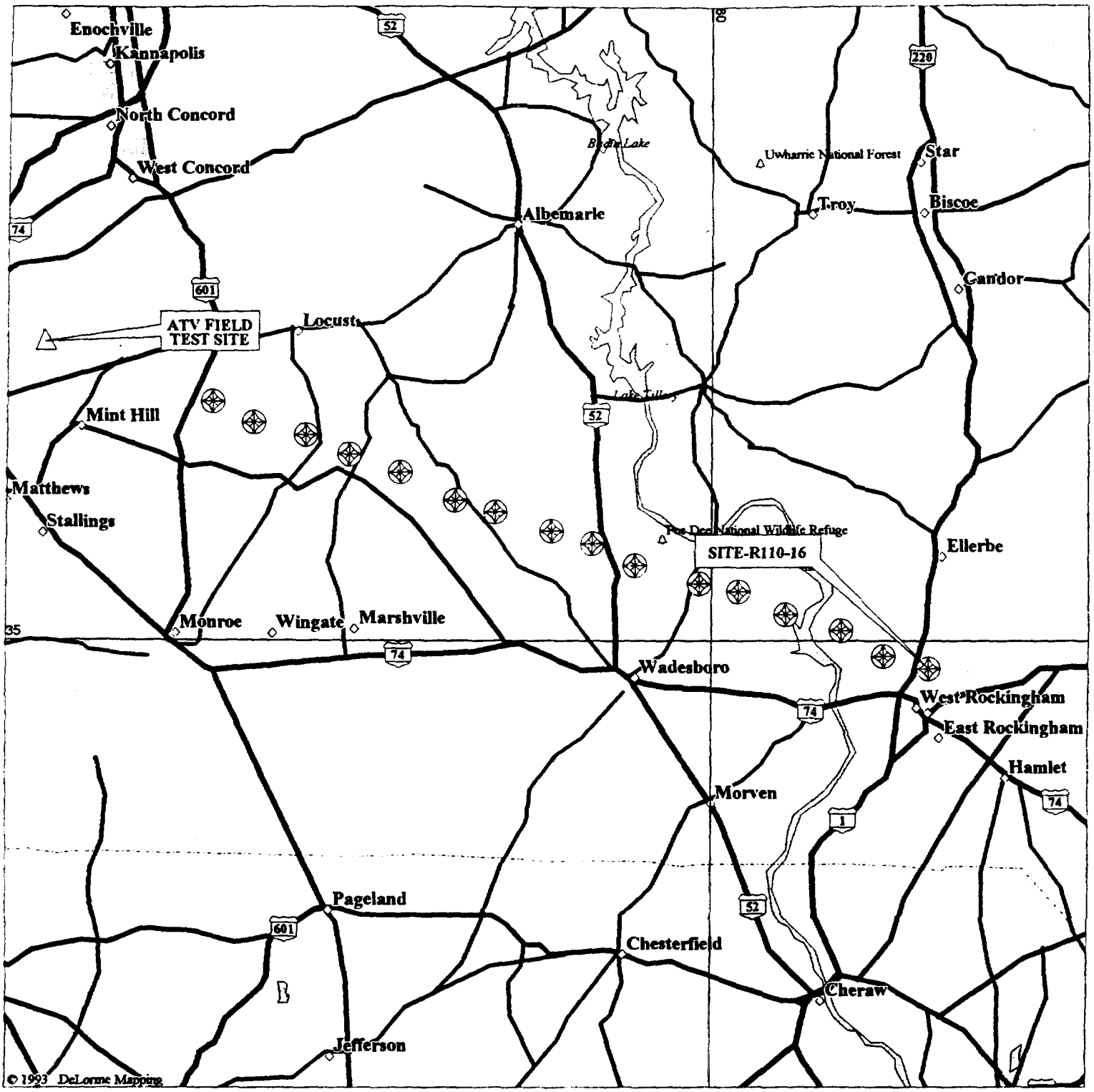
- Population Center
- Town, Small City
- Park
- US Highway
- State/Prov Boundary
- Major Street/Road
- State Route
- Interstate Highway
- US Highway
- Land Mass
- Open Water

Scale 1:500,000 (at center)

10 Miles

10 KM

RADIAL-85°
Mag 10.00
Fri Sep 02 15:06:40 1994



LEGEND

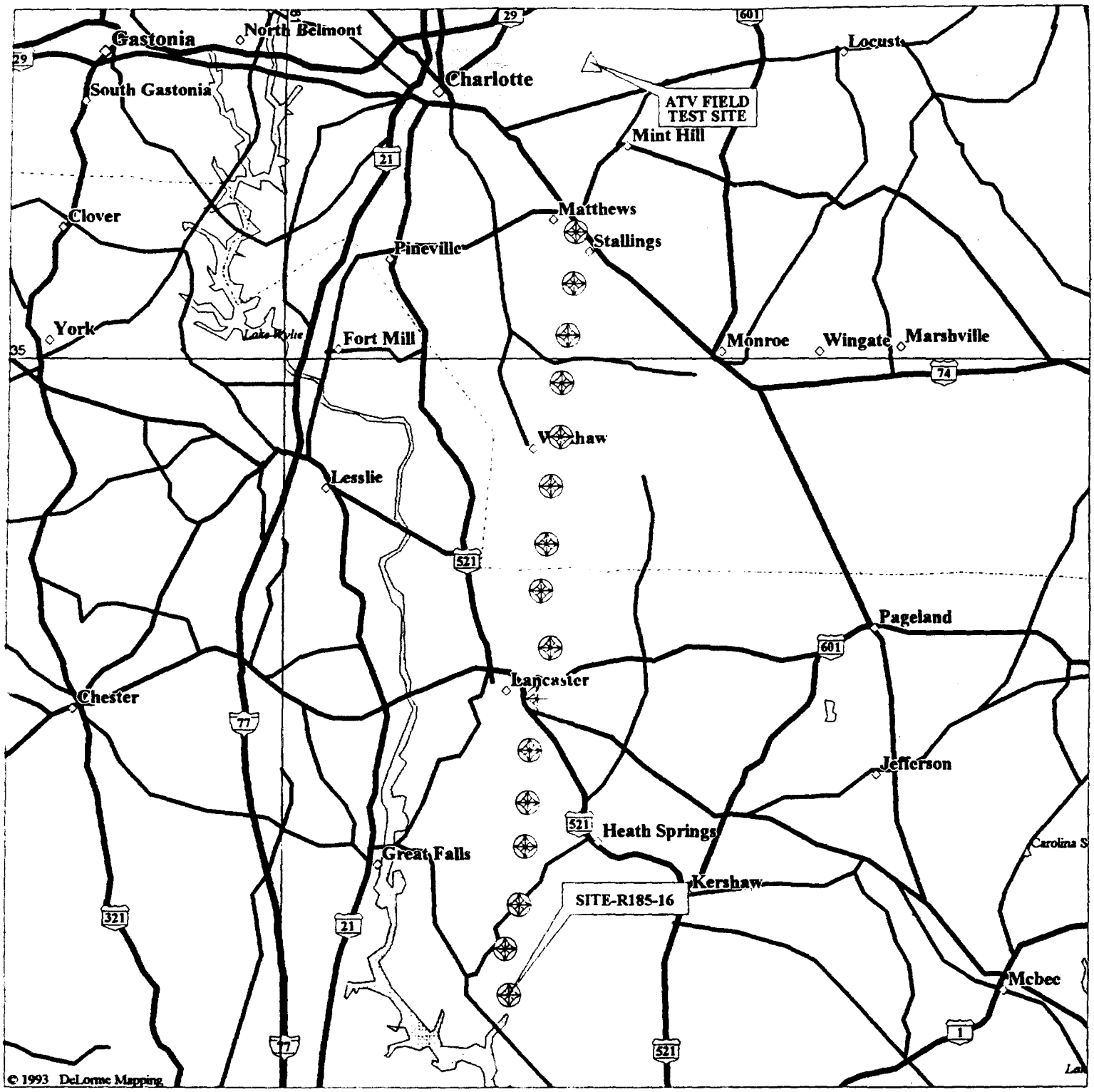
- Population Center
- Town, Small City
- Park
- US Highway
- State/Prov Boundary
- Major Street/Road
- State Route
- Interstate Highway
- US Highway
- Land Mass
- Open Water

Scale 1:500,000 (at center)

10 Miles

10 KM

RADIAL-110°
Mag 10.00
Fri Sep 02 15:10:56 1994



LEGEND

- Population Center
- Town, Small City
- Large City
- Park
- Interstate, Turnpike
- US Highway
- State/Prov Boundary
- Major Street/Road
- State Route
- Interstate Highway
- US Highway
- Open Water

Scale 1:500,000 (at center)

10 Miles

10 KM

RADIAL-185°
Mag 10.00
Fri Sep 02 15:15:14 1994

LEGEND

- Population Center
- Town, Small City
- Large City
- Park
- Interstate, Turnpike
- US Highway
- State/Prov Boundary
- Major Street/Road
- State Route
- Interstate Highway
- US Highway
- Open Water

Scale 1:500,000 (at center)

10 Miles

10 KM

RADIAL-215°
Mag 10.00
Fri Sep 02 15:17:28 1994

LEGEND

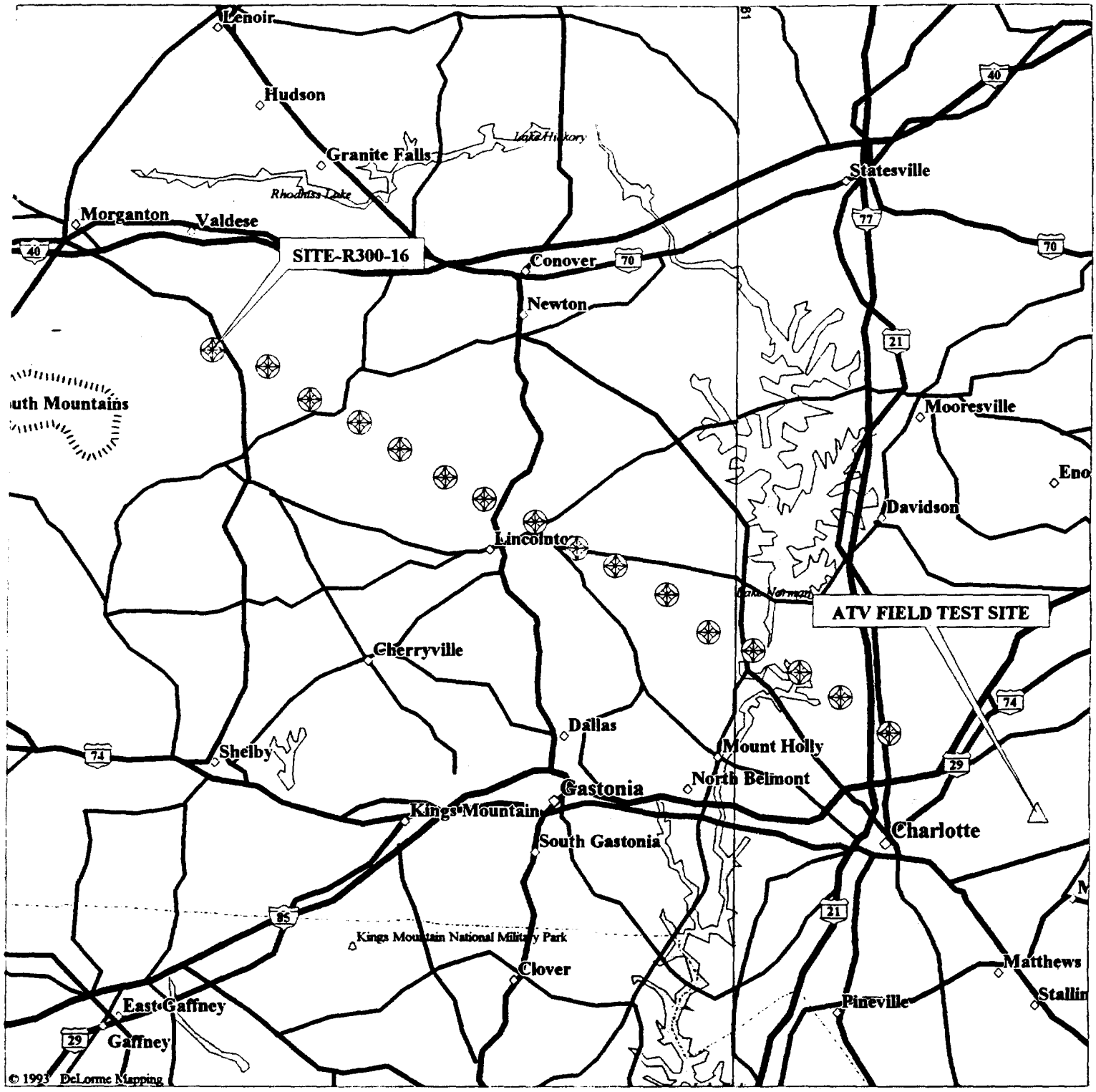
- Population Center
- Town, Small City
- Large City
- Park
- Interstate, Turnpike
- US Highway
- State/Prov Boundary
- Major Street/Road
- State Route
- Interstate Highway
- US Highway
- Open Water

Scale 1:500,000 (at center)

10 Miles

10 KM

RADIAL-270°
Mag 10.00
Fri Sep 02 15:19:58 1994



LEGEND

- Population Center
- Town, Small City
- Large City
- Park
- Interstate, Turnpike
- US Highway
- State/Prov Boundary
- Major Street/Road
- State Route
- Interstate Highway
- US Highway
- Open Water

Scale 1:500,000 (at center)

10 Miles

10 KM

RADIAL-300°
Mag 10.00
Fri Sep 02 11:43:57 1994

LEGEND

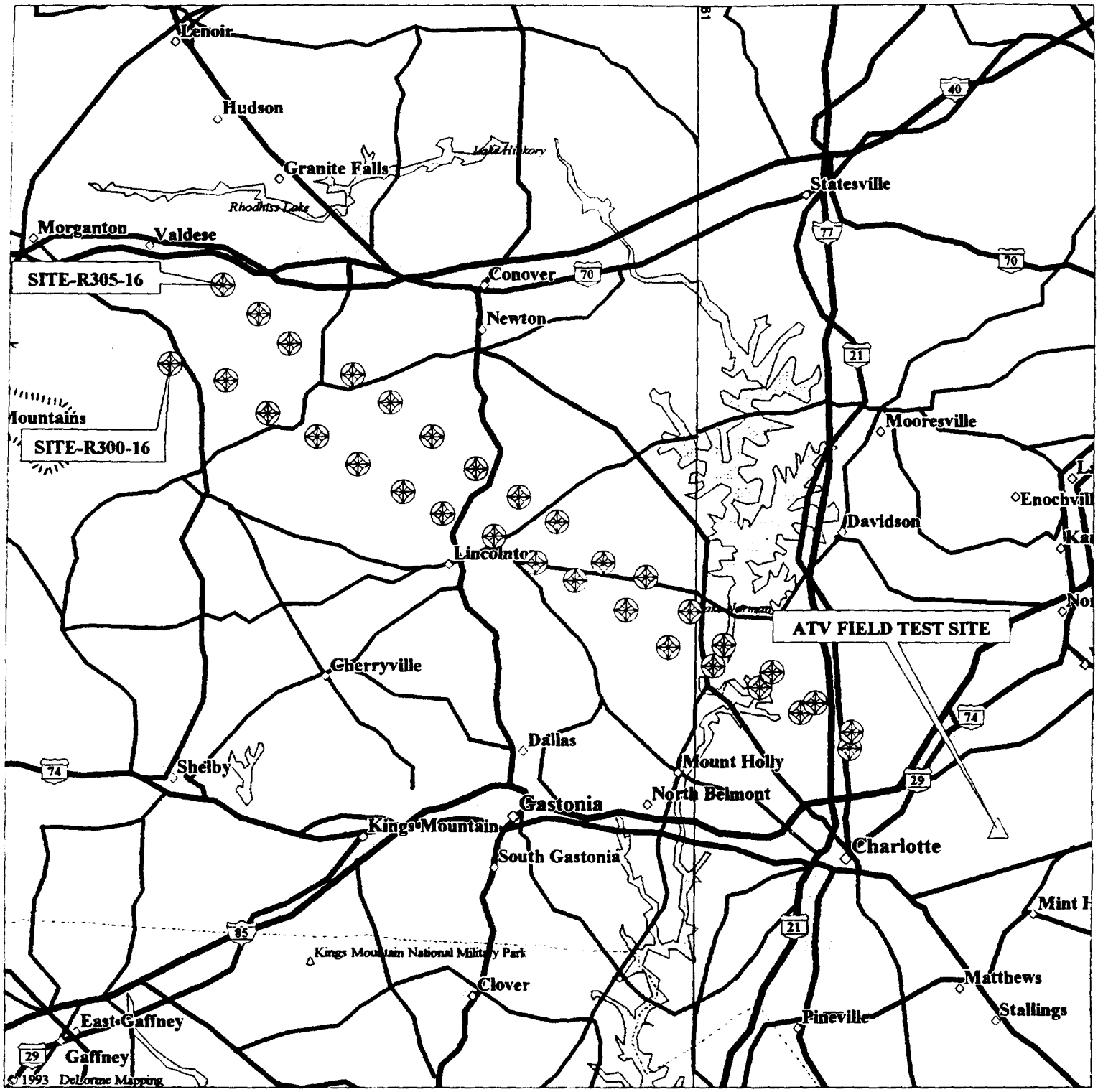
- Population Center
- Town, Small City
- Large City
- Park
- Interstate, Turnpike
- US Highway
- State/Prov Boundary
- Major Street/Road
- State Route
- Interstate Highway
- US Highway
- Open Water

Scale 1:500,000 (at center)

10 Miles

10 KM

RADIAL-305°
Mag 10.00
Fri Sep 02 12:40:34 1994



LEGEND

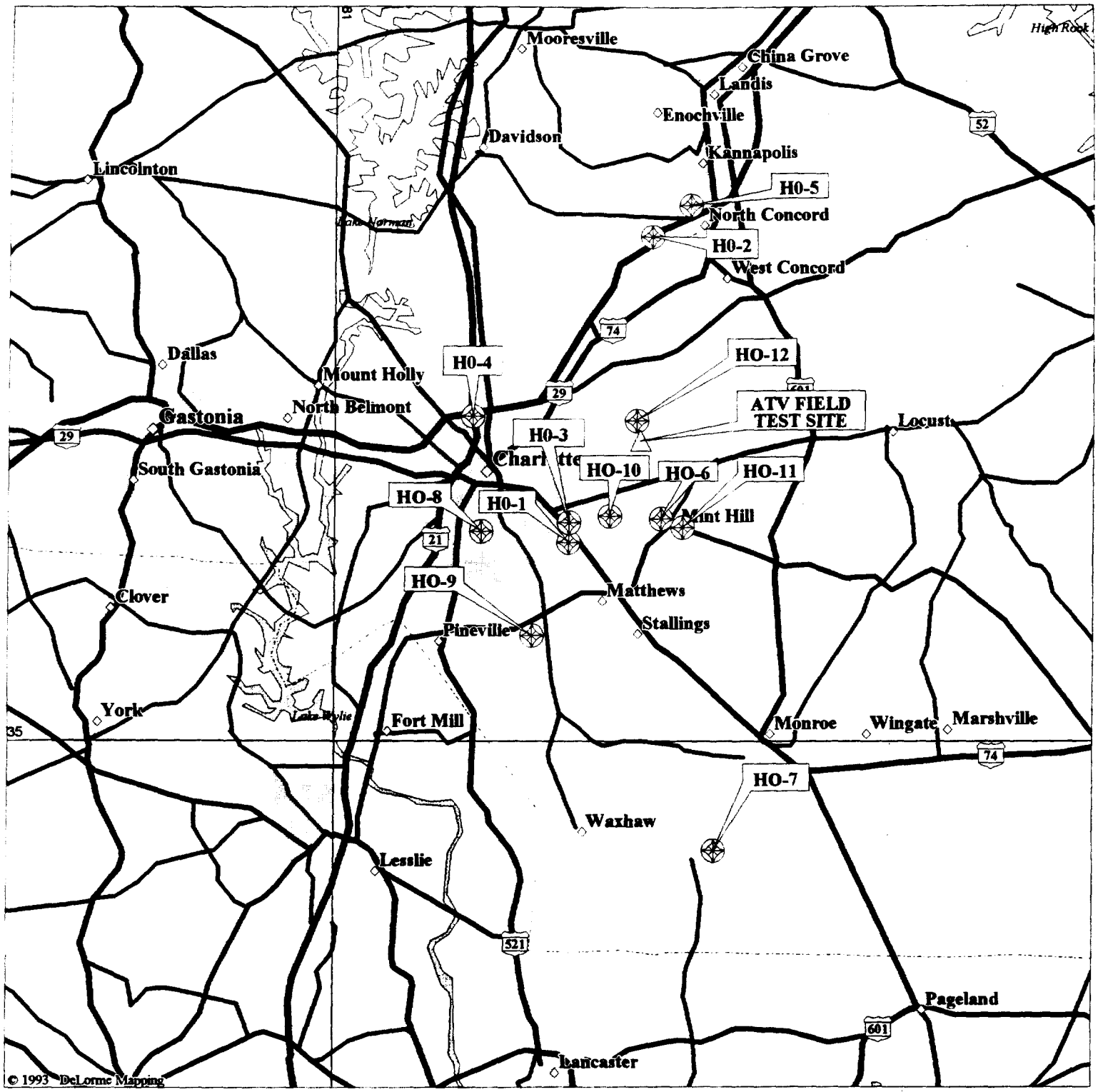
- Population Center
- Town, Small City
- Large City
- Park
- Interstate, Turnpike
- US Highway
- State/Prov Boundary
- Major Street/Road
- State Route
- Interstate Highway
- US Highway
- Open Water

Scale 1:500,000 (at center)

10 Miles

10 KM

RADIAL-300° AND 305°
Mag 10.00
Fri Sep 02 12:33:09 1994



LEGEND

- Population Center
- Town, Small City
- Large City
- US Highway
- State/Prov Boundary
- Major Street/Road
- State Route
- Interstate Highway
- US Highway
- Open Water

Scale 1:500,000 (at center)

10 Miles

10 KM

IN HOME OBSERVATION TESTS
Mag 10.00
Fri Sep 16 15:14:55 199-

APPENDIX 3

TESTING OF THE GRAND ALLIANCE HDTV TRANSMISSION SUBSYSTEM

HORIZONTAL AND VERTICAL RADIATION CHARACTERISTICS OF THE OMNIDIRECTIONAL VHF AND UHF TRANSMITTING ANTENNAS

DIELECTRIC COMMUNICATIONS ANTENNAS
A UNIT OF GENERAL SIGNAL

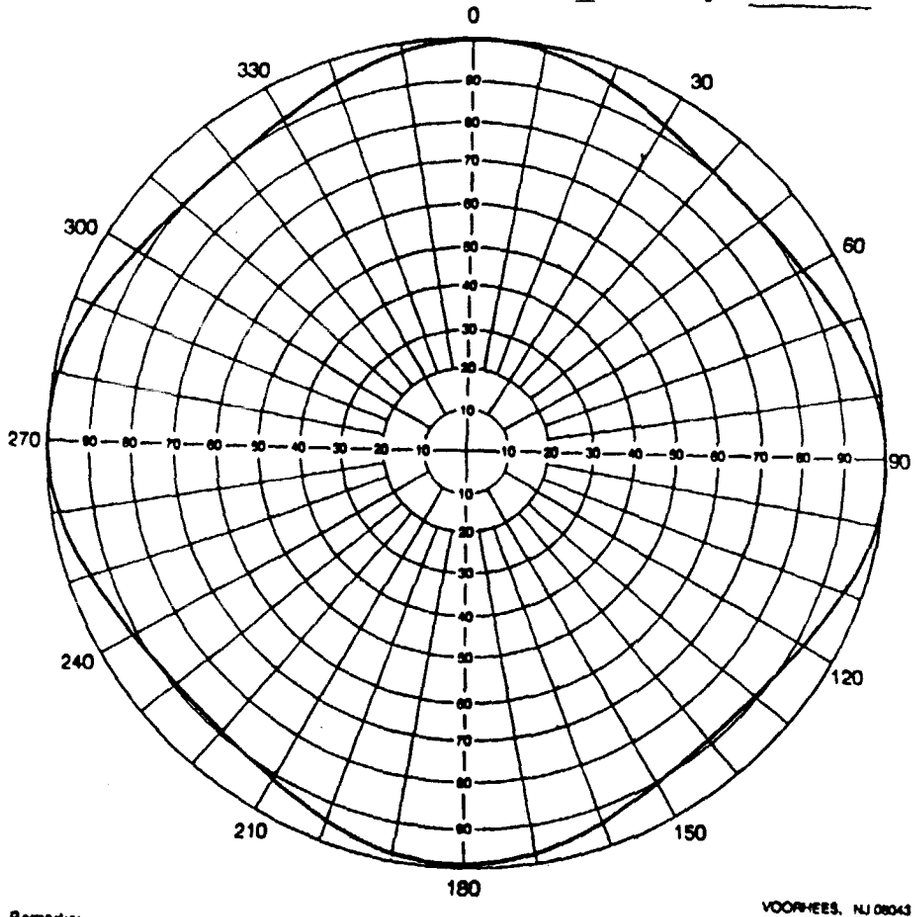
Proposal Number: _____ Revision: _____ Date: 3/20/92

Call Letters: _____ Channel: 53 Antenna Type: TFU-24G

Location: Charlotte, NC Customer: _____

HORIZONTAL PATTERN

Gain: ____ ____ dB Calculated: x Measured: __ Frequency: 707 MHz Drawing #: AJS920320-1



Remarks: _____

VOORHEES, NJ 08043
Tel.: 609-435-3200
FAX: 609-435-3204

DIELECTRIC COMMUNICATIONS ANTENNAS
A UNIT OF GENERAL SIGNAL

Proposal Number: _____ Revision: _____ Date: 3/20/92

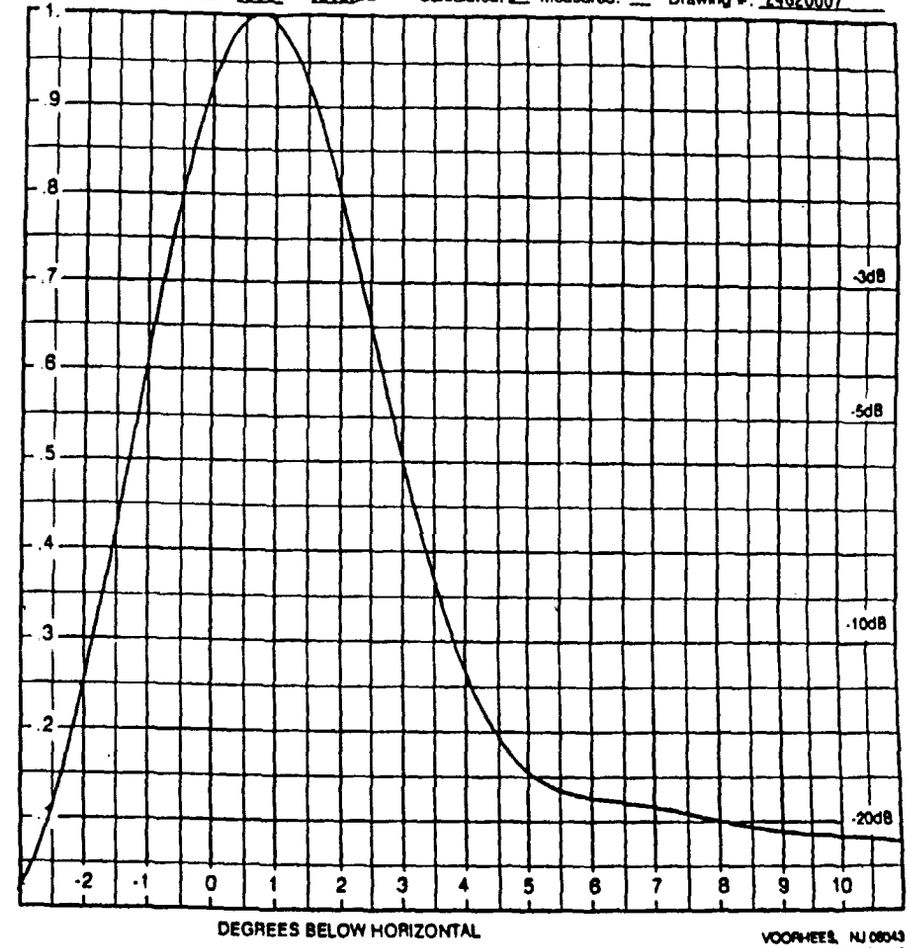
Call Letters: _____ Channel: 53 Antenna Type: TFU-24G

Location: Charlotte, NC Customer: _____

VERTICAL PATTERN

RMS Gain at Main Lobe: 20.0 13.0 dB Beam Tilt: 0.7 degrees Frequency: 707 MHz

RMS Gain at Horizontal: 16.9 12.28 dB Calculated: x Measured: __ Drawing #: 24G20007

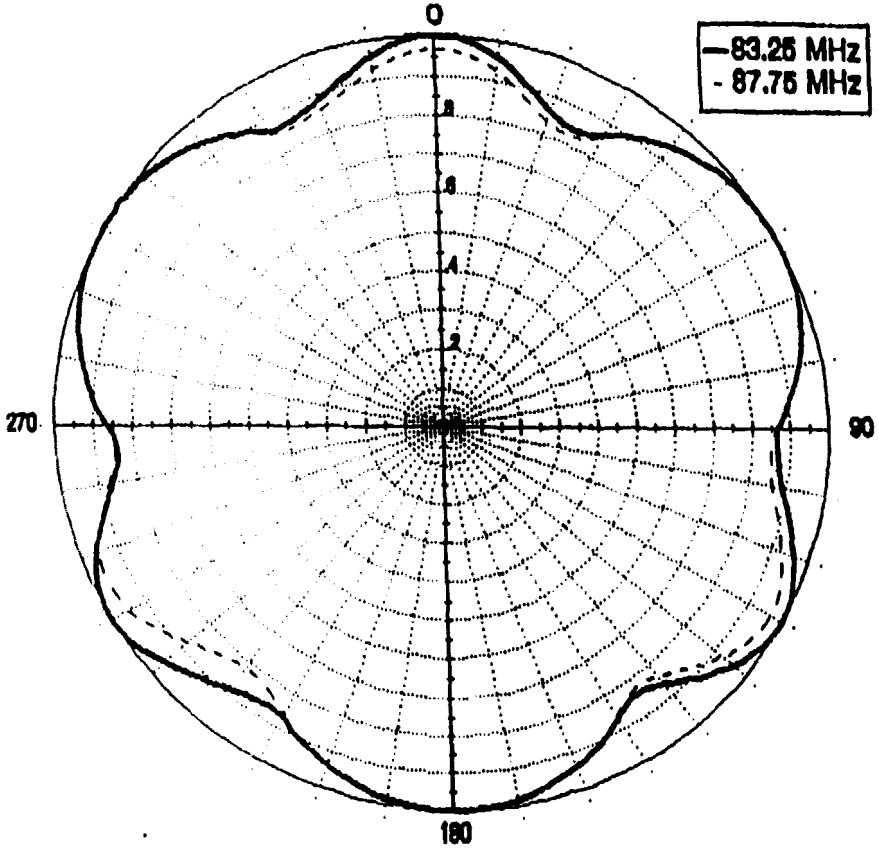


DEGREES BELOW HORIZONTAL

VOORHEES, NJ 08043
Tel.: 609-435-3200
FAX: 609-435-3204

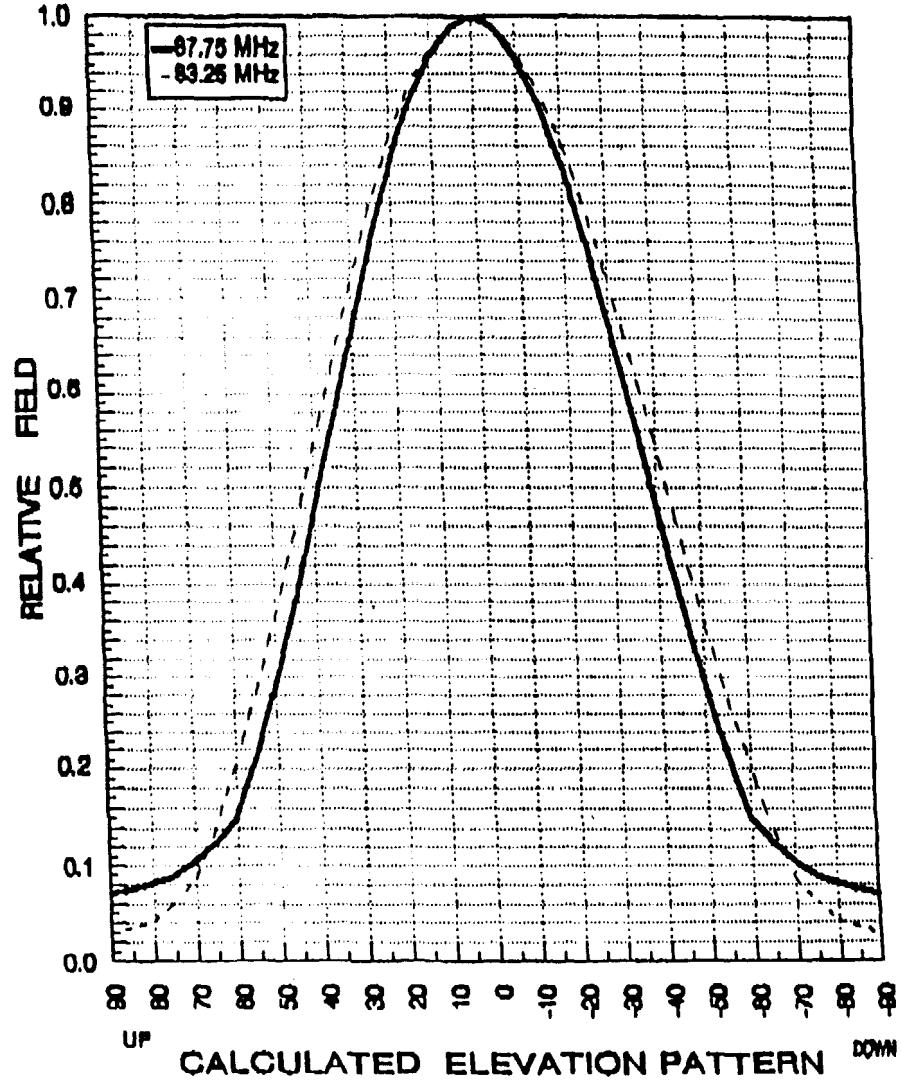
HARRIS ALLIED

RELATIVE FIELD AZIMUTH PATTERN



HARRIS PATTERN NO: 120391-002
GAIN: 1.0 (0 dB) Elevation Power Gain 1.17 (0.68 dB)
CALCULATED PATTERN FOR
7.5' TRIANGULAR FACE
TOWER.

HARRIS ALLIED



CALCULATED ELEVATION PATTERN
HARRIS PATTERN NO: 32592-002

HARRIS CORPORATION BROADCAST DIVISION P.O. BOX 4290 3200 WISMANN LANE QUINCY, ILLINOIS 62306 217/222-8200

APPENDIX 4

TESTING OF THE GRAND ALLIANCE HDTV TRANSMISSION SUBSYSTEM

DIRECTIONAL UHF ANTENNA CHARACTERISTICS AND MAPS SHOWING MEASUREMENT POINT LOCATIONS

PRELIMINARY SPECIFICATION FOR
ANDREW TRASAR® HORIZONTALLY POLARIZED
COAXIAL SLOTTED ARRAY ANTENNA

ELECTRICAL CHARACTERISTICS

CHANNEL:	53
FREQUENCY RANGE:	704 - 710 MHz
AZIMUTH PATTERN NO.:	CH53AZH
ELEVATION PATTERN NO.:	20HS4H
AZIMUTH DIRECTIVITY:	1.94 (2.88 dB)
ELEVATION DIRECTIVITY:	20.00 (13.01 dBd)
PEAK POWER GAIN:	38.80 (15.89 dBd)
GAIN AT HORIZONTAL:	24.83 (13.95 dBd)
ELECTRICAL BEAM TILT:	1.00 Degrees
POWER HANDLING:	60 kW Peak Visual plus 10% Aural
INPUT TYPE:	6-1/8" EIA, 75 Ω
VSWR (MAX.):	1.05 Visual + 0.5 MHz 1.08 Chroma 1.10 Remainder of Channel

PRELIMINARY SPECIFICATION FOR
ANDREW TRASAR® HORIZONTALLY POLARIZED
COAXIAL SLOTTED ARRAY ANTENNA

MECHANICAL CHARACTERISTICS

MOUNTING CONFIGURATION:	Side Mount
HEIGHT OF ANTENNA (D):	35.2 ft.
HEIGHT OF CENTER OF RADIATION (B):	17.6 ft.
OVERALL HEIGHT (A):	38.2 ft. (Includes 3 Ft. Lightning Rods)
DEICING:	Pressurized Radome Enclosure
RADOME DIAMETER (C):	12.4 in. O.D.
CALCULATED WEIGHT[1]:	895 lbs.
WIND LOAD DATA[2]	
SHEAR:	1,220 lbs.
OVERTURNING MOMENT:	N/A (Side Mount)

[1] Calculated weight is based on the **PRELIMINARY** design of the antenna. The actual weight of the antenna will be within ±10% of the calculated weight. The actual weight will be given in the technical manual which accompanies the antenna.

[2] Based on a wind pressure of 50 pounds per square foot (psf) on flat surfaces and 33 psf on cylindrical surfaces per EIA RS-222-C.