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301 921-0115

**ENGINEERING EXHIBIT EE-P:**

**NEW WAVE COMMUNICATIONS L.P.  
RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz      5.0 kW DA-N-U**

**OCTOBER 31, 1995**

**ENGINEERING STATEMENT IN SUPPORT OF  
AN APPLICATION FOR DIRECT MEASUREMENT OF  
POWER AND MODIFICATION OF LICENSE**

NEW WAVE COMMUNICATIONS L.P.  
RADIO STATION KROD  
EL PASO, TEXAS

600 kHz      5.0 kW DA-N-U

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**MULLANEY ENGINEERING, INC.**

**DECLARATION**

I, R. Morgan Burrow, Jr., declare and state that I am a graduate electrical engineer with a B.S.E.E. from the University of Maryland, and my qualifications are known to the Federal Communications Commission, and that I am an associate engineer in the firm of Mullaney Engineering, Inc., and that firm has been retained by New Wave Communications L.P. to prepare an application for direct measurement of power for KROD, licensed to El Paso, Texas. I am a registered professional engineer in the state of Maryland, the Commonwealth of Virginia, and the District of Columbia.

All facts contained herein are true of my own knowledge except where stated to be on information or belief, and as to those facts, I believe them to be true. I declare under penalty of perjury that the foregoing is true and correct.

  
\_\_\_\_\_  
R. Morgan Burrow, Jr., P. E.

Executed on the 31th day of October 1995.

Name of Applicant

**New Wave Communications L.P.**

PURPOSE OF AUTHORIZATION APPLIED FOR: *(check one)*

- Station License
- Direct measurement of power

1. Facilities authorized in construction permit					
Call Sign	File No. of Construction Permit <i>(if applicable)</i>	Frequency <i>(kHz)</i>	Hours of operation	Power in kilowatts	
				Night	Day
KROD	BL-790705 AC	600	Unlimited	5.0	5.0

2. Station location	
State	City or Town
Texas	El Paso

3. Transmitter location			
State	County	City or Town	Street address <i>(or other identification)</i>
Texas	El Paso	El Paso	10420 Dyer Street

4. Main Studio location			
State	County	City or Town	Street Address <i>(or other identification)</i>
Texas	El Paso	El Paso	4150 Pinnacle, Suite 120

5. Remote control point location <i>(specify only if authorized directional antenna)</i>			
State	County	City or Town	Street address <i>(or other identification)</i>
			Same as # 4

6. Operating constants:	
RF common point or antenna current (in amperes) without modulation for night system	RF common point or antenna current (in amperes) without modulation for day system
10.4	15.0
Measured antenna or common point resistance (in ohms) at operating frequency	Measured antenna or common point reactance (in ohms) at operating frequency
Night 50.0 Day 22.3	Night 0.0 Day -85.2

Antenna indications for directional operation						
Tower	Antenna monitor Phase reading in degrees		Antenna monitor sample current ratio		Antenna base current (amperes)	
	Night	Day	Night	Day	Night	Day
1 (SW)	0.0		0.500		9.80	
2 (NW)	136.0		0.472		9.00	
3 (NE)	185.0		0.559		10.85	
4 (SE)	54.0		0.550		10.60	

Manufacturer and type of antenna monitor: **Potomac Instruments AM-19 (204)**

7. Description of antenna system  
 (If directional antenna is used, the information requested below should be given for each element of the array. Use separate sheets if necessary. Height figures should not include obstruction lighting.)

Type radiator	Height in meters of complete radiator above base insulator, or above base if grounded.	Overall height in meters above ground <i>(without obstruction lighting)</i>	If antenna is either top loaded or sectionalized, describe fully in Exhibit No. ____
Four vertical, guyed, series excited, steel radiators of *	91.44m (300')	95.40m (313')	

Excitation  Series  Shunt

\* uniform cross sections

Graphic coordinate to nearest second. For directional antenna give coordinates of center of array. For single vertical radiator give tower location.

North latitude	31° 54' 56"	West longitude	106° 23' 33"
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If not fully described above, attach as Exhibit No. \_\_\_\_\_ further details and dimensions including any other antenna mounted on tower and associated isolation circuits. Also, if necessary for a complete description attach as Exhibit No. \_\_\_\_\_ a sketch of the details and dimensions of ground system.

On file

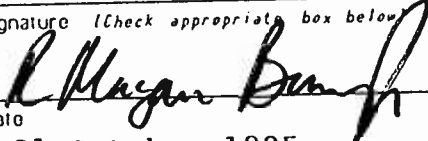
8. In what respect, if any, does the apparatus constructed differ from that described in the application for construction permit or in the permit?

None

9. Give reasons for the change in antenna or common point resistance.

Rebuild of sample and ground systems.

I certify that I represent the applicant in the capacity indicated below and that I have examined the foregoing statement of technical information and that it is true to the best of my knowledge and belief.

Name <i>(Please Print or Type)</i>	Signature <i>(Check appropriate box below)</i>
R. Morgan Burrow, Jr.	
Address <i>(Include ZIP Code)</i>	Date
Mullaney Engineering, Inc. 9049 Shady Grove Court Gaithersburg, Md 20877	31 October 1995
	Telephone No. <i>(Include Area Code)</i>
	301-921-0115

Technical Director

Registered Professional Engineer

Chief Operator

Technical Consultant

Other *(specify)*

ENGINEERING EXHIBIT EE-P

NEW WAVE COMMUNICATIONS L.P.  
RADIO STATION KROD  
EL PASO, TEXAS

600 kHz      5.0 kW DA-N-U

**NARRATIVE STATEMENT**

**I. GENERAL:**

This engineering statement has been prepared on behalf of New Wave Communications L.P., Licensee of Radio Station KROD, which operates on 600 kHz unlimited time with a power of 5.0 kW nondirectional daytime and 5.0 kW directional nighttime at El Paso, Texas.

KROD has been operating under special temporary authority since 1991 when contractors for the city of El Paso, Texas negligently drilled through transmission and sampling coaxial cables in multiple locations on the site while attempting to erect a fence. The damaged coaxial cables were replaced due to the extent of the damage. Refer to John Sadler's 6 April 1993 letter (Ref. 8910-JDS) concerning this. The ground system was replaced since it was not possible (without extensive excavation and additional expense) to quantify the exact underground damage to it (straps and/or radial wires caught, pulled and/or torn by the rotating auger) in addition to the damaged coaxial cables.

The KROD array has been adjusted to conform C.P. requirements with the exception of one bearing for which augmentation is requested. The purpose of this statement is to furnish data for Modification of License and Direct Measurement of Power.

RADIO STATION KROD  
EL PASO, TEXAS  
NARRATIVE STATEMENT (Continued)

MULLANEY ENGINEERING, INC.

FCC policy suggests that monitoring point locations be selected between one and four miles from the transmitter site. A waiver of this policy is requested to continue use of a monitor point location 4.26 miles from the transmitter site for Radial N-76.5°-E.

An FCC Form 302, Section II-A is furnished herewith.

An FCC Form 301, Section V-A is being filed simultaneously to request additional augmentation of the C. P. modified standard pattern.

II. ENGINEERING DISCUSSION:

A. ANTENNA SYSTEM SPECIFICATIONS:

The following are the salient specifications for the KROD license:

1. Description of Directional Antenna System:

Number of Towers: Four (4)  
Type of Towers: Uniform Cross Section,  
Guyed, Series Excited  
Vertical Towers

THE FOLLOWING DATA APPLIES TO ALL FOUR TOWERS:

Height Above 91.44 m.  
Insulator: (300 ft.)  
Overall Height 95.40 m.  
A.G.L.: (313 ft.)

B. ARRAY PARAMETERS:

1. Theoretical Specifications:

	TOWER 1	TOWER 2	TOWER 3	TOWER 4
	*****	*****	*****	*****
Phasing Night:	0.00°	+ 136.00°	+185.50°	+60.00°
Field Ratio				
Night:	1.000	1.083	1.074	0.972

2. Operating Specifications:

	TOWER 1 *****	TOWER 2 *****	TOWER 3 *****	TOWER 4 *****
Phasing Night:*	0.0 <sup>o</sup>	+136.00 <sup>o</sup>	+185.00 <sup>o</sup>	+54.00 <sup>o</sup>
Field Ratio Night:	0.500	0.472	0.559	0.550
Antenna Base				
Current:	9.80	9.00	10.85	10.60
Base Ratio Night:	1.000	0.918	1.107	1.082

\* = Phasing as indicated on a Potomac Instruments Co. Type AM-19 (204) (Serial No. 963).

The common point impedance for nighttime operation has been set to 50 j0. The common point current is 10.4 amperes for 5400 watts directional input. See Figures 21-A and 21-B for additional details.

Tower No. 1 is used for non-directional daytime operation with Towers 2, 3, and 4 floating. The NDA base resistance measured 22.3 Ohms, and for day power of 5000 Watts, the base current is 15.0 amperes. See Figures 20-A and 20-B for further details.

3. Unattenuated Field Intensities on M.P. Radials:

The following tabulation compares the field intensity at one kilometer for each of the M.P. Bearings for KROD's present Modified Standard Pattern vs Adjusted Pattern.

BEARING DEGREES *****	C.P. FIELD AT ONE KM *****	ADJUSTED FIELD AT ONE KM *****
44.5	88.5	64.8
76.5	74.0	42.7
157.0	194.7	126.4
280.5	106.2	106.7 *
324.0	80.5	61.7

\* - Augmentation requested to 120% of this value

4. Monitoring Point Data:

The following is a tabulation of the fields measured at each of the M.P. locations for nighttime operation.

BEARING DEGREES *****	PT. NO. *****	DIST. MILES *****	DIST. KM *****	MEASURED DA-N FIELD *****
44.5°	3	2.69	4.33	14.20
76.5°	10	4.26	6.86	6.25
157.0°	5	2.17	3.49	39.50
280.5°	6	2.90	4.67	19.80
324.0°	2	2.31	3.72	13.50

Figures 22 through 26 furnish data concerning the M.P. locations. Figures 27-A and 27-B are maps showing access to the monitor points from the KROD transmitter. FCC policy suggests that monitoring point locations be selected between one and four miles ( 1.6 to 6.5 km. ) from the antenna array. Local conditions as well as the results of Figures 5-B and 5-C require the use of a monitoring location 4.26 miles ( 6.86 kilometers ) from the antenna array for the N-76.5°-E radial. We believe these M.P. measurements properly reflect the operation of the array.

5. Transmitter Parameters used  
for the NDA-D and DA-N operations:

KROD installed a new solid-state Broadcast Electronics 5 kilowatt AM transmitter. The Collins transmitter that was formerly the main transmitter presently is used as an auxiliary transmitter. The new Broadcast Electronics transmitter has been type-accepted by the Commission and utilizes a power output meter. Due to the modular design of the new

transmitter's final amplifier and use of a regulated final amplifier supply, composite final voltage and current meters are not employed.

**C. DESCRIPTION OF MONITORING SYSTEM:**

The sampling system at KROD meets all the requirements for a type accepted system in accordance with the pertinent Commission Rules.

The damage to the coaxial lines mandated a rebuild of the type-approved sampling system. The old sampling loops and isolation coils were removed to reduce the number of components connected across the base insulators and enhance array stability. Antenna current and phase angle at KROD is sampled by Delta toroidal RF current transformers installed at the output of each antenna coupling unit. The current transformers are connected to new equal length coaxial sampling lines which feed the Potomac Instruments antenna monitor.

All sample lines are phase stabilized solid outer conductor, jacketed, with foam dielectric. (Andrew Type LDF 5-50A).

Cable runs from the ATUs are buried underground for their entire length except for short distances required for connection to equipment.

The sample lines were tested using a time-domain reflectometer (Riser-Bond Model 2910-B) and determined to be of equal electrical length.

Inasmuch as the KROD Phase Sampling System is in full compliance with the requirements of Section 73.68(a)(1) and (2) of the Commission's Rules, it is requested that the requirements to make field intensity measurements be



waived, except when necessary.

D. ANTENNA IMPEDANCE MEASUREMENTS:

Impedance measurements in accordance with the Commission's Rules were made on the non-directional tower, as well as the nighttime common point. The measurements were taken by R. Morgan Burrow, Jr., P.E. and Ron Haney of Radio Station KROD.

All measurements were taken in accordance with the Commission's Rules and the equipment maker's instructions. The following equipment was used to measure the data:

<u>EQUIPMENT</u>	<u>MANUFACTURER</u>	<u>TYPE</u>	<u>LAST CAL.</u>
*****	*****	*****	*****
R.F. Bridge	Delta Electronics	OIB-1	10/16/92
R.F. Bridge	Delta Electronics	OIB-3	11/06/90 *
R.F. Generator/ R.F. Detector	Delta Electronics	RG-4	06/26/90
R.F. Gen/Det	Potomac Instruments	SD-31	*

\* - Used to measure non-directional tower impedance. Figures 20-A through 21-B furnish impedance data.

E. FIELD INTENSITY MEASUREMENTS:

1. General:

Field intensity measurements in this report were made by Ron Haney, Chief Engineer of KROD, using a calibrated field intensity meter. A Potomac Instruments Model FIM-41 field intensity meter was used for the measurements.

The FIM-41 (Serial No. 1134) was last calibrated on July 17, 1992 by the manufacturer.

2. Location of Measurement Points:

Much of the land area around El Paso is desert and undeveloped. Therefore, the availability of repeatable, readily definable landmarks is extremely limited once the measurement bearings leave developed areas. The measurement locations were determined by use of Global Positioning System (GPS) equipment using vector methods. We believe the location accuracy using the GPS equipment is superior to methods used in previous directional proofs on this station. Mr. Burrow and Mr. Haney tested and validated the GPS vector methods and associated software on location prior to use on the proof.

Many of the measurement bearings extend onto Fort Bliss property. This installation controls thousands of square kilometers of land area and artillery and ordinance firing tests and other military training activities are commonplace. Access to certain areas was coordinated by Mr. Haney with base officials and the measurement locations were accessed by slow four-wheel drive across the desert. To some extent, security was of concern to base officials in light of the recent Oklahoma City incident. Occasionally, remnants of spent ordinance would harass Ron Haney's efforts by causing flat tires or require circuitous detours around questionable areas. These situations compounded what already was known to be a difficult and lengthy series of measurements. Military activities were documented in the earlier 1979 measurements on KROD and were encountered again during the 1995 measurements.

Some of KROD's FCC monitor points are located in desert areas. KROD has proposed to mark these desert locations using metal poles set in concrete.

F. ANALYSIS OF FIELD INTENSITY MEASUREMENTS:

All measurements on each radial were analyzed by R. Morgan Burrow, Jr., P.E., by means of ratioing the directional vs non-directional inverse field. In addition, the measurements were electrically plotted as field intensity vs distance data points on log-log graph paper to obtain the best fit to the data on the appropriate graph from the Commission's Rules (Section 73.184, Graph 3-A) which is reproduced herein as Figure 17. The graphs were generated using a modified version of the FORTRAN computer program PLOTEXP that generates "Postscript" plot files; the Commission's staff is familiar with this program. The actual plotting was done on a "Postscript" - compatible laser printer. Errors due to plotting of data points on graph paper of questionable quality have been eliminated since the computer software generates a labelled graph with the data points and inverse field line on it.

Our analysis of the non-directional field intensity data indicates that the N-D inverse fields specified in the June 1979 proof by Oscar Cuellar, P.E., on KROD, are acceptable and have been employed in the analysis of the 1995 directional measurements. The tabulation and plot of Mr. Cuellar's 1979 non-directional inverse field analysis is incorporated herein by reference.

Some of the null radials (especially the N-76.5 and N-157 degree bearings) show scatter. We believe that this is normal and not caused by location problems since GPS was employed to locate the test points using a vector method.

The N-157 degree bearing showed several points above the IDF line. The directional IDF line was determined by the ratio analysis of the measurement data. We did not believe that arbitrary placement of the directional IDF line at the C. P. augmented value of 194.7 mV/m at one km as specified in the construction permit would be representative of the 1995 measured data.

G. ARRAY AUGMENTATION

The KROD array consists of four guyed towers each with an electrical height of 65.9 degrees. The conversion of the MEOV pattern (Standard Pattern Conversion No. 600-21) to fit a standard pattern required several augmentations which are a matter of record and are in the Commission's AM Engineering Data Base. Development and the proximity of high voltage power lines near the KROD antenna require an increase of the augmentation on one monitor-point bearing. A cellular tower was built in the late 1980's directly behind the KROD array. We do not know exactly when the tower was built or if a partial proof was done on KROD due to its construction. Mr. Haney or myself were unable to find any documentation of the tower or a partial proof in the KROD files. Nonetheless, the KROD array was readjusted with this cellular tower in the RF environment. In this specific case due to KROD's low frequency and long wavelength, the effects of the cellular tower were minimal after the KROD array was readjusted. This statement does not imply a blanket release that forthcoming changes on the nearby cellular tower will have minimal or no effect on the KROD array.

RADIO STATION KROD  
 EL PASO, TEXAS  
 NARRATIVE STATEMENT (Continued)

MULLANEY ENGINEERING, INC.

The construction permit for KROD specified a C.P. limit field on the N-280.5 degree bearing which the 1995 measurements exceeds; therefore, a Form 301 is being filed simultaneously to increase the augmentation of the KROD pattern on this azimuth and span.

FCC regulations permit monitor point bearings to be augmented up to twenty percent in excess of the measured values. Therefore, KROD is exercising its option to increase radiation on the N-280.5 degree bearing to the maximum permissible value permitted by law. This augmentation is permitted under the provisions of Section 73.152 (c)(2)(ii).

The requested augmentation is as follows:

CENTRAL AZIMUTH DEGREES *****	SPAN DEGREE *****	PRES. AUG. mV/m @ 1 km *****	PROP. AUG. mV/m @ 1 km *****
5.5	39.0	635.7	635.7
25.0	39.0	405.5	405.5
25.0	10.0	418.4	418.4
44.5	10.0	88.5	88.5
76.5	35.0	57.9	57.9
76.5	10.0	74.0	74.0
102.0	47.0	499.7	499.7
142.0	10.0	554.7	554.7
157.0	30.0	178.6	178.6
157.0	10.0	194.7	194.7
180.0	46.0	1167.9	1167.9
203.5	47.0	1723.7	1723.7
229.5	51.0	1165.8	1165.8
255.0	51.0	351.3	351.3
280.5	48.0	106.2	128.0 *
304.5	39.0	151.3	151.3
324.0	39.0	65.2	65.2
324.0	10.0	80.5	80.5
345.0	10.0	397.2	397.2

\* - Proposed Augmentation Increase

The RMS of the augmented pattern is 707.27 mV/m at one kilometer or 439.48 mV/m at one mile and reflects current conditions. The measured (augmented) pattern is tabulated in Figure 19-A and plotted in Figures 19-B and 19-C (detail).

H. RADIATION HAZARD COMPLIANCE:

The KROD array operating at 5.0 kW DA-N-U is in full compliance with the FCC/ANSI radiation hazard requirements. Six foot high grounded chain link fences no closer than 5 meters enclose each tower. Radiation hazard signs are prominently posted on each face of the fences. In addition, the transmitter site property is enclosed by a perimeter chain-link fence.

I. OTHER INFORMATION:

Figure 28-A is a tabulation of the distance to the measured daytime 5.0 mV/m contour determined from the measured azimuths. Figure 28-B is a map showing the measured 5.0 mV/m daytime contour. The 7.03 mV/m measured nighttime interference free contour is tabulated in Figure 28-C; Figure 28-D is a map showing the nighttime interference-free contour.

Figures 29-A and 29-B are a schematic and a list of components used in the phasing and coupling system.

Figure 30 is a topo map index.

Figures 30-A to 30-X are copies of the quad maps used for the KROD field intensity measurements.

RADIO STATION KROD  
EL PASO, TEXAS  
NARRATIVE STATEMENT (Continued)


MULLANEY ENGINEERING, INC.

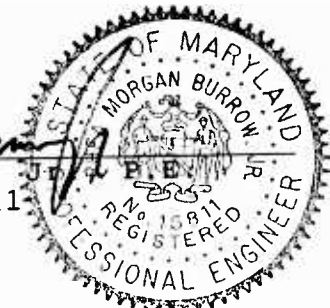


III. SUMMARY:

Repairs are complete on the KROD antenna system; it has been properly readjusted and proofed. KROD is ready for direct measurement of power and modification of license.

There is no further known information necessary to conform this application.

  
R. Morgan Burrow, Jr.  
Maryland No. 15811



October 31, 1995

MULLANEY ENGINEERING, INC.

KROD EL PASO, TX 1995 PROOF

TABULATION OF FIELD INTENSITY MEASUREMENTS  
BEARING IN DEGREES 5.50

POINT *****	DISTANCE (MILES) *****	DISTANCE (KILOMETERS) *****	DA (MV/M) *****	N-DA (MV/M) *****	RATIO DA/N-DA *****
1	1.49	2.40	215.000	262.000	0.821
2	1.90	3.06	169.000	204.000	0.828
3	2.08	3.35	153.000	189.000	0.810
4	2.40	3.86	138.000	167.000	0.826
5	2.65	4.26	125.000	153.000	0.817
6	2.78	4.47	113.000	138.000	0.819
7	3.27	5.26	96.000	116.000	0.828
8	3.55	5.71	87.900	109.000	0.806
9	3.89	6.26	72.500	90.000	0.806
10	4.07	6.55	71.900	90.000	0.799
11	4.94	7.95	58.100	72.000	0.807
12	5.67	9.12	45.200	57.800	0.782
13	5.92	9.53	42.500	54.100	0.786
14	6.46	10.40	38.500	47.500	0.811
15	7.00	11.27	32.900	41.000	0.802
16	7.38	11.88	35.900	45.000	0.798
17	8.01	12.89	33.700	41.500	0.812
18	8.82	14.19	30.800	37.500	0.821
19	8.94	14.39	30.800	38.000	0.811
20	11.49	18.49	22.900	28.300	0.809
21	12.24	19.70	20.800	26.300	0.791
22	12.62	20.31	20.800	25.500	0.816
23	13.13	21.13	20.250	25.000	0.810
24	13.65	21.97	20.000	24.900	0.803
25	13.94	22.43	19.500	24.300	0.802
26	15.24	24.53	16.400	19.600	0.837
27	15.51	24.96	16.900	20.200	0.837
28	16.31	26.25	16.100	20.000	0.805
29	17.50	28.16	14.700	17.900	0.821
30	18.20	29.29	14.100	17.500	0.806
31	19.59	31.53	12.600	16.000	0.788

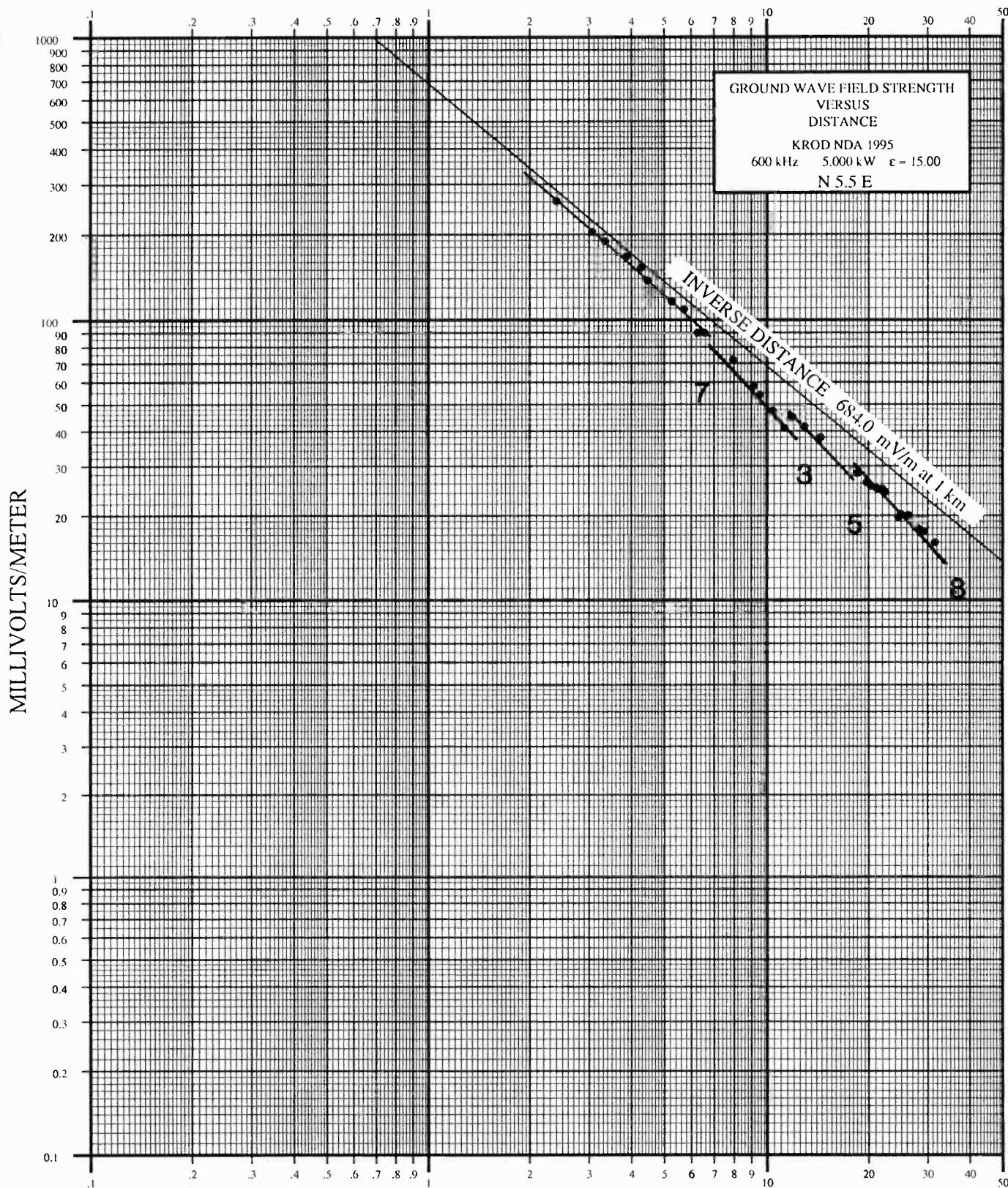
THE AVERAGE RATIO IS : 0.810

INVERSE FIELD = 0.810 \* 684.0 = 554.0 MV/M  
\*\*\*\*\*

FIGURE 1-A



KILOMETERS FROM ANTENNA



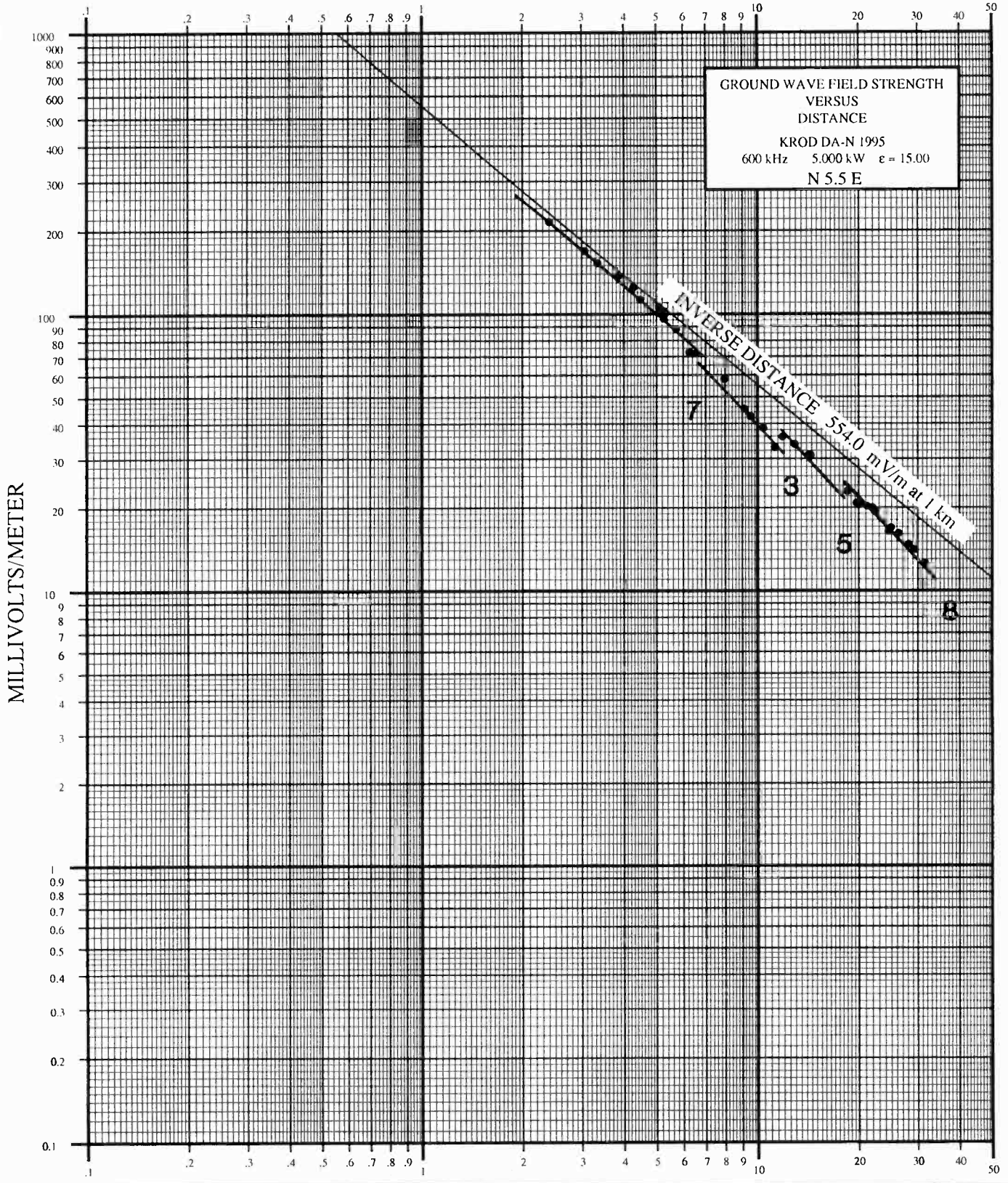
FIELD INTENSITY MEASUREMENTS - N-5.5-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 1-B  
OCTOBER 1995

KILOMETERS FROM ANTENNA



FIELD INTENSITY MEASUREMENTS - N-5.5-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 1-C

OCTOBER 1995

# KROD EL PASO, TEXAS 5.50 DEGREES

POINT #	GPS LAT	GPS LON	NDA DATE	TIME	WX	DAN DATE	TIME	WX
1	31 56.53	106 22.69	27 MARCH	10:30	CLEAR	29 MARCH	2:53	CLEAR
2	31 56.67	106 22.60	27 MARCH	10:40	CLEAR	29 MARCH	2:50	CLEAR
3	31 57.12	106 22.34	27 MARCH	10:50	CLEAR	29 MARCH	2:45	CLEAR
4	31 57.41	106 22.19	27 MARCH	11:00	CLEAR	29 MARCH	2:30	CLEAR
5	31 57.79	106 21.99	27 MARCH	11:05	CLEAR	29 MARCH	2:37	CLEAR
6	31 57.99	106 21.88	27 MARCH	11:20	CLEAR	29 MARCH	2:25	CLEAR
7	31 58.12	106 21.81	27 MARCH	11:25	CLEAR	29 MARCH	2:20	CLEAR
8	31 58.30	106 21.70	27 MARCH	11:30	CLEAR	29 MARCH	2:17	CLEAR
9	31 58.64	106 21.52	27 MARCH	11:35	CLEAR	29 MARCH	2:15	CLEAR
10	31 59.20	106 21.22	27 MARCH	11:45	CLEAR	29 MARCH	2:10	CLEAR
11	31 59.65	106 20.98	27 MARCH	12:00	CLEAR	29 MARCH	2:00	CLEAR
12	32 00.11	106 20.70	27 MARCH	12:15	CLEAR	29 MARCH	1:55	CLEAR
13	32 00.48	106 20.51	27 MARCH	12:25	CLEAR	29 MARCH	1:50	CLEAR
14	32 00.84	106 20.35	27 MARCH	12:30	CLEAR	29 MARCH	1:45	CLEAR
15	32 01.74	106 19.80	27 MARCH	12:40	CLEAR	29 MARCH	1:40	CLEAR
16	32 02.04	106 19.67	28 MARCH	10:15	CLEAR	29 MARCH	1:35	CLEAR
17	32 01.85	106 22.76	28 MARCH	10:35	CLEAR	29 MARCH	1:25	CLEAR
18	32 04.87	106 18.10	28 MARCH	10:45	CLEAR	29 MARCH	1:20	CLEAR
19	32 05.35	106 17.85	28 MARCH	11:00	CLEAR	29 MARCH	1:15	CLEAR
20	32 05.98	106 17.51	28 MARCH	11:15	CLEAR	29 MARCH	1:10	CLEAR
21	32 06.66	106 17.13	28 MARCH	11:30	CLEAR	29 MARCH	12:45	CLEAR
22	32 08.79	106 15.95	28 MARCH	11:45	CLEAR	29 MARCH	12:35	CLEAR
23	32 09.55	106 15.53	28 MARCH	11:55	CLEAR	29 MARCH	12:25	CLEAR
24	32 10.52	106 15.01	28 MARCH	12:15	CLEAR	29 MARCH	12:05	CLEAR

MULLANEY ENGINEERING, INC.  
GAITHERSBURG, MARYLAND

FIGURE 1-D

NOVEMBER 1995

MULLANEY ENGINEERING, INC.

KROD EL PASO, TX 1995 PROOF

TABULATION OF FIELD INTENSITY MEASUREMENTS  
BEARING IN DEGREES 25.00

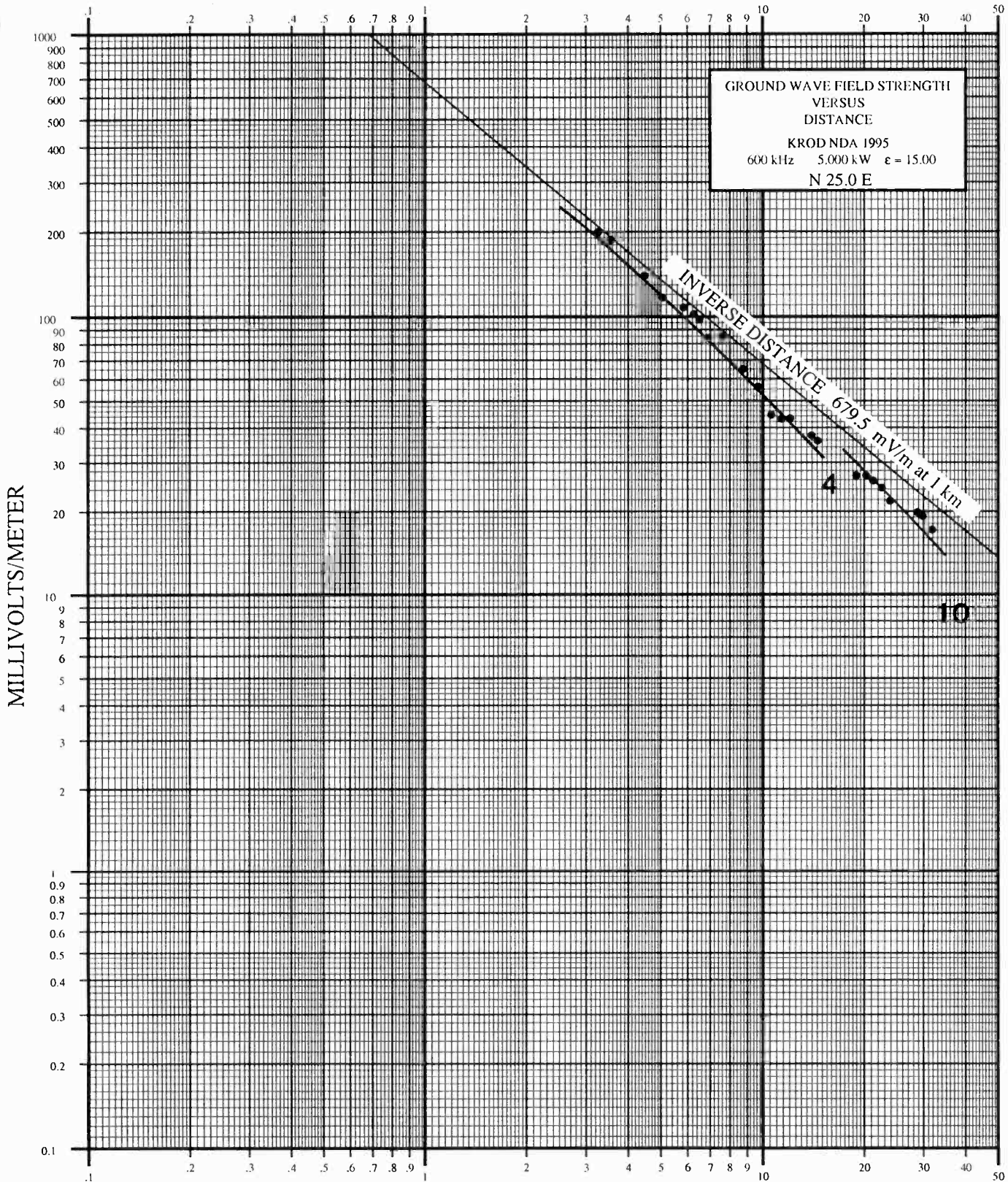
POINT *****	DISTANCE (MILES) *****	DISTANCE (KILOMETERS) *****	DA (MV/M) *****	N-DA (MV/M) *****	RATIO DA/N-DA *****
1	2.02	3.25	116.000	199.000	0.583
2	2.21	3.56	112.000	187.000	0.599
3	2.78	4.47	84.500	140.000	0.604
4	3.15	5.07	70.000	117.000	0.598
5	3.63	5.84	63.900	108.000	0.592
6	3.89	6.26	61.800	102.000	0.606
7	4.04	6.50	55.800	97.500	0.572
8	4.28	6.89	51.500	84.000	0.613
9	4.72	7.60	50.100	85.000	0.589
10	5.43	8.74	38.900	65.000	0.598
11	6.00	9.66	33.000	56.100	0.588
12	6.58	10.59	26.400	44.500	0.593
13	7.06	11.36	25.600	43.000	0.595
14	7.49	12.05	25.900	43.200	0.600
15	8.67	13.95	22.500	37.500	0.600
16	9.03	14.53	21.200	35.800	0.592
17	11.76	18.93	16.900	26.900	0.628
18	12.59	20.26	16.500	26.900	0.613
19	13.20	21.24	15.800	25.800	0.612
20	13.99	22.51	14.700	24.300	0.605
21	14.83	23.87	13.300	21.800	0.610
22	17.86	28.74	11.700	19.800	0.591
23	18.53	29.82	11.300	19.200	0.589
24	19.75	31.78	10.600	17.100	0.620

THE AVERAGE RATIO IS : 0.600

INVERSE FIELD = 0.600 \* 635.7 = 381.4 MV/M  
\*\*\*\*\*



KILOMETERS FROM ANTENNA



FIELD INTENSITY MEASUREMENTS - N-25.0-E

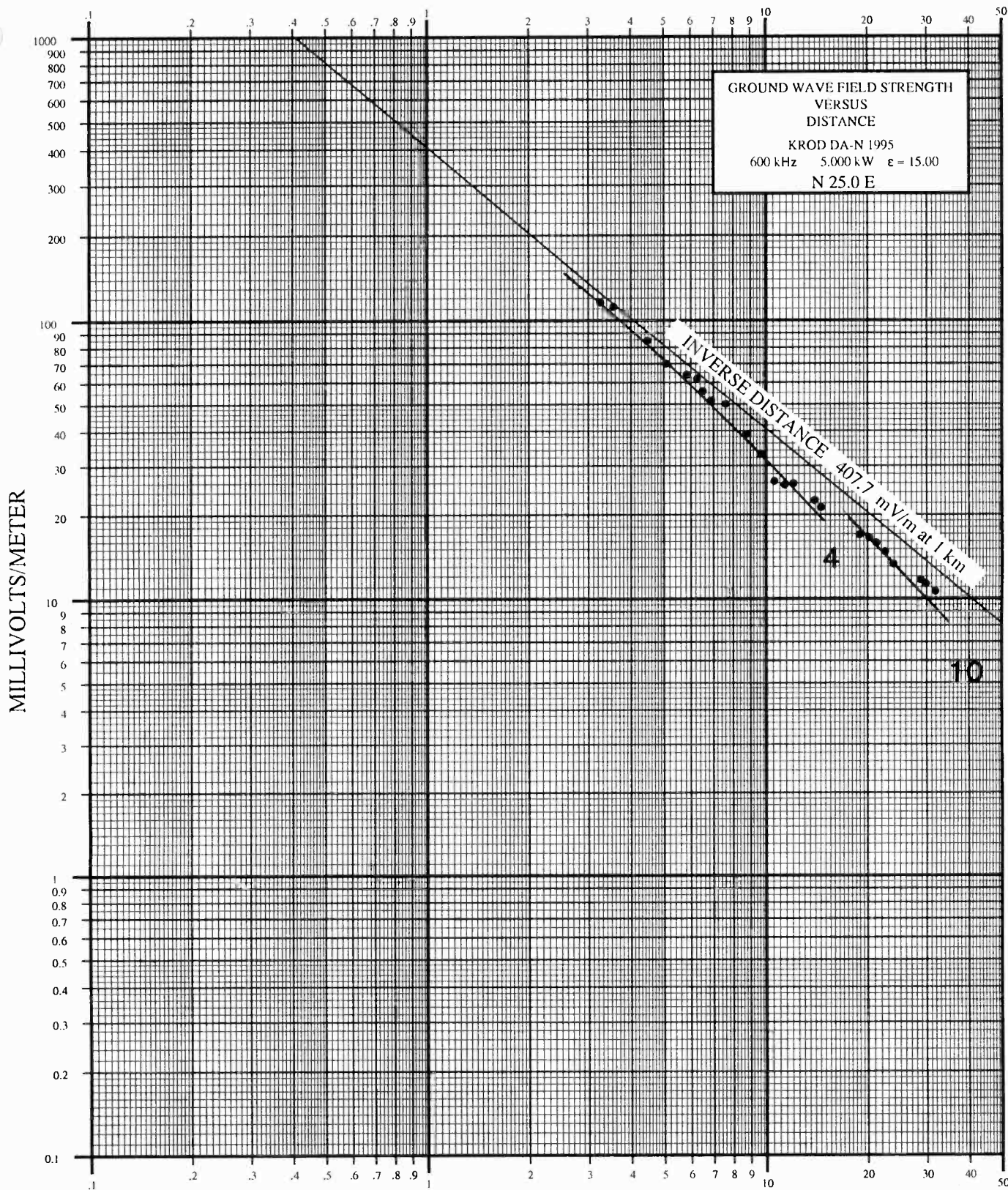
RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 2-B  
OCTOBER 1995



KILOMETERS FROM ANTENNA



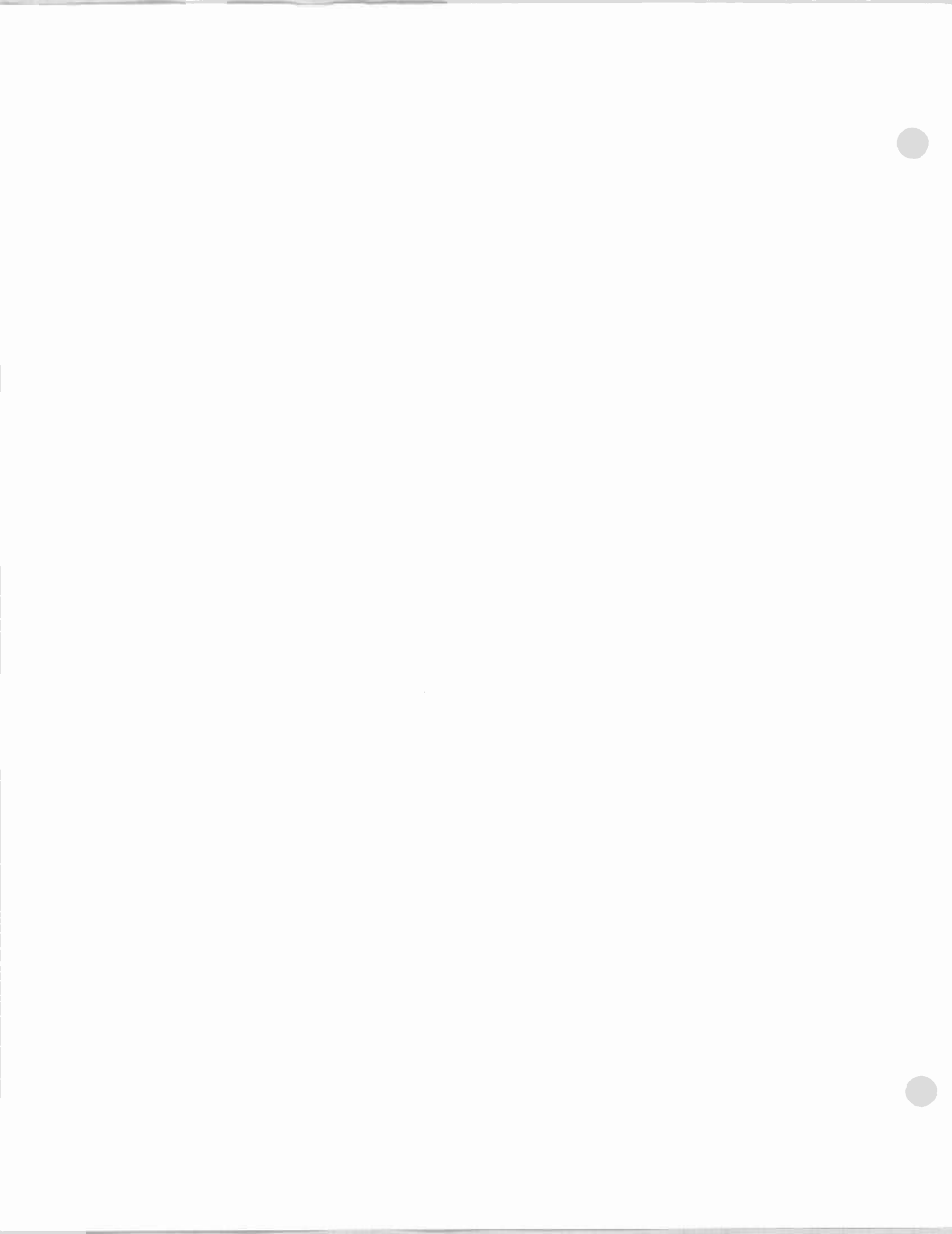
FIELD INTENSITY MEASUREMENTS - N-25.0-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 2-C  
OCTOBER 1995





# KROD EL PASO, TEXAS 25 DEGREES

POINT #	GPS LAT	GPS LON	NDA DATE	TIME	WX	DAN DATE	TIME	WX
1	31 56.23	106 23.39	06 APRIL	12:15	CLEAR	07 APRIL	4:40	CLEAR
2	31 56.56	106 23.37	06 APRIL	12:20	CLEAR	07 APRIL	4:35	CLEAR
3	31 56.73	106 23.36	06 APRIL	12:35	CLEAR	07 APRIL	4:32	CLEAR
4	31 57.22	106 23.29	06 APRIL	12:00	CLEAR	07 APRIL	4:22	CLEAR
5	31 57.00	106 23.32	06 APRIL	12:45	CLEAR	07 APRIL	4:29	CLEAR
6	31 57.33	106 23.28	06 APRIL	12:55	CLEAR	07 APRIL	4:16	CLEAR
7	31 57.75	106 23.23	06 APRIL	1:25	CLEAR	07 APRIL	4:09	CLEAR
8	31 58.00	106 23.20	06 APRIL	1:40	CLEAR	07 APRIL	4:05	CLEAR
9	31 58.29	106 23.18	06 APRIL	1:45	CLEAR	07 APRIL	4:02	CLEAR
10	31 58.45	106 23.15	06 APRIL	1:50	CLEAR	07 APRIL	4:00	CLEAR
11	31 59.20	106 23.06	06 APRIL	2:00	CLEAR	07 APRIL	3:54	CLEAR
12	31 59.83	106 23.00	06 APRIL	2:10	CLEAR	07 APRIL	3:49	CLEAR
13	32 00.06	106 22.96	06 APRIL	2:15	CLEAR	07 APRIL	3:38	CLEAR
14	32 00.51	106 22.92	06 APRIL	2:30	CLEAR	07 APRIL	3:30	CLEAR
15	32 00.97	106 22.88	06 APRIL	2:40	CLEAR	07 APRIL	3:26	CLEAR
16	32 01.31	106 22.82	06 APRIL	2:50	CLEAR	07 APRIL	3:22	CLEAR
17	32 01.85	106 22.76	06 APRIL	3:00	CLEAR	07 APRIL	3:18	CLEAR
18	32 02.55	106 22.69	06 APRIL	3:10	CLEAR	07 APRIL	3:14	CLEAR
19	32 02.65	106 22.69	06 APRIL	3:15	CLEAR	07 APRIL	3:12	CLEAR
20	32 04.90	106 22.43	07 APRIL	12:20	CLEAR	07 APRIL	12:30	CLEAR
21	32 05.55	106 22.34	07 APRIL	12:47	CLEAR	07 APRIL	12:45	CLEAR
22	32 05.87	106 22.28	07 APRIL	1:00	CLEAR	07 APRIL	1:00	CLEAR
23	32 06.31	106 22.26	07 APRIL	1:10	CLEAR	07 APRIL	1:08	CLEAR
24	32 06.75	106 22.20	07 APRIL	1:16	CLEAR	07 APRIL	1:16	CLEAR
25	32 07.02	106 22.17	07 APRIL	1:25	CLEAR	07 APRIL	1:23	CLEAR
26	32 08.14	106 22.08	07 APRIL	1:35	CLEAR	07 APRIL	1:40	CLEAR
27	32 08.36	106 22.02	07 APRIL	1:45	CLEAR	07 APRIL	1:43	CLEAR
28	32 09.08	106 21.95	07 APRIL	1:53	CLEAR	07 APRIL	1:54	CLEAR
29	32 10.10	106 21.82	07 APRIL	2:04	CLEAR	07 APRIL	2:01	CLEAR
30	32 10.72	106 21.76	07 APRIL	2:14	CLEAR	07 APRIL	2:17	CLEAR
31	32 11.92	106 21.63	07 APRIL	2:28	CLEAR	07 APRIL	2:26	CLEAR

**MULLANEY ENGINEERING, INC.**  
 GAITHERSBURG, MARYLAND

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FIGURE 2-D

NOVEMBER 1995



MULLANEY ENGINEERING, INC.

KROD EL PASO, TX 1995 PROOF

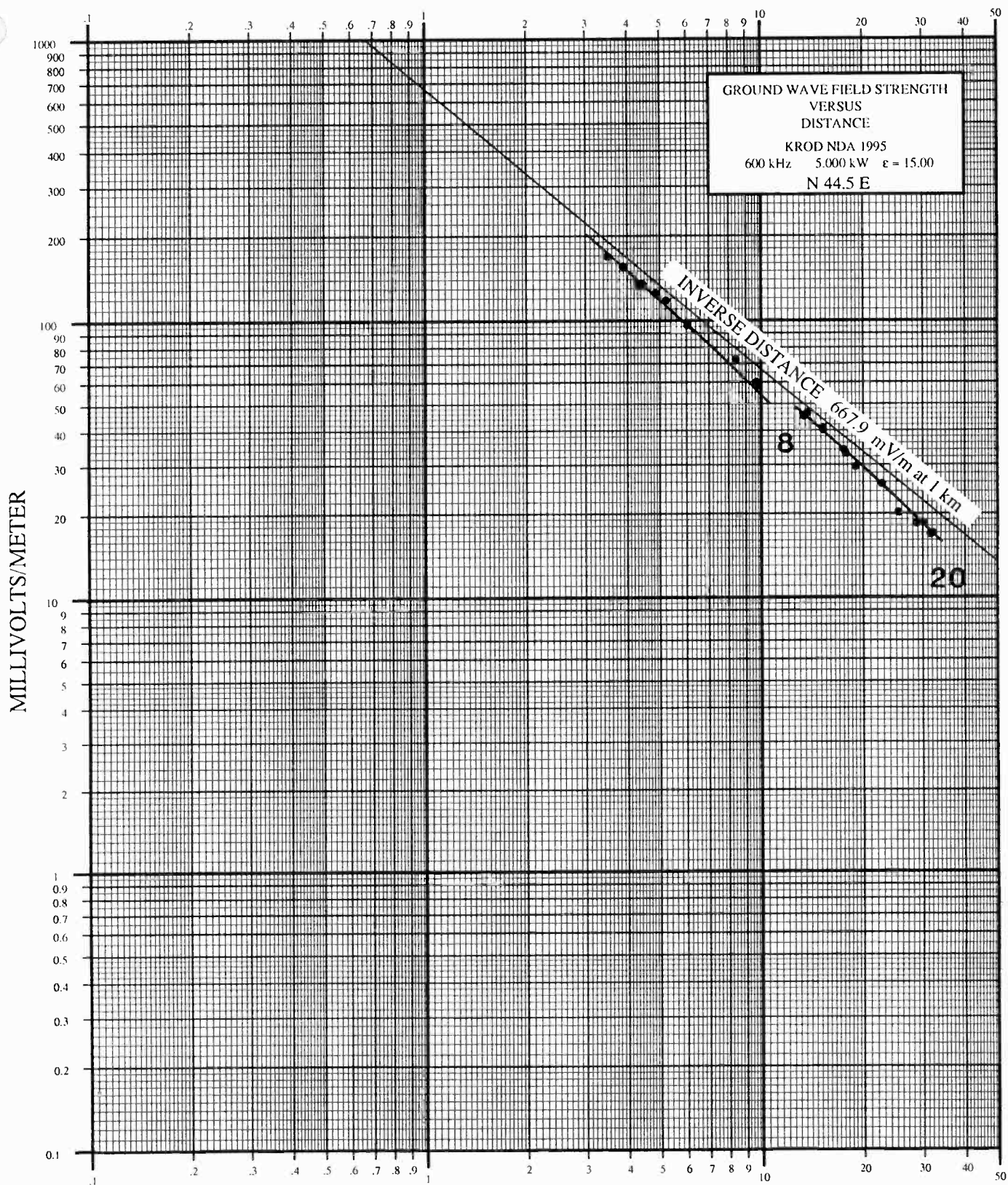
TABULATION OF FIELD INTENSITY MEASUREMENTS  
BEARING IN DEGREES 44.50

POINT *****	DISTANCE (MILES) *****	DISTANCE (KILOMETERS) *****	DA (MV/M) *****	N-DA (MV/M) *****	RATIO DA/N-DA *****
1	2.17	3.49	18.500	169.000	0.109
2	2.41	3.88	11.200	156.000	0.072
3MP	2.69	4.33	14.200	135.000	0.105
4	2.76	4.44	12.200	135.000	0.090
5	3.02	4.86	12.100	125.000	0.097
6	3.24	5.21	10.600	118.000	0.090
7	3.75	6.03	10.100	96.000	0.105
8	5.22	8.40	7.900	72.200	0.109
9	6.01	9.67	5.020	60.000	0.084
10	6.10	9.82	6.200	58.500	0.106
11	8.31	13.37	4.690	45.000	0.104
12	8.46	13.61	4.800	46.200	0.104
13	9.45	15.21	3.980	41.000	0.097
14	9.48	15.26	3.950	40.100	0.099
15	10.90	17.54	3.050	34.000	0.090
16	11.04	17.77	2.950	32.900	0.090
17	11.81	19.01	2.910	29.500	0.099
18	14.12	22.72	2.530	25.600	0.099
19	15.79	25.41	2.820	20.200	0.140
20	17.90	28.81	1.630	18.400	0.089
21	18.66	30.03	1.600	18.500	0.086
22	19.67	31.65	1.540	16.800	0.092
23	19.95	32.11	1.550	17.000	0.091

THE AVERAGE RATIO IS : 0.098

INVERSE FIELD = 0.098 \* 667.9 = 65.5 MV/M  
\*\*\*\*\*

KILOMETERS FROM ANTENNA



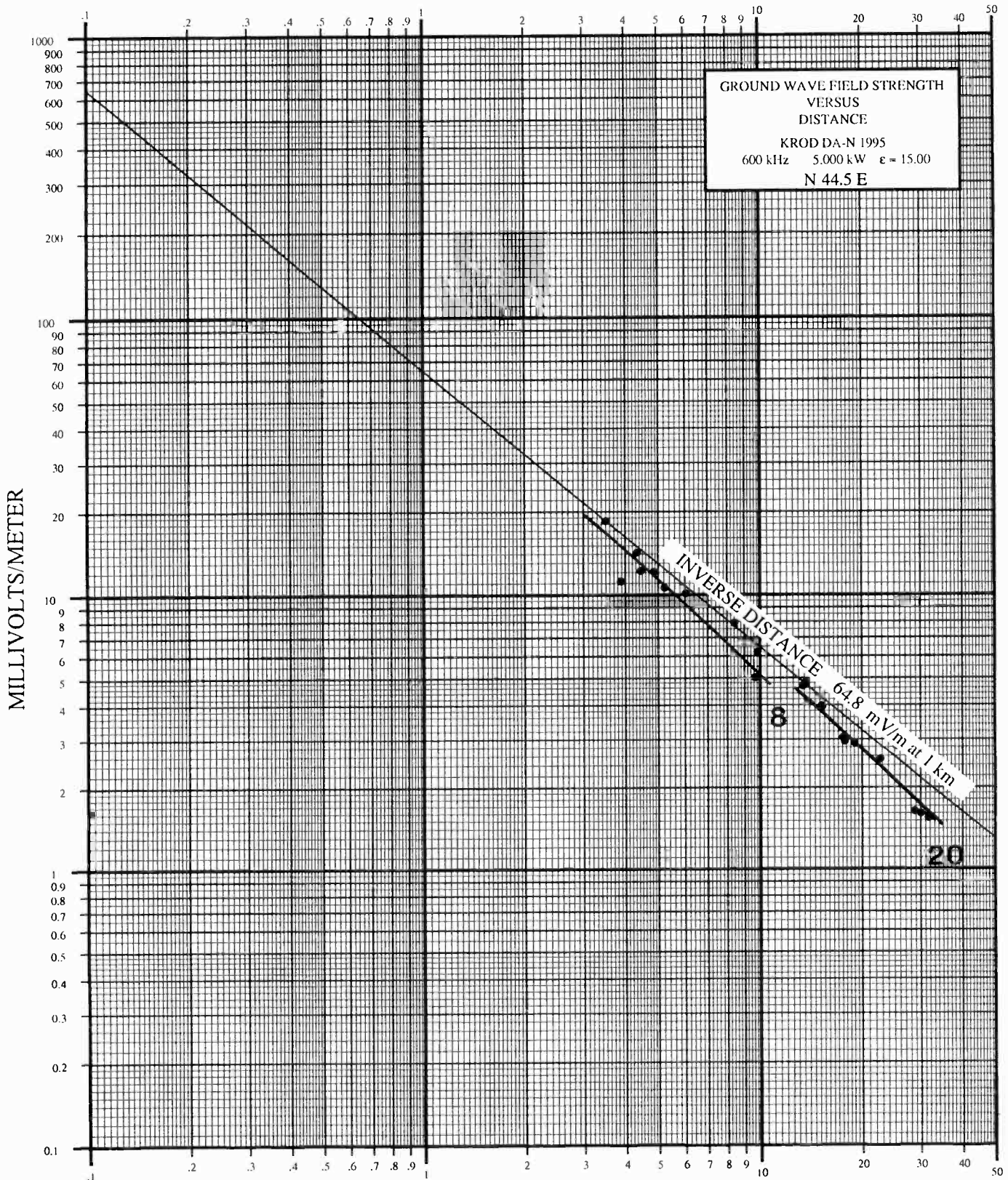
FIELD INTENSITY MEASUREMENTS - N-44.5-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 3-B  
OCTOBER 1995

KILOMETERS FROM ANTENNA



FIELD INTENSITY MEASUREMENTS - N-44.5-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 3-C  
OCTOBER 1995

# KROD EL PASO, TEXAS 44.50 DEGREES

POINT #	GPS LAT	GPS LON	NDA DATE	TIME	WX	DAN DATE	TIME	WX
1	31 56.28	106 22.00	05 MARCH	3:00	CLEAR	04 MARCH	10:50	CLEAR
2	31 56.55	106 21.75	05 MARCH	3:05	CLEAR	04 MARCH	11:05	CLEAR
3MP	31 56.60	106 21.64	05 MARCH	3:10	CLEAR	04 MARCH	11:10	CLEAR
4	31 56.64	106 21.57	05 MARCH	3:15	CLEAR	04 MARCH	11:15	CLEAR
5	31 56.81	106 21.39	05 MARCH	3:20	CLEAR	04 MARCH	11:20	CLEAR
6	31 56.94	106 21.22	05 MARCH	3:28	CLEAR	04 MARCH	11:27	CLEAR
7	31 57.26	106 20.87	05 MARCH	3:37	CLEAR	04 MARCH	11:33	CLEAR
8	31 58.17	106 19.82	05 MARCH	3:49	CLEAR	04 MARCH	11:50	CLEAR
9	31 58.67	106 19.26	05 MARCH	3:57	CLEAR	04 MARCH	11:57	CLEAR
10	31 58.71	106 19.19	05 MARCH	4:02	CLEAR	04 MARCH	12:08	CLEAR
11	32 00.09	106 17.62	04 MARCH	4:38	CLEAR	04 MARCH	12:44	CLEAR
12	32 00.17	106 17.50	04 MARCH	4:35	CLEAR	04 MARCH	1:05	CLEAR
13	32 00.79	106 16.80	04 MARCH	4:29	CLEAR	04 MARCH	1:51	CLEAR
14	32 00.82	106 16.77	04 MARCH	4:25	CLEAR	04 MARCH	2:05	CLEAR
15	32 01.70	106 15.76	04 MARCH	4:25	CLEAR	04 MARCH	2:13	CLEAR
16	32 01.79	106 15.67	04 MARCH	4:18	CLEAR	04 MARCH	2:33	CLEAR
17	32 02.27	106 15.09	04 MARCH	4:15	CLEAR	04 MARCH	4:18	CLEAR
18	32 03.70	106 13.43	04 MARCH	4:10	CLEAR	04 MARCH	2:45	CLEAR
19	32 04.74	106 12.24	04 MARCH	4:05	CLEAR	04 MARCH	3:00	CLEAR
20	32 06.04	106 10.72	04 MARCH	4:00	CLEAR	04 MARCH	3:17	CLEAR
21	32 06.51	106 10.17	04 MARCH	3:54	CLEAR	04 MARCH	3:26	CLEAR
22	32 07.13	106 09.44	04 MARCH	3:45	CLEAR	04 MARCH	3:40	CLEAR
23	32 07.32	106 09.25	04 MARCH	3:48	CLEAR	04 MARCH	3:30	CLEAR

MULLANEY ENGINEERING, INC.  
GAITHERSBURG, MARYLAND

FIGURE 3-D

NOVEMBER 1995

MULLANEY ENGINEERING, INC.

KROD EL PASO, TX 1995 PROOF

TABULATION OF FIELD INTENSITY MEASUREMENTS  
BEARING IN DEGREES 59.00

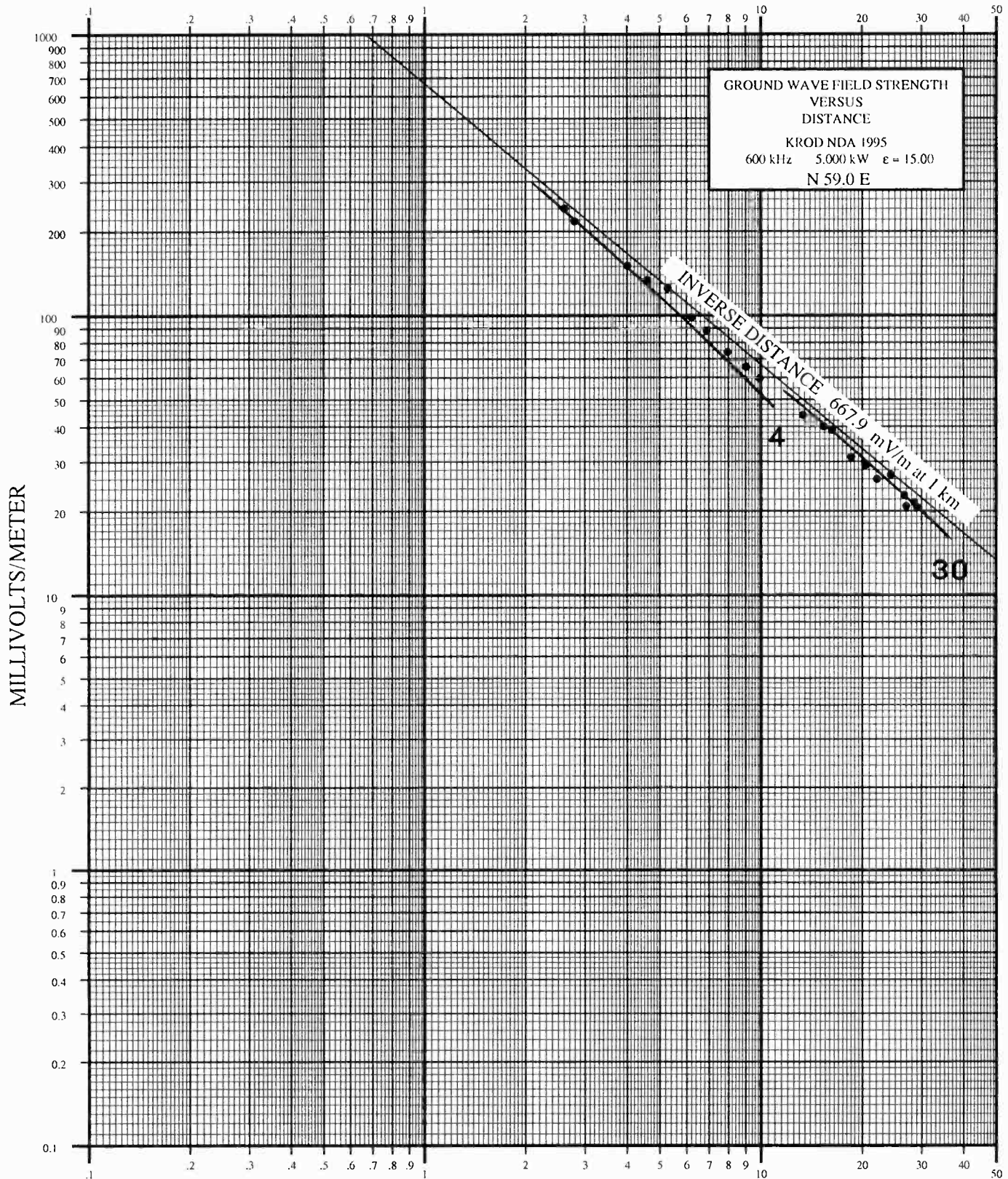
POINT *****	DISTANCE (MILES) *****	DISTANCE (KILOMETERS) *****	DA (MV/M) *****	N-DA (MV/M) *****	RATIO DA/N-DA *****
1	1.62	2.61	26.200	241.000	0.109
2	1.74	2.80	25.000	217.000	0.115
3	2.49	4.01	17.400	151.000	0.115
4	2.85	4.59	15.100	134.000	0.113
5	3.28	5.28	12.200	125.000	0.098
6	3.86	6.21	9.400	98.500	0.095
7	4.28	6.89	7.800	88.000	0.089
8	5.61	9.03	6.250	65.500	0.095
9	4.94	7.95	6.900	73.900	0.093
10	6.16	9.91	6.700	59.500	0.113
11	8.29	13.34	5.450	44.000	0.124
12	9.58	15.42	4.950	39.900	0.124
13	10.13	16.30	4.500	38.700	0.116
14	11.54	18.57	3.010	31.100	0.097
15	12.70	20.44	3.150	29.100	0.108
16	13.76	22.14	2.690	26.000	0.103
17	15.12	24.33	2.620	26.900	0.097
18	16.54	26.62	2.380	22.800	0.104
19	16.80	27.04	2.160	20.800	0.104
20	17.73	28.53	2.060	21.500	0.096
21	18.07	29.08	2.200	20.600	0.107
22	19.24	30.96	1.390	19.600	0.071
23	19.58	31.51	1.260	18.900	0.067

THE AVERAGE RATIO IS : 0.102

INVERSE FIELD = 0.102 \* 667.9 = 68.1 MV/M  
\*\*\*\*\*



KILOMETERS FROM ANTENNA



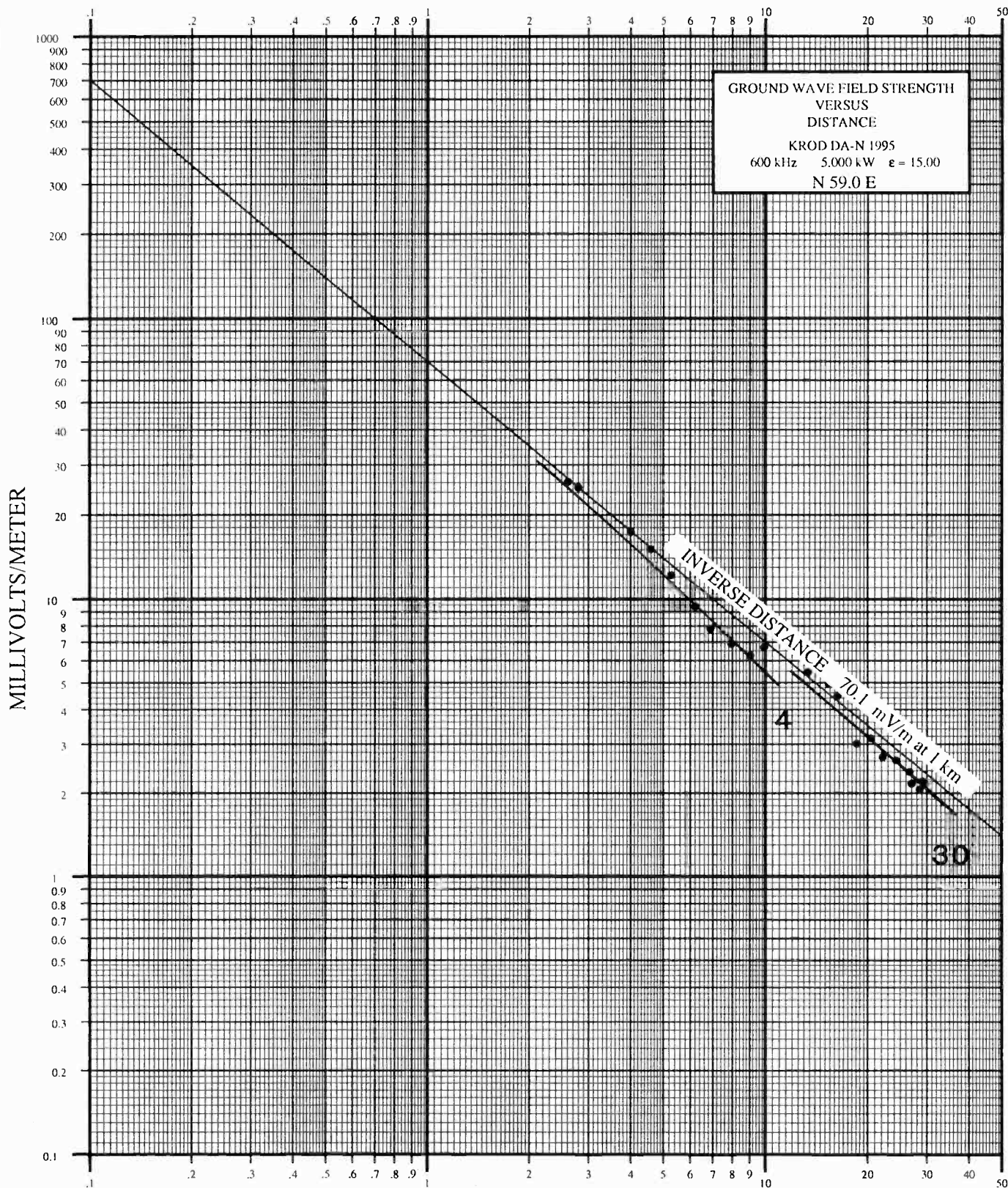
FIELD INTENSITY MEASUREMENTS - N-59.0-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 4-B  
OCTOBER 1995

KILOMETERS FROM ANTENNA



FIELD INTENSITY MEASUREMENTS - N-59.0-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 4-C  
OCTOBER 1995



# KROD EL PASO, TEXAS 59 DEGREES

POINT #	GPS LAT	GPS LON	NDA DATE	TIME	WX	DAN DATE	TIME	WX
1	31 55.56	106 22.13	08 APRIL	2:37	CLEAR	10 APRIL	10:33	CLEAR
2	31 55.72	106 22.03	08 APRIL	2:41	CLEAR	10 APRIL	10:37	CLEAR
3	31 56.05	106 21.38	08 APRIL	2:48	CLEAR	10 APRIL	10:45	CLEAR
4	31 56.22	106 21.07	08 APRIL	2:54	CLEAR	10 APRIL	10:51	CLEAR
5	31 56.40	106 20.68	08 APRIL	3:00	CLEAR	10 APRIL	10:54	CLEAR
6	31 56.66	106 20.18	08 APRIL	3:10	CLEAR	10 APRIL	11:00	CLEAR
7	31 56.85	106 19.81	08 APRIL	3:18	CLEAR	10 APRIL	11:04	CLEAR
8	31 57.14	106 19.23	08 APRIL	3:27	CLEAR	10 APRIL	11:14	CLEAR
9	31 57.45	106 18.64	08 APRIL	3:35	CLEAR	10 APRIL	11:21	CLEAR
10	31 57.69	106 18.16	08 APRIL	3:53	CLEAR	10 APRIL	11:30	CLEAR
11	31 58.64	106 16.29	08 APRIL	4:32	CLEAR	10 APRIL	11:43	CLEAR
12	31 59.22	106 15.16	08 APRIL	4:18	CLEAR	10 APRIL	11:55	CLEAR
13	31 59.47	106 14.67	08 APRIL	4:11	CLEAR	10 APRIL	11:52	CLEAR
14	32 00.10	106 13.43	08 APRIL	4:44	CLEAR	10 APRIL	12:02	CLEAR
15	32 00.62	106 12.42	08 APRIL	4:50	CLEAR	10 APRIL	12:08	CLEAR
16	32 01.07	106 11.48	08 APRIL	4:58	CLEAR	10 APRIL	12:15	CLEAR
17	32 01.70	106 10.30	08 APRIL	5:05	CLEAR	10 APRIL	12:22	CLEAR
18	32 02.53	106 09.06	08 APRIL	5:15	CLEAR	10 APRIL	12:31	CLEAR
19	32 02.45	106 08.82	08 APRIL	5:23	CLEAR	10 APRIL	12:38	CLEAR
20	32 02.86	106 08.02	08 APRIL	5:30	CLEAR	08 APRIL	6:05	CLEAR
21	32 03.02	106 07.71	08 APRIL	5:58	CLEAR	08 APRIL	6:01	CLEAR
22	32 03.54	106 19.24	08 APRIL	5:38	CLEAR	08 APRIL	6:20	CLEAR
23	32 03.70	106 06.39	08 APRIL	5:45	CLEAR	08 APRIL	6:15	CLEAR

MULLANEY ENGINEERING, INC. GAITHERSBURG, MARYLAND
FIGURE 4-D
NOVEMBER 1995

MULLANEY ENGINEERING, INC.

KROD EL PASO, TX 1995 PROOF

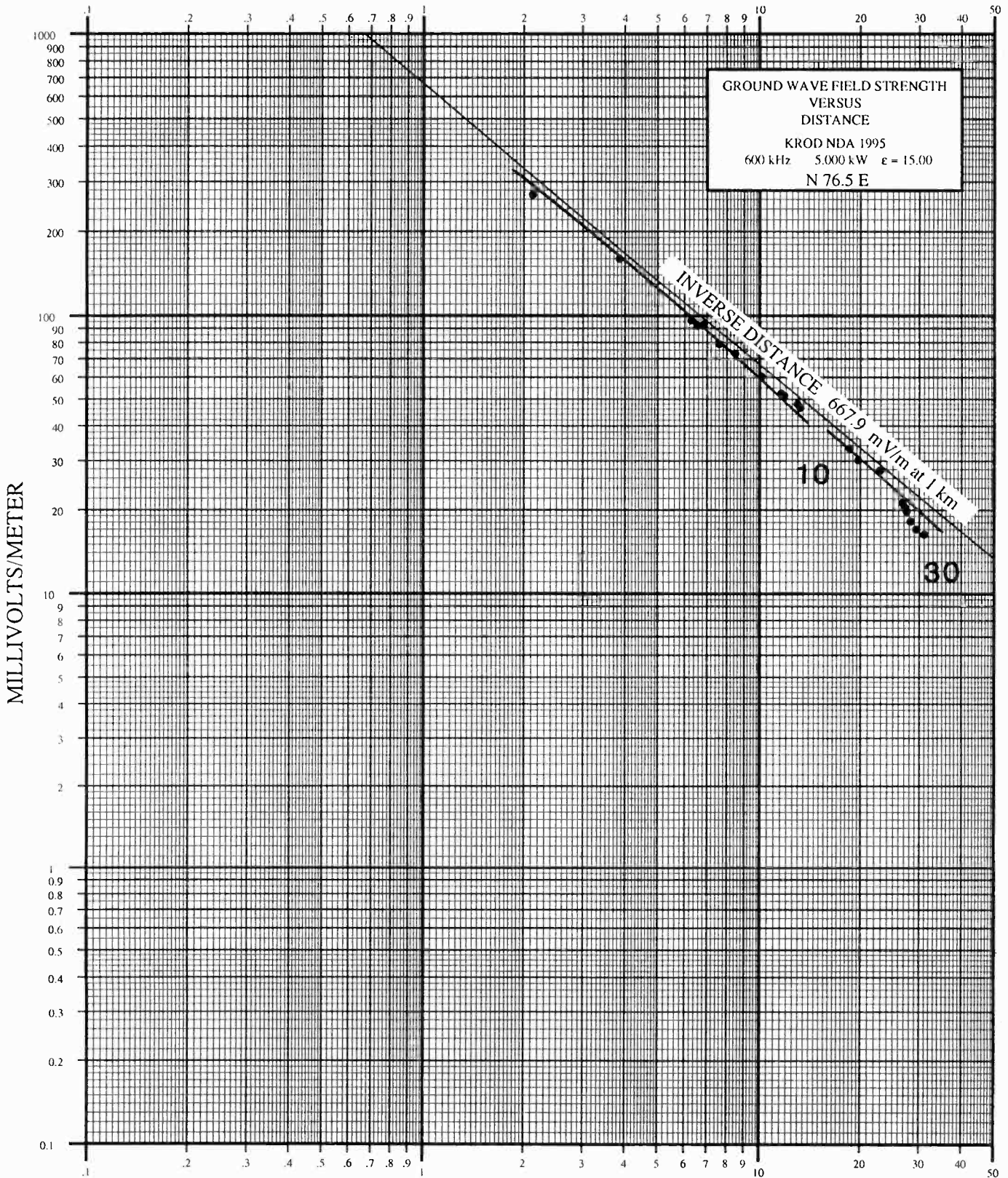
TABULATION OF FIELD INTENSITY MEASUREMENTS  
BEARING IN DEGREES 76.50

POINT *****	DISTANCE (MILES) *****	DISTANCE (KILOMETERS) *****	DA (MV/M) *****	N-DA (MV/M) *****	RATIO DA/N-DA *****
1	1.32	2.12	12.500	270.000	0.046
2	2.39	3.85	6.100	160.000	0.038
3	2.42	3.89	4.900	158.000	0.031
4	2.70	4.35	2.710	139.000	0.019
5	3.24	5.21	2.050	118.000	0.017
6	3.39	5.46	3.200	112.000	0.029
7	3.75	6.03	3.700	101.000	0.037
8	3.90	6.28	4.450	96.000	0.046
9	4.06	6.53	4.720	92.000	0.051
10MP	4.26	6.86	6.250	93.000	0.067
11	4.72	7.60	6.420	79.000	0.081
12	5.26	8.46	4.580	73.000	0.063
13	6.30	10.14	4.150	60.500	0.069
14	7.20	11.59	2.770	52.500	0.053
15	7.35	11.83	2.840	51.500	0.055
16	7.60	12.23	2.300	48.000	0.048
17	8.06	12.97	2.650	48.000	0.055
18	8.22	13.23	2.690	46.500	0.058
19	11.54	18.57	2.520	33.200	0.076
20	12.25	19.71	2.460	30.200	0.081
21	14.23	22.90	2.190	27.800	0.079
22	16.60	26.71	1.540	21.200	0.073
23	16.85	27.12	1.400	20.500	0.068
24	17.10	27.52	1.580	19.800	0.080
25	17.55	28.24	1.430	18.200	0.079
26	18.28	29.42	1.290	17.000	0.076
27	19.29	31.04	1.250	16.300	0.077

THE AVERAGE RATIO IS : 0.057

INVERSE FIELD = 0.057 \* 663.0 = 37.8 MV/M  
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KILOMETERS FROM ANTENNA



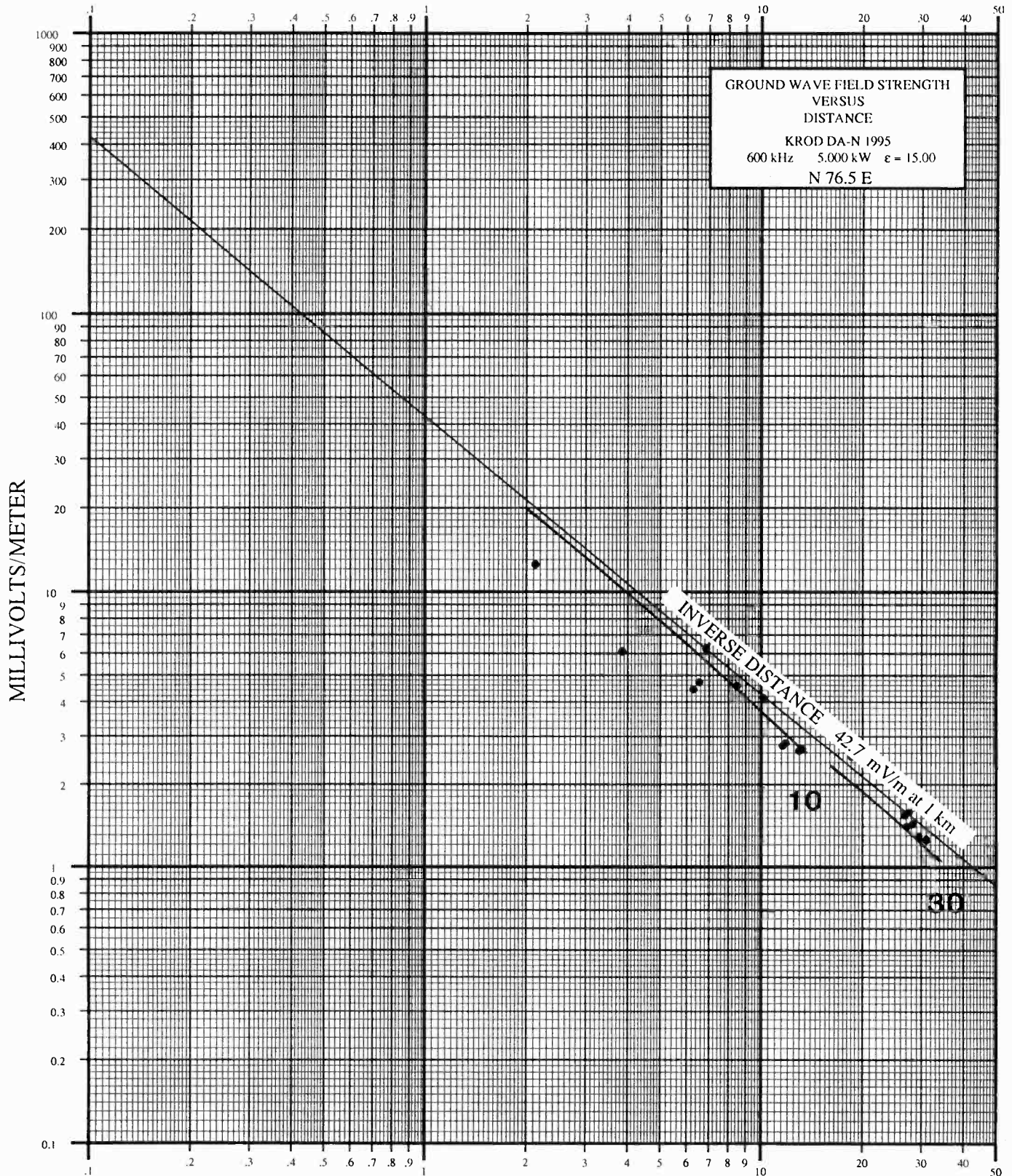
FIELD INTENSITY MEASUREMENTS - N-76.5-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 5-B  
OCTOBER 1995

KILOMETERS FROM ANTENNA



FIELD INTENSITY MEASUREMENTS - N-76.5-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 5-C  
OCTOBER 1995

# KROD EL PASO, TEXAS 76.50 DEGREES

POINT #	GPS LAT	GPS LON	NDA DATE	TIME	WX	DAN DATE	TIME	WX
1	31 55.20	106 22.24	07 MARCH	12:20	CLEAR	09 MARCH	10:17	CLEAR
2	31 55.42	106 21.18	07 MARCH	12:04	CLEAR	09 MARCH	10:25	CLEAR
3	31 55.42	106 21.15	07 MARCH	12:40	CLEAR	09 MARCH	10:30	CLEAR
4	31 55.48	106 20.87	07 MARCH	12:55	CLEAR	09 MARCH	10:35	CLEAR
5	31 55.61	106 20.33	07 MARCH	1:05	CLEAR	09 MARCH	11:08	CLEAR
6	31 55.62	106 20.18	07 MARCH	1:10	CLEAR	09 MARCH	11:00	CLEAR
7	31 55.70	106 19.83	07 MARCH	1:18	CLEAR	09 MARCH	11:15	CLEAR
8	31 55.72	106 19.68	07 MARCH	1:25	CLEAR	09 MARCH	11:20	CLEAR
9	31 55.76	106 19.51	07 MARCH	1:30	CLEAR	09 MARCH	11:25	CLEAR
10MP	31 55.81	106 19.32	07 MARCH	1:35	CLEAR	09 MARCH	11:30	CLEAR
11	31 55.89	106 18.86	07 MARCH	1:50	CLEAR	09 MARCH	11:40	CLEAR
12	31 56.00	106 18.32	07 MARCH	2:00	CLEAR	09 MARCH	11:50	CLEAR
13	31 56.21	106 17.30	07 MARCH	2:15	CLEAR	09 MARCH	12:00	CLEAR
14	31 56.40	106 16.40	07 MARCH	2:20	CLEAR	09 MARCH	12:10	CLEAR
15	31 56.42	106 16.24	07 MARCH	2:30	CLEAR	09 MARCH	5:10	CLEAR
16	31 56.47	106 16.00	07 MARCH	3:20	CLEAR	08 MARCH	5:05	CLEAR
17	31 56.57	106 15.55	07 MARCH	2:35	CLEAR	08 MARCH	5:05	CLEAR
18	31 56.61	106 15.39	07 MARCH	2:40	CLEAR	08 MARCH	5:00	CLEAR
19	31 57.27	106 12.09	07 MARCH	2:55	CLEAR	08 MARCH	4:55	CLEAR
20	31 57.42	106 11.37	07 MARCH	3:05	CLEAR	08 MARCH	4:50	CLEAR
21	31 57.82	106 09.41	07 MARCH	2:45	CLEAR	08 MARCH	4:40	CLEAR
22	31 58.29	106 07.06	08 MARCH	3:07	CLEAR	08 MARCH	4:35	CLEAR
23	31 58.34	106 06.81	08 MARCH	3:18	CLEAR	08 MARCH	4:30	CLEAR
24	31 58.39	106 06.55	08 MARCH	3:25	CLEAR	08 MARCH	4:25	CLEAR
25	31 58.47	106 06.12	08 MARCH	3:40	CLEAR	08 MARCH	4:25	CLEAR
26	31 58.62	106 05.39	08 MARCH	4:00	CLEAR	08 MARCH	4:05	CLEAR
27	31 58.82	106 04.39	08 MARCH	4:15	CLEAR	08 MARCH	4:10	CLEAR

<p><b>MULLANEY ENGINEERING, INC.</b>          GAITHERSBURG, MARYLAND</p>
<p>FIGURE 5-D</p>
<p>NOVEMBER 1995</p>





MULLANEY ENGINEERING, INC.

KROD EL PASO, TX 1995 PROOF

TABULATION OF FIELD INTENSITY MEASUREMENTS  
BEARING IN DEGREES 102.00

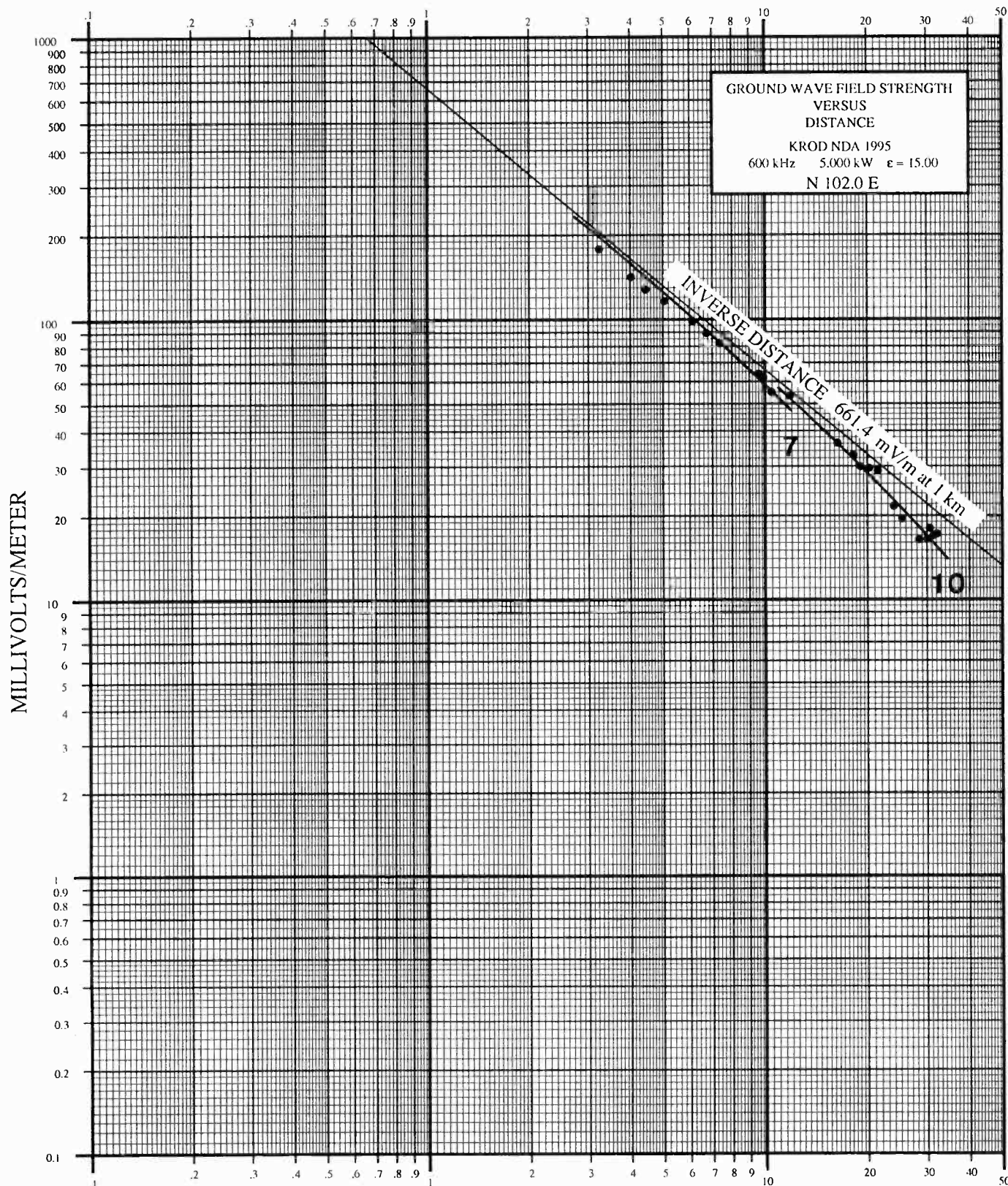
POINT *****	DISTANCE (MILES) *****	DISTANCE (KILOMETERS) *****	DA (MV/M) *****	N-DA (MV/M) *****	RATIO DA/N-DA *****
1	2.01	3.23	122.000	178.000	0.685
2	2.50	4.02	96.000	142.000	0.676
3	2.76	4.44	86.000	128.000	0.672
4	3.14	5.05	78.000	116.000	0.672
5	3.80	6.12	63.000	98.000	0.643
6	4.18	6.73	55.500	89.000	0.624
7	4.57	7.35	51.500	82.000	0.628
8	5.95	9.58	38.000	63.800	0.596
9	6.15	9.90	37.500	62.000	0.605
10	6.49	10.44	33.900	55.000	0.616
11	7.36	11.84	32.500	53.300	0.610
12	10.15	16.33	22.800	36.200	0.630
13	11.30	18.19	21.300	32.900	0.647
14	11.86	19.09	18.300	29.900	0.612
15	12.59	20.26	19.100	29.500	0.647
16	13.35	21.48	18.900	28.900	0.654
17	14.88	23.95	13.300	21.600	0.616
18	15.75	25.35	11.800	19.500	0.605
19	17.68	28.45	10.100	16.400	0.616
20	18.71	30.11	10.600	16.500	0.642
21	19.02	30.61	11.300	18.000	0.628
22	19.47	31.33	10.900	16.950	0.643
23	19.95	32.11	11.000	17.200	0.640

THE AVERAGE RATIO IS : 0.635

INVERSE FIELD = 0.635 \* 661.4 = 420.0 MV/M  
\*\*\*\*\*

FIGURE 6-A

KILOMETERS FROM ANTENNA



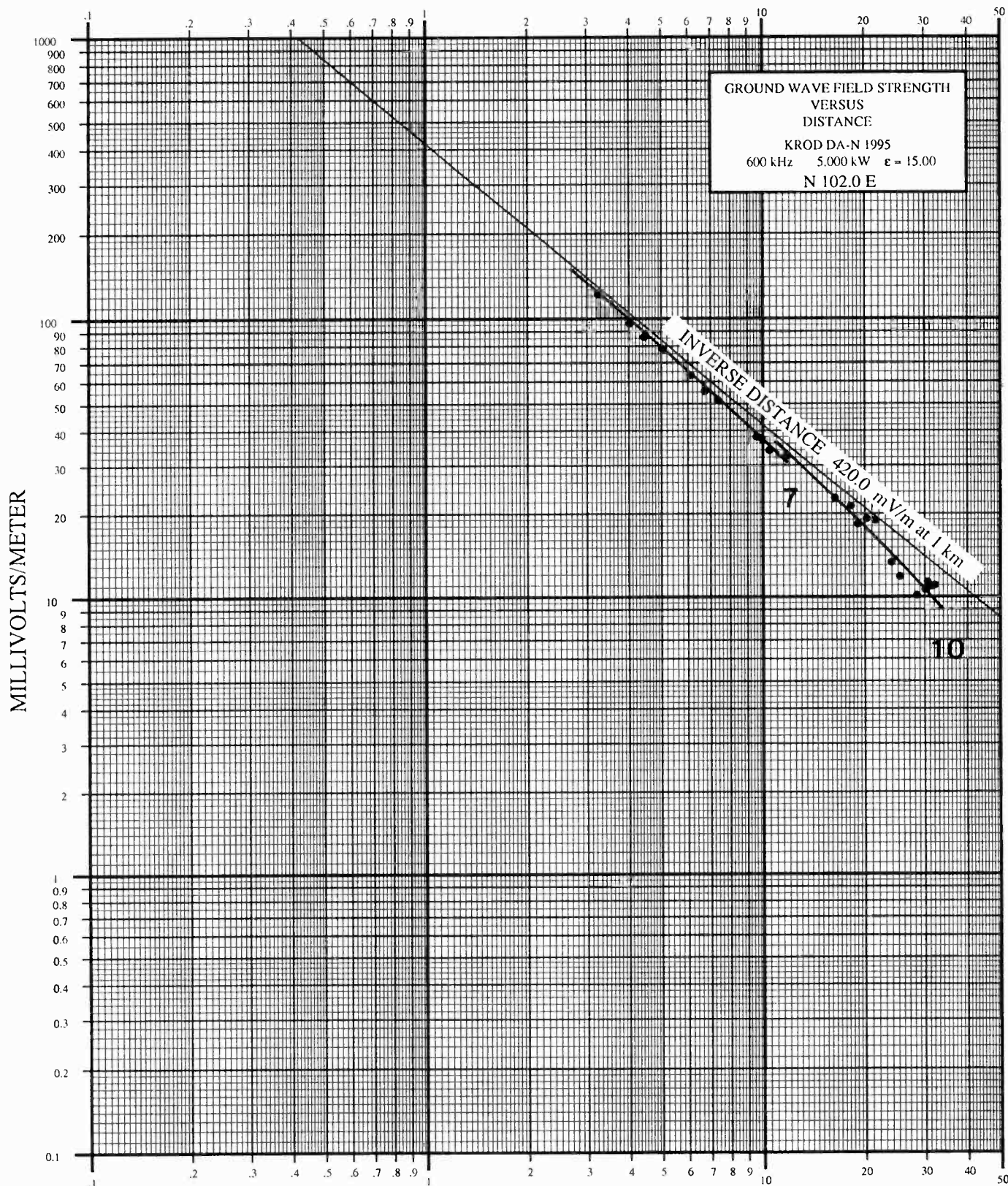
FIELD INTENSITY MEASUREMENTS - N-102.0-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 6-B  
OCTOBER 1995

KILOMETERS FROM ANTENNA



FIELD INTENSITY MEASUREMENTS - N-102.0-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 6-C  
OCTOBER 1995



# KROD EL PASO, TEXAS 102 DEGREES

POINT #	GPS LAT	GPS LON	NDA DATE	TIME	WX	DAN DATE	TIME	WX
1	31 54.57	106 21.54	10 APRIL	2:47	CLEAR	10 APRIL	2:43	PCLOUD
2	31 54.48	106 21.05	10 APRIL	2:52	CLEAR	10 APRIL	2:34	PCLOUD
3	31 54.43	106 20.80	10 APRIL	2:57	CLEAR	10 APRIL	2:22	PCLOUD
4	31 54.36	106 20.41	11 APRIL	3:28	CLEAR	10 APRIL	2:15	PCLOUD
5	31 54.24	106 19.76	11 APRIL	3:20	CLEAR	10 APRIL	2:06	PCLOUD
6	31 54.18	106 19.37	11 APRIL	3:15	CLEAR	10 APRIL	2:00	PCLOUD
7	31 54.10	106 18.99	11 APRIL	3:11	CLEAR	10 APRIL	1:52	PCLOUD
8	31 53.85	106 17.60	11 APRIL	3:05	CLEAR	10 APRIL	1:44	PCLOUD
9	31 53.82	106 17.41	11 APRIL	3:02	CLEAR	11 APRIL	10:32	PCLOUD
10	31 53.75	106 17.07	11 APRIL	2:59	CLEAR	11 APRIL	10:40	PCLOUD
11	31 53.60	106 16.20	11 APRIL	2:54	CLEAR	11 APRIL	10:50	PCLOUD
12	31 53.09	106 13.41	11 APRIL	2:38	CLEAR	11 APRIL	11:02	PCLOUD
13	31 52.87	106 12.26	11 APRIL	2:32	CLEAR	11 APRIL	11:11	PCLOUD
14	31 52.78	106 11.71	11 APRIL	2:19	CLEAR	11 APRIL	11:28	PCLOUD
15	31 52.64	106 10.99	11 APRIL	2:13	CLEAR	11 APRIL	11:35	PCLOUD
16	31 52.50	106 10.22	11 APRIL	2:10	CLEAR	11 APRIL	11:10	PCLOUD
17	31 52.23	106 08.70	11 APRIL	2:02	CLEAR	11 APRIL	11:48	PCLOUD
18	31 52.06	106 07.83	11 APRIL	1:58	CLEAR	11 APRIL	11:54	PCLOUD
19	31 51.72	106 05.92	11 APRIL	1:18	CLEAR	11 APRIL	12:13	PCLOUD
20	31 51.53	106 04.88	11 APRIL	1:12	CLEAR	11 APRIL	12:23	PCLOUD
21	31 51.47	106 04.57	11 APRIL	1:04	CLEAR	11 APRIL	12:44	PCLOUD
22	31 51.39	106 04.12	11 APRIL	1:00	CLEAR	11 APRIL	12:48	PCLOUD
23	31 51.34	106 03.63	11 APRIL	12:57	CLEAR	11 APRIL	12:53	PCLOUD

MULLANEY ENGINEERING, INC. GAITHERSBURG, MARYLAND
FIGURE 6-D
NOVEMBER 1995

MULLANEY ENGINEERING, INC.

KROD EL PASO, TX 1995 PROOF

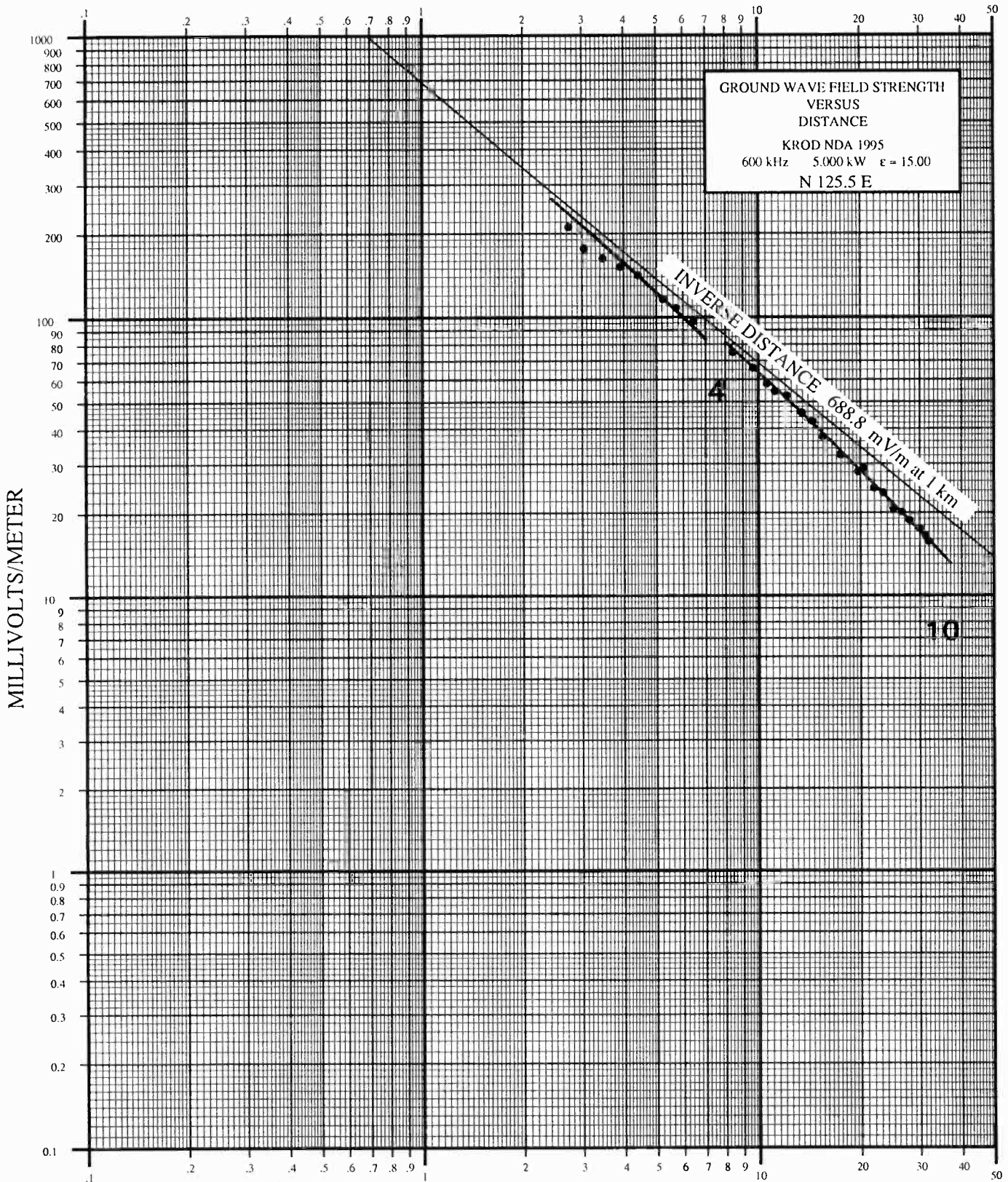
TABULATION OF FIELD INTENSITY MEASUREMENTS  
BEARING IN DEGREES 125.50

POINT *****	DISTANCE (MILES) *****	DISTANCE (KILOMETERS) *****	DA (MV/M) *****	N-DA (MV/M) *****	RATIO DA/N-DA *****
1	1.70	2.74	221.000	211.000	1.047
2	1.89	3.04	183.000	177.000	1.034
3	2.15	3.46	163.000	163.000	1.000
4	2.42	3.89	149.500	152.000	0.984
5	2.74	4.41	140.000	142.000	0.986
6	3.25	5.23	113.000	116.000	0.974
7	3.55	5.71	106.000	108.000	0.981
8	4.00	6.44	93.500	96.500	0.969
9	5.23	8.42	69.900	75.000	0.932
10	6.00	9.66	60.800	66.000	0.921
11	6.58	10.59	56.000	58.000	0.966
12	6.95	11.18	51.800	54.500	0.950
13	7.53	12.12	51.500	52.500	0.981
14	8.34	13.42	43.900	45.700	0.961
15	8.97	14.44	41.000	42.500	0.965
16	9.61	15.47	35.800	37.500	0.955
17	10.85	17.46	31.300	32.300	0.969
18	12.23	19.68	27.900	28.100	0.993
19	12.67	20.39	28.600	28.900	0.990
20	13.63	21.93	24.400	24.600	0.992
21	14.52	23.37	22.400	23.600	0.949
22	15.53	24.99	20.700	20.700	1.000
23	16.48	26.52	19.000	20.100	0.945
24	17.36	27.94	18.000	18.800	0.957
25	18.66	30.03	16.900	17.500	0.966
26	19.41	31.24	15.700	16.500	0.952
27	19.81	31.88	14.900	15.700	0.949

THE AVERAGE RATIO IS : 0.973

INVERSE FIELD = 0.973 \* 688.8 = 670.2 MV/M  
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KILOMETERS FROM ANTENNA



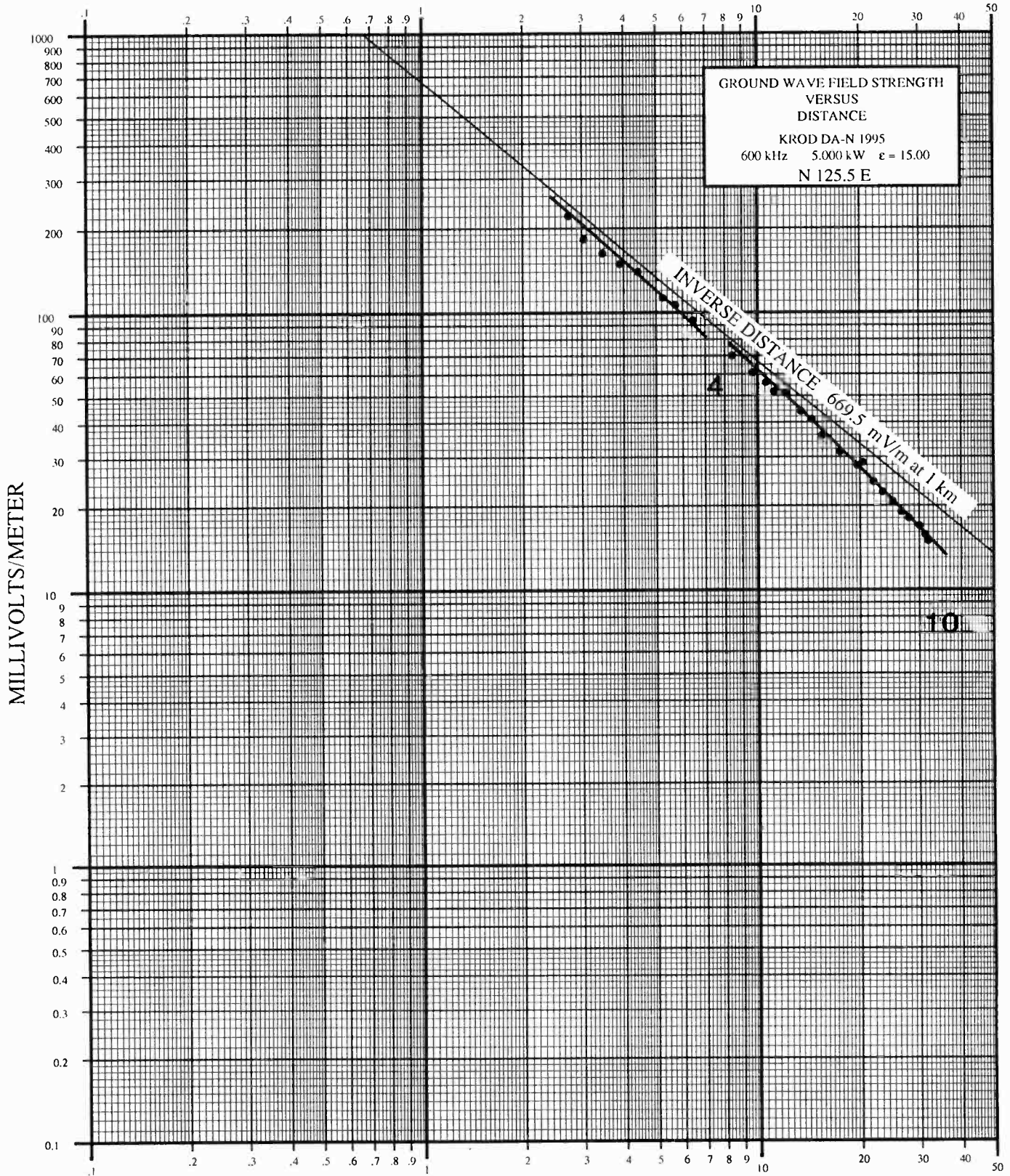
FIELD INTENSITY MEASUREMENTS - N-125.5-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 7-B  
OCTOBER 1995

KILOMETERS FROM ANTENNA



FIELD INTENSITY MEASUREMENTS - N-125.5-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 7-C  
OCTOBER 1995

# KROD EL PASO, TEXAS 125.50 DEGREES

POINT #	GPS LAT	GPS LON	NDA DATE	TIME	WX	DAN DATE	TIME	WX
1	31 54.09	106 22.15	13 APRIL	9:50	CLEAR	15 APRIL	2:38	CLEAR
2	31 53.98	106 21.98	13 APRIL	10:00	CLEAR	15 APRIL	2:45	CLEAR
3	31 53.84	106 21.77	13 APRIL	10:19	CLEAR	15 APRIL	2:25	CLEAR
4	31 53.71	106 21.54	13 APRIL	10:24	CLEAR	15 APRIL	2:21	CLEAR
5	31 53.55	106 21.28	13 APRIL	10:28	CLEAR	15 APRIL	1:02	CLEAR
6	31 53.29	106 20.85	13 APRIL	10:32	CLEAR	15 APRIL	2:14	CLEAR
7	31 53.14	106 20.61	13 APRIL	10:37	CLEAR	15 APRIL	2:10	CLEAR
8	31 52.91	106 20.23	13 APRIL	10:40	CLEAR	15 APRIL	2:05	CLEAR
9	31 52.30	106 19.20	13 APRIL	10:54	CLEAR	15 APRIL	1:54	CLEAR
10	31 51.91	106 18.57	13 APRIL	11:12	CLEAR	15 APRIL	1:46	CLEAR
11	31 51.60	106 18.09	13 APRIL	11:16	CLEAR	15 APRIL	1:40	CLEAR
12	31 51.42	106 17.79	13 APRIL	11:21	CLEAR	15 APRIL	1:37	CLEAR
13	31 51.13	106 17.30	13 APRIL	11:25	CLEAR	15 APRIL	1:33	CLEAR
14	31 50.71	106 16.63	14 APRIL	11:30	CLEAR	15 APRIL	1:26	CLEAR
15	31 50.40	106 16.11	14 APRIL	11:58	CLEAR	14 APRIL	3:19	CLEAR
16	31 50.07	106 15.58	14 APRIL	12:05	CLEAR	14 APRIL	1:47	CLEAR
17	31 49.44	106 14.54	14 APRIL	12:15	CLEAR	14 APRIL	3:03	CLEAR
18	31 48.75	106 13.40	14 APRIL	12:30	CLEAR	14 APRIL	2:42	CLEAR
19	31 48.51	106 13.04	14 APRIL	12:37	CLEAR	14 APRIL	2:39	CLEAR
20	31 48.03	106 12.23	14 APRIL	12:43	CLEAR	14 APRIL	2:33	CLEAR
21	31 47.58	106 11.50	14 APRIL	12:54	CLEAR	14 APRIL	2:27	CLEAR
22	31 47.07	106 10.66	14 APRIL	1:15	CLEAR	14 APRIL	2:17	CLEAR
23	31 46.57	106 09.89	14 APRIL	1:20	CLEAR	14 APRIL	2:08	CLEAR
24	31 46.14	106 09.14	14 APRIL	1:26	CLEAR	14 APRIL	2:04	CLEAR
25	31 45.48	106 08.07	14 APRIL	1:32	CLEAR	14 APRIL	1:59	CLEAR
26	31 45.11	106 07.43	14 APRIL	1:41	CLEAR	14 APRIL	1:54	CLEAR
27	31 44.90	106 07.11	14 APRIL	1:46	CLEAR	14 APRIL	1:49	CLEAR

MULLANEY ENGINEERING, INC.  
GAITHERSBURG, MARYLAND

FIGURE 7-D

NOVEMBER 1995



MULLANEY ENGINEERING, INC.

KROD EL PASO, TX 1995 PROOF

TABULATION OF FIELD INTENSITY MEASUREMENTS  
BEARING IN DEGREES 142.00

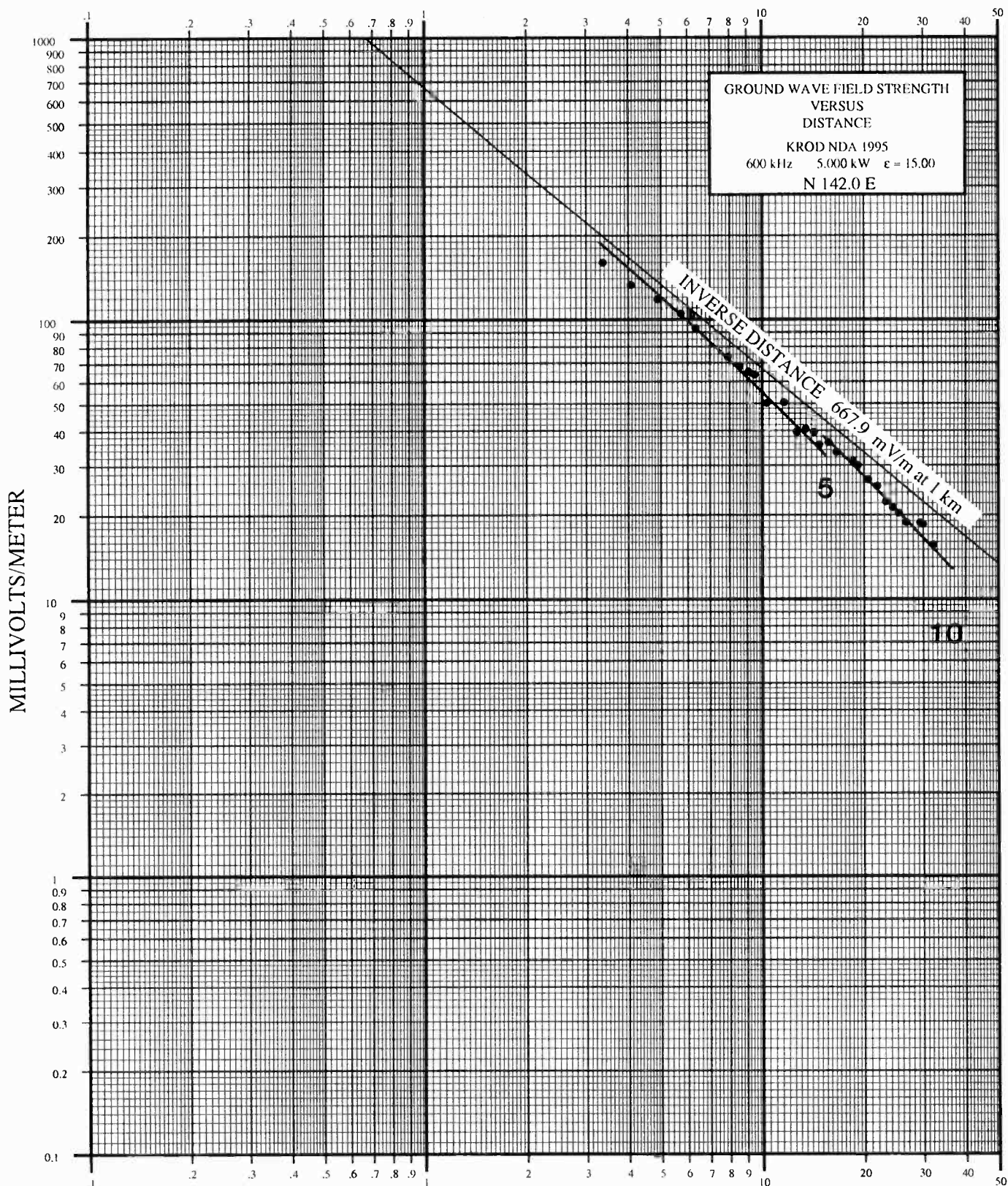
POINT *****	DISTANCE (MILES) *****	DISTANCE (KILOMETERS) *****	DA (MV/M) *****	N-DA (MV/M) *****	RATIO DA/N-DA *****
1	2.09	3.36	118.000	160.000	0.738
2	2.53	4.07	103.000	133.000	0.774
3	3.03	4.88	89.500	118.000	0.758
4	3.56	5.73	76.000	105.000	0.724
5	3.94	6.34	67.500	93.000	0.726
6	4.91	7.90	52.000	73.500	0.707
7	5.33	8.58	50.000	68.000	0.735
8	5.65	9.09	45.900	65.000	0.706
9	7.54	12.13	45.900	61.900	0.742
10	5.89	9.48	45.800	63.500	0.721
11	6.40	10.30	35.500	50.200	0.707
12	7.21	11.60	35.000	50.500	0.693
13	7.88	12.68	29.100	39.500	0.737
14	8.37	13.47	29.500	40.500	0.728
15	8.85	14.24	29.200	39.500	0.739
16	9.17	14.76	26.200	35.500	0.738
17	9.76	15.71	26.900	36.200	0.743
18	10.31	16.59	24.800	33.400	0.743
19	11.53	18.56	24.100	31.200	0.772
20	11.91	19.17	22.800	30.000	0.760
21	12.78	20.57	18.600	26.700	0.697
22	13.61	21.90	19.000	25.300	0.751
23	14.46	23.27	16.400	22.300	0.735
24	15.14	24.36	14.600	21.200	0.689
25	15.79	25.41	15.300	20.300	0.754
26	16.60	26.71	13.700	18.800	0.729
27	18.28	29.42	13.800	18.700	0.738
28	18.59	29.92	12.700	18.500	0.686
29	19.93	32.07	12.000	15.600	0.769

THE AVERAGE RATIO IS : 0.732

INVERSE FIELD = 0.732 \* 667.9 = 488.9 MV/M  
\*\*\*\*\*



KILOMETERS FROM ANTENNA



MILLIVOLTS/METER

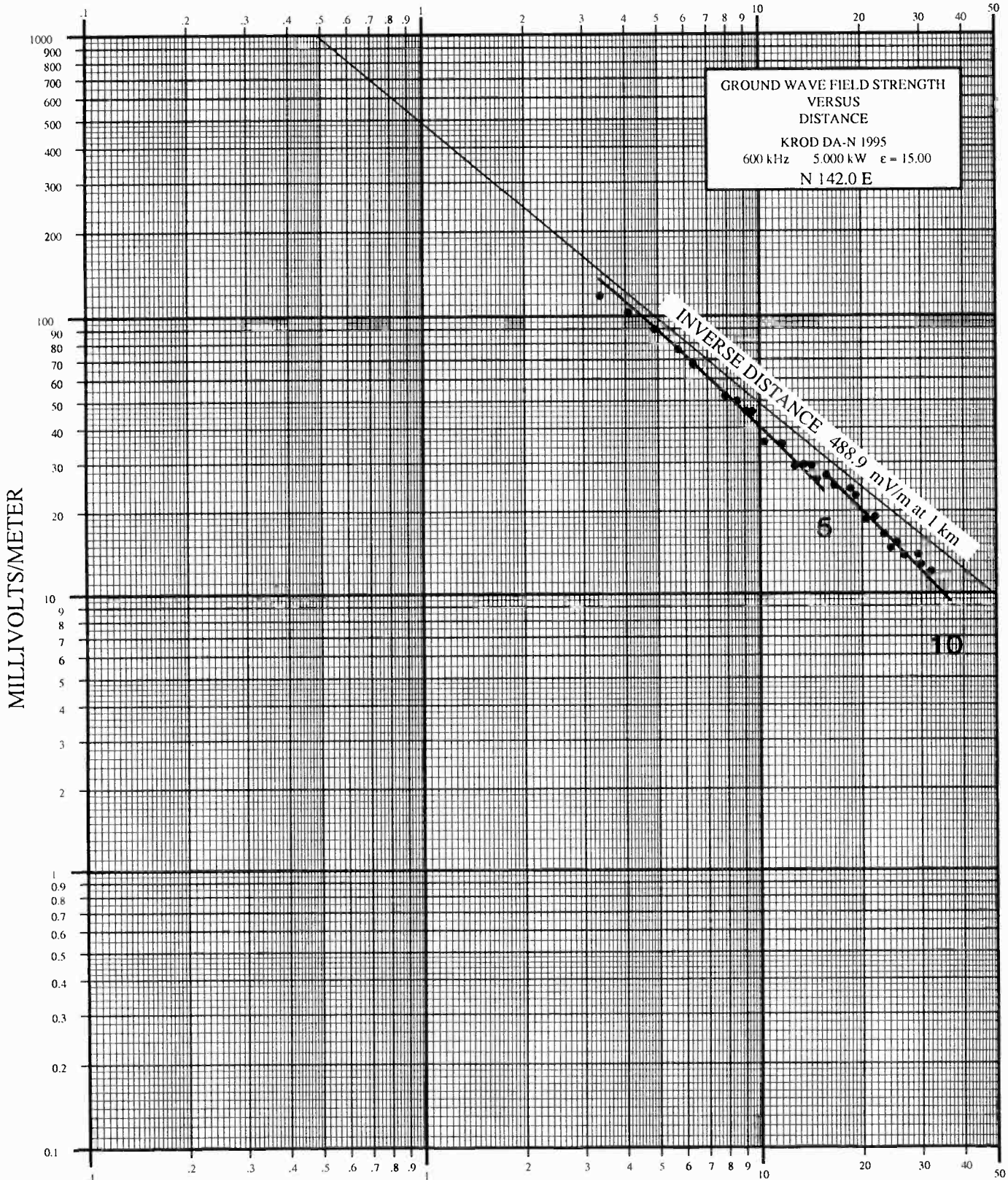
FIELD INTENSITY MEASUREMENTS - N-142.0-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 8-B  
OCTOBER 1995

KILOMETERS FROM ANTENNA



MILLIVOLTS/METER

FIELD INTENSITY MEASUREMENTS - N-142.0-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 8-C  
OCTOBER 1995

# KROD EL PASO, TEXAS 142 DEGREES

POINT #	GPS LAT	GPS LON	NDA DATE	TIME	WX	DAN DATE	TIME	WX
1	31 53.50	106 22.24	15 APRIL	2:53	CLEAR	19 APRIL	1:50	CLEAR
2	31 53.20	106 21.96	15 APRIL	3:02	CLEAR	19 APRIL	1:38	CLEAR
3	31 52.86	106 21.64	15 APRIL	3:08	CLEAR	19 APRIL	1:34	CLEAR
4	31 52.50	106 21.32	18 APRIL	11:28	CLEAR	19 APRIL	1:27	CLEAR
5	31 52.24	106 21.08	18 APRIL	11:35	CLEAR	19 APRIL	1:22	CLEAR
6	31 51.57	106 20.47	18 APRIL	11:49	CLEAR	19 APRIL	1:15	CLEAR
7	31 51.29	106 20.21	18 APRIL	11:56	CLEAR	19 APRIL	1:10	CLEAR
8	31 51.06	106 20.01	18 APRIL	12:01	CLEAR	19 APRIL	1:06	CLEAR
9	31 51.00	106 19.95	18 APRIL	12:07	CLEAR	19 APRIL	1:03	CLEAR
10	31 50.90	106 19.86	18 APRIL	12:12	CLEAR	19 APRIL	1:00	CLEAR
11	31 50.54	106 19.55	18 APRIL	12:22	CLEAR	19 APRIL	12:55	CLEAR
12	31 49.99	106 19.04	18 APRIL	12:30	CLEAR	19 APRIL	12:48	CLEAR
13	31 49.54	106 18.61	18 APRIL	12:39	CLEAR	19 APRIL	12:35	CLEAR
14	31 49.20	106 18.31	18 APRIL	12:43	CLEAR	19 APRIL	12:32	CLEAR
15	31 48.87	106 18.01	18 APRIL	12:49	CLEAR	19 APRIL	12:28	CLEAR
16	31 48.65	106 17.80	18 APRIL	12:57	CLEAR	19 APRIL	12:18	CLEAR
17	31 48.24	106 17.44	18 APRIL	1:05	CLEAR	19 APRIL	12:10	CLEAR
18	31 47.87	106 17.10	18 APRIL	1:12	CLEAR	19 APRIL	12:05	CLEAR
19	31 47.02	106 16.31	18 APRIL	1:19	CLEAR	19 APRIL	11:55	CLEAR
20	31 46.76	106 16.07	18 APRIL	1:30	CLEAR	18 APRIL	3:55	CLEAR
21	31 46.16	106 15.53	18 APRIL	1:47	CLEAR	18 APRIL	3:52	CLEAR
22	31 45.59	106 15.01	18 APRIL	2:04	CLEAR	18 APRIL	3:47	CLEAR
23	31 45.00	106 14.49	18 APRIL	2:06	CLEAR	18 APRIL	3:43	CLEAR
24	31 44.53	106 14.05	18 APRIL	2:10	CLEAR	18 APRIL	3:39	CLEAR
25	31 44.10	106 13.65	18 APRIL	2:17	CLEAR	18 APRIL	3:25	CLEAR
26	31 43.55	106 13.13	18 APRIL	2:26	CLEAR	18 APRIL	3:21	CLEAR
27	31 42.38	106 12.09	18 APRIL	2:38	CLEAR	18 APRIL	3:13	CLEAR
28	31 42.18	106 11.89	18 APRIL	2:41	CLEAR	18 APRIL	3:11	CLEAR
29	31 41.25	106 11.05	18 APRIL	2:47	CLEAR	18 APRIL	3:06	CLEAR

MULLANEY ENGINEERING, INC.  
GAITHERSBURG, MARYLAND

FIGURE 8-D

NOVEMBER 1995

MULLANEY ENGINEERING, INC.

KROD EL PASO, TX 1995 PROOF

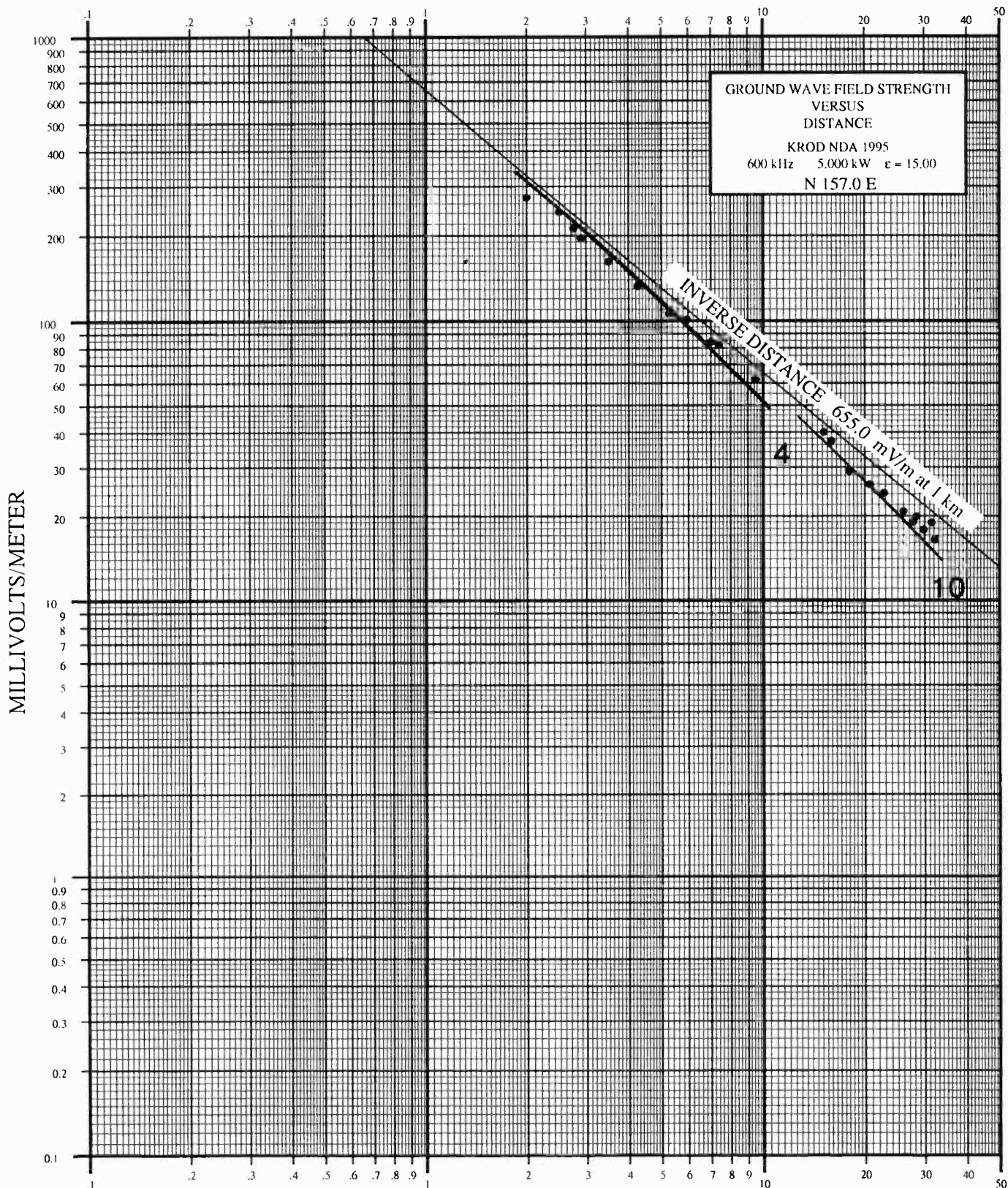
TABULATION OF FIELD INTENSITY MEASUREMENTS  
BEARING IN DEGREES 157.00

POINT *****	DISTANCE (MILES) *****	DISTANCE (KILOMETERS) *****	DA (MV/M) *****	N-DA (MV/M) *****	RATIO DA/N-DA *****
1	1.24	2.00	101.000	273.000	0.370
2	1.55	2.49	64.200	243.000	0.264
3	1.71	2.75	57.000	212.000	0.269
4	1.80	2.90	47.200	196.000	0.241
5MP	2.17	3.49	39.500	162.000	0.244
6	2.64	4.25	29.900	133.000	0.225
7	3.28	5.28	18.300	106.000	0.173
8	3.70	5.95	19.100	101.000	0.189
9	4.35	7.00	15.000	84.000	0.179
10	4.58	7.37	13.400	81.900	0.164
11	5.57	8.96	9.200	68.500	0.134
12	5.89	9.48	9.090	61.800	0.147
13	8.87	14.27	5.050	42.500	0.119
14	9.41	15.14	6.210	40.000	0.155
15	9.89	15.92	5.500	37.200	0.148
16	11.01	17.72	4.200	32.100	0.131
17	11.18	17.99	4.520	29.100	0.155
18	12.51	20.13	3.450	32.200	0.107
19	12.87	20.71	4.350	26.000	0.167
20	14.13	22.74	4.220	24.200	0.174
21	15.15	24.38	2.420	22.700	0.107
22	15.88	25.56	2.410	22.200	0.109
23	16.14	25.97	3.050	20.800	0.147
24	17.23	27.73	5.100	19.000	0.268
25	17.64	28.39	3.700	19.900	0.186
26	18.51	29.79	2.900	17.800	0.163
27	19.03	30.62	4.300	17.300	0.249
28	19.52	31.41	3.700	18.900	0.196
29	19.67	31.65	3.120	15.900	0.196
30	19.98	32.15	3.640	16.400	0.222

THE AVERAGE RATIO IS : 0.187

INVERSE FIELD = 0.187 \* 655.0 = 122.5 MV/M  
\*\*\*\*\*

KILOMETERS FROM ANTENNA



FIELD INTENSITY MEASUREMENTS - N-157.0-E

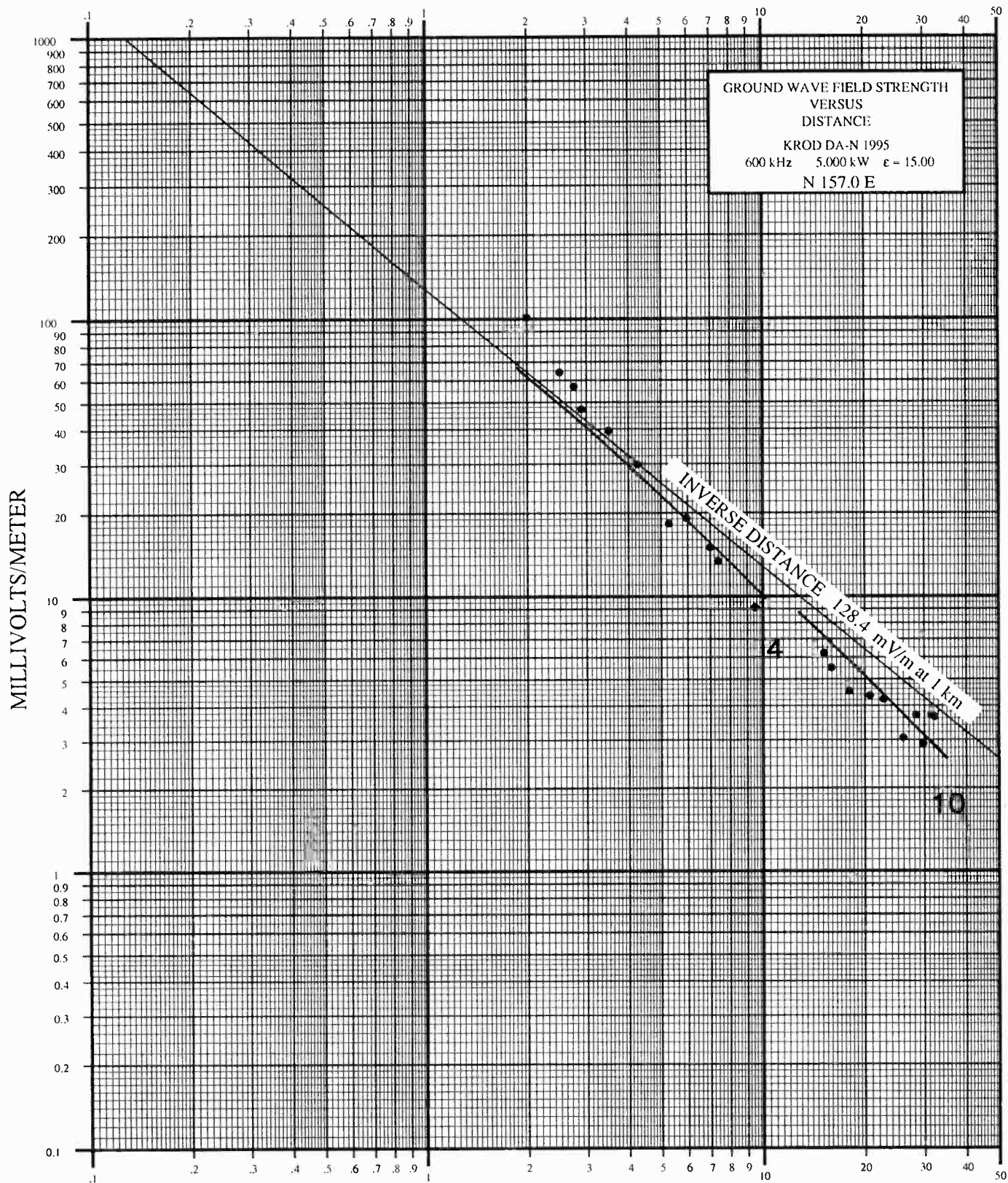
RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 9-B

OCTOBER 1995

KILOMETERS FROM ANTENNA



FIELD INTENSITY MEASUREMENTS - N-157.0-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 9-C  
OCTOBER 1995



# KROD EL PASO, TEXAS 157 DEGREES

POINT #	GPS LAT	GPS LON	NDA DATE	TIME	WX	DAN DATE	TIME	WX
1	31 53.94	106 23.06	11 MARCH	12:00	CLEAR	09 MARCH	12:30	CLEAR
2	31 53.69	106 22.93	11 MARCH	12:05	CLEAR	09 MARCH	12:35	CLEAR
3	31 53.56	106 22.87	11 MARCH	12:10	CLEAR	09 MARCH	12:55	CLEAR
4	31 53.49	106 22.84	11 MARCH	12:15	CLEAR	09 MARCH	12:50	CLEAR
5MP	31 53.19	106 22.69	11 MARCH	12:30	CLEAR	09 MARCH	1:05	CLEAR
6	31 52.84	106 22.48	11 MARCH	12:35	CLEAR	09 MARCH	1:15	CLEAR
7	31 52.32	106 22.24	11 MARCH	12:40	CLEAR	09 MARCH	1:20	CLEAR
8	31 51.97	106 22.08	11 MARCH	12:50	CLEAR	09 MARCH	1:30	CLEAR
9	31 51.46	106 21.82	10 MARCH	4:40	CLEAR	09 MARCH	3:00	CLEAR
10	31 51.27	106 21.73	10 MARCH	4:35	CLEAR	09 MARCH	2:55	CLEAR
11	31 50.49	106 21.34	10 MARCH	4:30	CLEAR	09 MARCH	3:15	CLEAR
12	31 50.23	106 21.21	10 MARCH	4:25	CLEAR	09 MARCH	3:25	CLEAR
13	31 47.84	106 20.00	10 MARCH	4:15	CLEAR	09 MARCH	3:45	CLEAR
14	31 47.41	106 19.81	10 MARCH	4:10	CLEAR	09 MARCH	3:55	CLEAR
15	31 47.02	106 19.63	10 MARCH	4:05	CLEAR	09 MARCH	4:05	CLEAR
16	31 46.73	106 19.19	10 MARCH	3:55	CLEAR	09 MARCH	4:15	CLEAR
17	31 46.00	106 19.11	10 MARCH	3:50	CLEAR	09 MARCH	4:20	CLEAR
18	31 44.90	106 18.56	10 MARCH	3:45	CLEAR	09 MARCH	4:30	CLEAR
19	31 44.61	106 18.43	10 MARCH	3:40	CLEAR	09 MARCH	5:00	CLEAR
20	31 43.61	106 17.92	10 MARCH	3:35	CLEAR	09 MARCH	5:05	CLEAR
21	31 42.79	106 17.49	10 MARCH	3:30	CLEAR	09 MARCH	6:10	CLEAR
22	31 42.20	106 17.23	10 MARCH	3:20	CLEAR	10 MARCH	1:25	CLEAR
23	31 41.99	106 17.13	10 MARCH	3:15	CLEAR	10 MARCH	1:30	CLEAR
24	31 41.11	106 16.70	10 MARCH	3:05	CLEAR	10 MARCH	1:45	CLEAR
25	31 40.79	106 16.53	10 MARCH	3:00	CLEAR	10 MARCH	1:55	CLEAR
26	31 40.09	106 16.18	10 MARCH	2:55	CLEAR	10 MARCH	2:00	CLEAR
27	31 39.68	106 15.98	10 MARCH	2:50	CLEAR	10 MARCH	2:10	CLEAR
28	31 39.28	106 15.79	10 MARCH	2:45	CLEAR	10 MARCH	2:25	CLEAR
29	31 39.16	106 15.72	10 MARCH	2:45	CLEAR	10 MARCH	2:30	CLEAR
30	31 38.91	106 15.60	10 MARCH	2:40	CLEAR	10 MARCH	2:35	CLEAR

**MULLANEY ENGINEERING, INC.**  
GAITHERSBURG, MARYLAND

FIGURE 9-D

NOVEMBER 1995

MULLANEY ENGINEERING, INC.

KROD EL PASO, TX 1995 PROOF

TABULATION OF FIELD INTENSITY MEASUREMENTS  
BEARING IN DEGREES 180.00

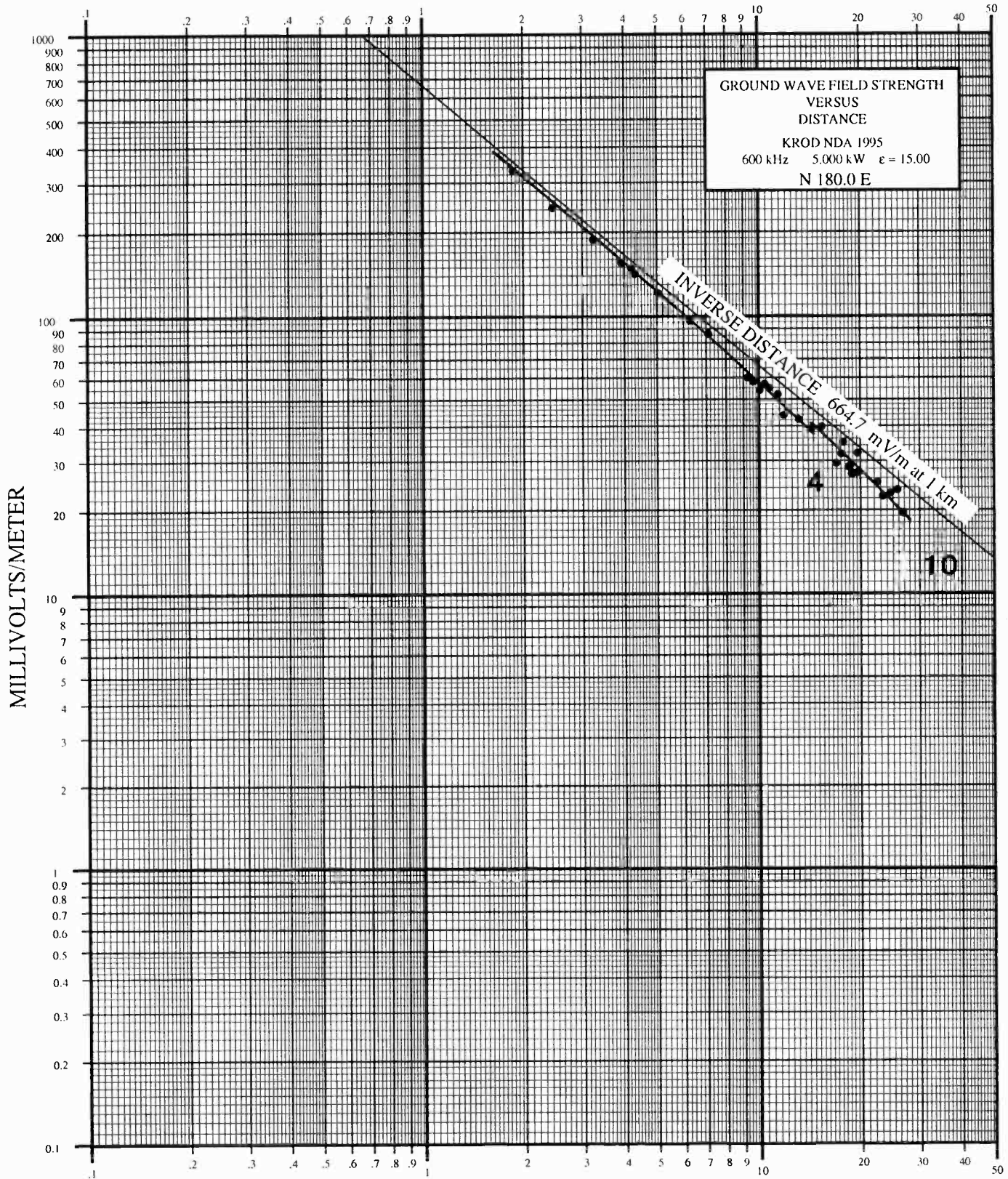
POINT *****	DISTANCE (MILES) *****	DISTANCE (KILOMETERS) *****	DA (MV/M) *****	N-DA (MV/M) *****	RATIO DA/N-DA *****
1	1.16	1.87	570.000	330.000	1.727
2	1.52	2.45	429.000	244.000	1.758
3	2.01	3.23	328.000	188.000	1.745
4	2.44	3.93	266.000	155.000	1.716
5	2.61	4.20	249.000	148.000	1.682
6	2.68	4.31	242.000	142.000	1.704
7	3.14	5.05	205.000	121.000	1.694
8	3.90	6.28	159.000	96.000	1.656
9	4.42	7.11	142.000	86.000	1.651
10	5.75	9.25	104.000	60.000	1.733
11	5.98	9.62	102.000	58.000	1.759
12	6.25	10.06	97.000	54.000	1.796
13	6.46	10.40	96.500	57.000	1.693
14	6.67	10.73	96.200	55.000	1.749
15	7.07	11.38	89.500	52.100	1.718
16	7.36	11.84	80.000	43.800	1.826
17	8.16	13.13	69.500	42.200	1.647
18	8.88	14.29	66.000	39.000	1.692
19	9.53	15.34	68.000	39.800	1.709
20	10.53	16.95	52.000	29.400	1.769
21	10.90	17.54	51.000	31.700	1.609
22	11.04	17.77	54.200	34.900	1.553
23	11.46	18.44	52.000	28.500	1.825
24	11.50	18.51	51.900	28.500	1.821
25	11.60	18.67	50.500	28.800	1.753
26	11.71	18.84	46.500	26.900	1.729
27	12.10	19.47	45.800	27.100	1.690
28	12.18	19.60	51.800	31.900	1.624
29	13.11	21.10	27.100	17.300	1.566
30	13.95	22.45	40.000	25.200	1.587
31	14.50	23.33	39.300	22.400	1.754
32	15.26	24.56	39.100	23.000	1.700
33	16.00	25.75	41.000	23.600	1.737
34	16.62	26.75	33.500	19.500	1.718

THE AVERAGE RATIO IS : 1.709

INVERSE FIELD = 1.709 \* 664.7 = 1135.9 MV/M  
\*\*\*\*\*

FIGURE 10-A

KILOMETERS FROM ANTENNA



MILLIVOLTS/METER

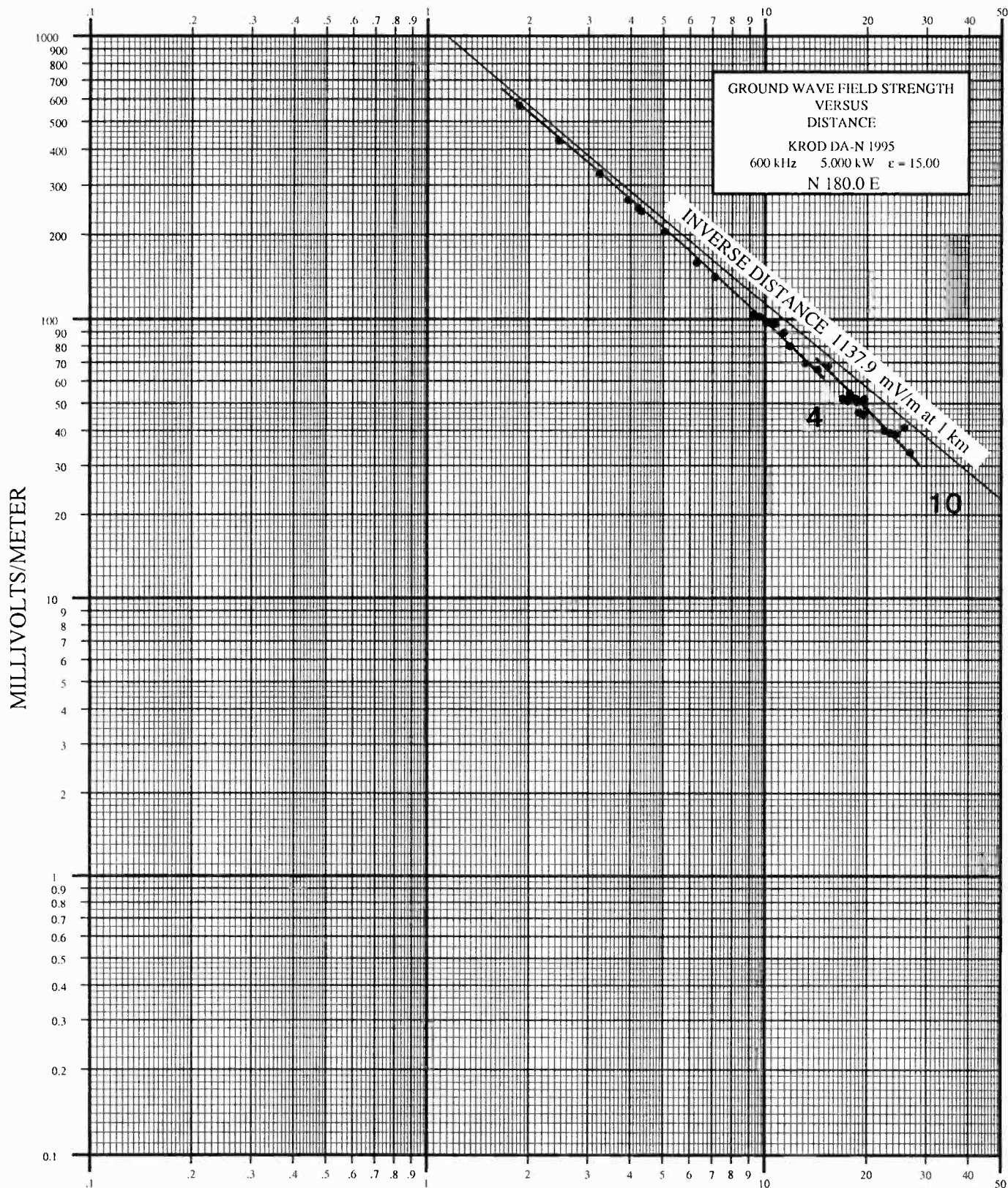
FIELD INTENSITY MEASUREMENTS - N-180.0-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 10-B  
OCTOBER 1995

KILOMETERS FROM ANTENNA



FIELD INTENSITY MEASUREMENTS - N-180.0-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 10-C  
OCTOBER 1995

# KROD EL PASO, TEXAS 180 DEGREES

POINT #	GPS LAT	GPS LON	NDA DATE	TIME	WX	DAN DATE	TIME	WX
1	31 53.93	106 23.55	16 NOVEMB. 94	1:13	CLEAR	16 NOVEMB. 94	2:54	CLEAR
2	31 53.61	106 23.55	16 NOVEMB. 94	1:27	CLEAR	16 NOVEMB. 94	3:00	CLEAR
3	31 53.17	106 23.55	16 NOVEMB. 94	1:40	CLEAR	16 NOVEMB. 94	3:10	CLEAR
4	31 52.81	106 23.55	16 NOVEMB. 94	1:52	CLEAR	16 NOVEMB. 94	3:17	CLEAR
5	31 52.65	106 23.53	16 NOVEMB. 94	1:55	CLEAR	16 NOVEMB. 94	3:22	CLEAR
6	31 52.61	106 23.57	16 NOVEMB. 94	2:06	CLEAR	16 NOVEMB. 94	3:27	CLEAR
7	31 52.21	106 23.56	15 NOVEMB. 94	2:15	CLEAR	16 NOVEMB. 94	3:34	CLEAR
8	31 51.55	106 23.55	15 NOVEMB. 94	2:30	CLEAR	16 NOVEMB. 94	3:41	CLEAR
9	31 51.11	106 23.55	15 NOVEMB. 94	3:41	CLEAR	16 NOVEMB. 94	3:50	CLEAR
10	31 49.94	106 23.57	15 NOVEMB. 94	3:30	CLEAR	17 NOVEMB. 94	10:30	SUNNY
11	31 49.75	106 23.54	15 NOVEMB. 94	3:25	CLEAR	17 NOVEMB. 94	10:39	SUNNY
12	31 49.51	106 23.54	15 NOVEMB. 94	3:22	CLEAR	17 NOVEMB. 94	10:42	SUNNY
13	31 49.33	106 23.54	15 NOVEMB. 94	3:16	CLEAR	17 NOVEMB. 94	10:46	SUNNY
14	31 49.14	106 23.55	15 NOVEMB. 94	3:07	CLEAR	17 NOVEMB. 94	10:54	SUNNY
15	31 48.80	106 23.56	15 NOVEMB. 94	3:02	CLEAR	17 NOVEMB. 94	10:58	SUNNY
16	31 48.54	106 23.56	15 NOVEMB. 94	2:56	CLEAR	17 NOVEMB. 94	11:03	SUNNY
17	31 47.85	106 23.54	15 NOVEMB. 94	2:37	CLEAR	17 NOVEMB. 94	11:17	SUNNY
18	31 47.23	106 23.54	15 NOVEMB. 94	2:27	CLEAR	17 NOVEMB. 94	11:23	SUNNY
19	31 46.66	106 23.54	15 NOVEMB. 94	2:16	CLEAR	17 NOVEMB. 94	11:30	SUNNY
20	31 45.80	106 23.54	15 NOVEMB. 94	2:05	CLEAR	17 NOVEMB. 94	11:40	SUNNY
21	31 45.48	106 23.55	15 NOVEMB. 94	1:56	CLEAR	17 NOVEMB. 94	11:45	SUNNY
22	31 45.35	106 23.55	15 NOVEMB. 94	1:46	CLEAR	17 NOVEMB. 94	11:48	SUNNY
23	31 45.00	106 23.59	15 NOVEMB. 94	1:32	CLEAR	17 NOVEMB. 94	11:52	SUNNY
24	31 44.95	106 23.56	15 NOVEMB. 94	1:28	CLEAR	17 NOVEMB. 94	11:55	SUNNY
25	31 44.83	106 23.54	15 NOVEMB. 94	1:23	CLEAR	17 NOVEMB. 94	11:57	SUNNY
26	31 44.73	106 23.53	15 NOVEMB. 94	1:19	CLEAR	17 NOVEMB. 94	11:59	SUNNY
27	31 44.39	106 23.55	15 NOVEMB. 94	1:09	CLEAR	17 NOVEMB. 94	12:08	SUNNY
28	31 44.33	106 23.55	15 NOVEMB. 94	12:59	CLEAR	17 NOVEMB. 94	12:18	SUNNY
29	31 43.51	106 23.57	18 NOVEMB. 94	3:25	CLEAR	18 NOVEMB. 94	12:44	CLEAR
30	31 42.78	106 23.53	18 NOVEMB. 94	3:21	CLEAR	18 NOVEMB. 94	1:16	CLEAR
31	31 42.30	106 23.58	18 NOVEMB. 94	3:14	CLEAR	18 NOVEMB. 94	1:32	CLEAR
32	31 41.64	106 23.54	18 NOVEMB. 94	3:09	CLEAR	18 NOVEMB. 94	1:48	CLEAR
33	31 41.00	106 23.55	18 NOVEMB. 94	3:04	CLEAR	18 NOVEMB. 94	1:53	CLEAR
34	31 40.45	106 23.56	18 NOVEMB. 94	2:24	CLEAR	18 NOVEMB. 94	2:18	CLEAR

**MULLANEY ENGINEERING, INC.**  
GAITHERSBURG, MARYLAND

FIGURE 10-D

NOVEMBER 1995

MULLANEY ENGINEERING, INC.

KROD EL PASO, TX 1995 PROOF

TABULATION OF FIELD INTENSITY MEASUREMENTS  
BEARING IN DEGREES 203.50

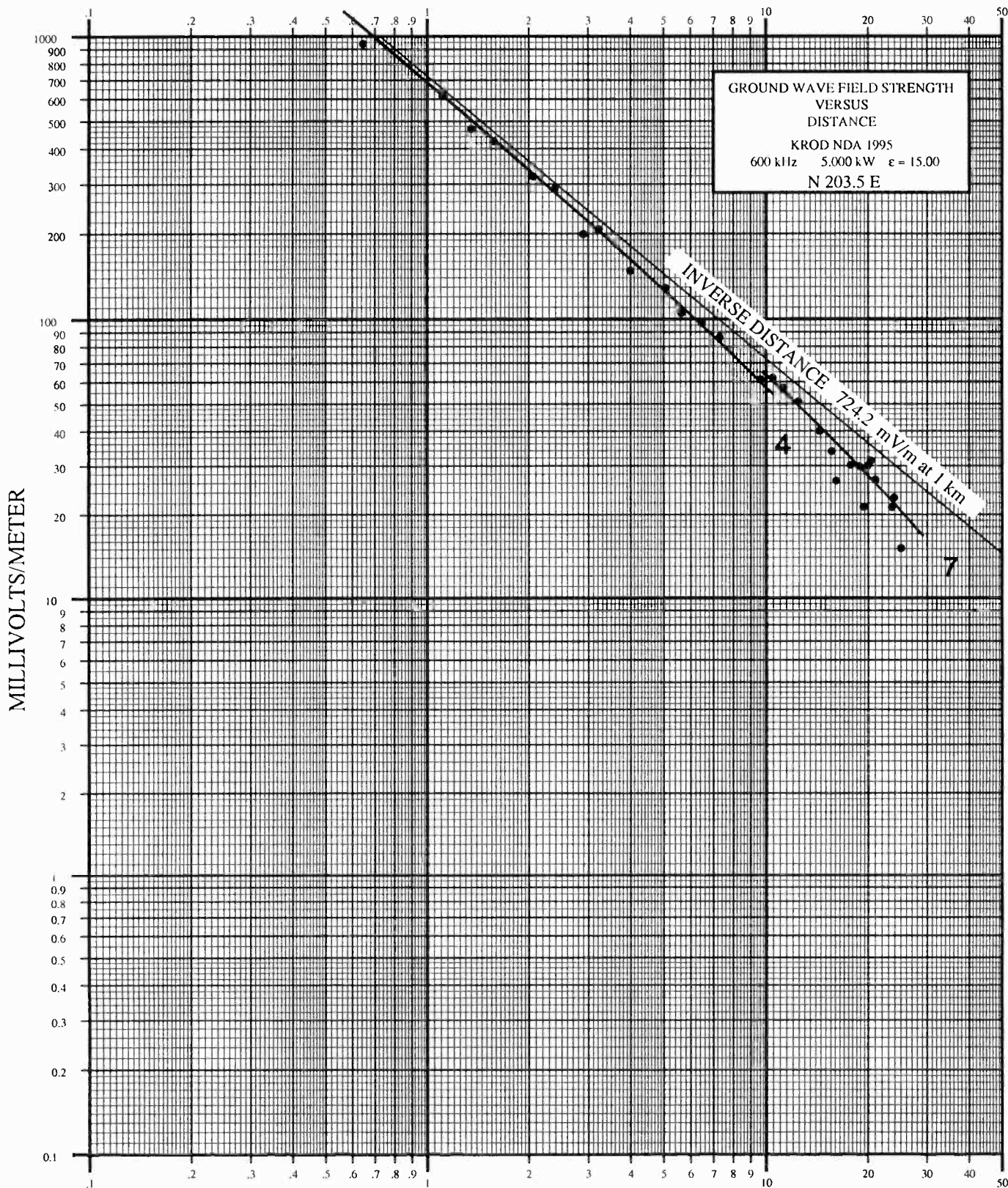
POINT *****	DISTANCE (MILES) *****	DISTANCE (KILOMETERS) *****	DA (MV/M) *****	N-DA (MV/M) *****	RATIO DA/N-DA *****
1	0.40	0.64	1900.000	940.000	2.021
2	0.69	1.11	1380.000	615.000	2.244
3	0.84	1.35	1110.000	470.000	2.362
4	0.98	1.58	992.000	425.000	2.334
5	1.28	2.06	760.000	319.000	2.382
6	1.48	2.38	678.000	288.000	2.354
7	1.80	2.90	470.000	199.000	2.362
8	2.00	3.22	495.000	207.000	2.391
9	2.48	3.99	346.000	148.000	2.338
10	3.14	5.05	300.000	129.000	2.326
11	3.50	5.63	248.000	105.000	2.362
12	4.02	6.47	230.000	97.000	2.371
13	4.53	7.29	204.000	86.000	2.372
14	5.03	8.09	204.000	85.500	2.386
15	5.97	9.61	141.000	61.000	2.311
16	6.50	10.46	143.000	62.000	2.306
17	7.00	11.27	140.000	57.000	2.456
18	7.73	12.44	121.000	51.000	2.373
19	8.01	12.89	123.000	52.500	2.343
20	8.95	14.40	99.000	40.000	2.475
21	9.70	15.61	84.000	33.800	2.485
22	10.00	16.09	66.000	26.500	2.491
23	11.05	17.78	74.000	30.200	2.450
24	11.69	18.81	72.000	29.900	2.408
25	12.04	19.38	49.500	21.300	2.324
26	12.37	19.91	73.000	30.000	2.433
27	12.65	20.36	76.000	31.300	2.428
28	13.06	21.02	68.000	26.700	2.547
29	14.20	22.85	63.000	12.200	5.164
30	14.60	23.50	50.000	21.200	2.358
31	14.83	23.87	56.000	23.000	2.435
32	15.25	24.54	70.500	27.800	2.536
33	15.55	25.02	35.800	15.100	2.371

THE AVERAGE RATIO IS : 2.464

INVERSE FIELD = 2.464 \* 724.2 = 1784.4 MV/M  
\*\*\*\*\*

FIGURE 11-A

KILOMETERS FROM ANTENNA

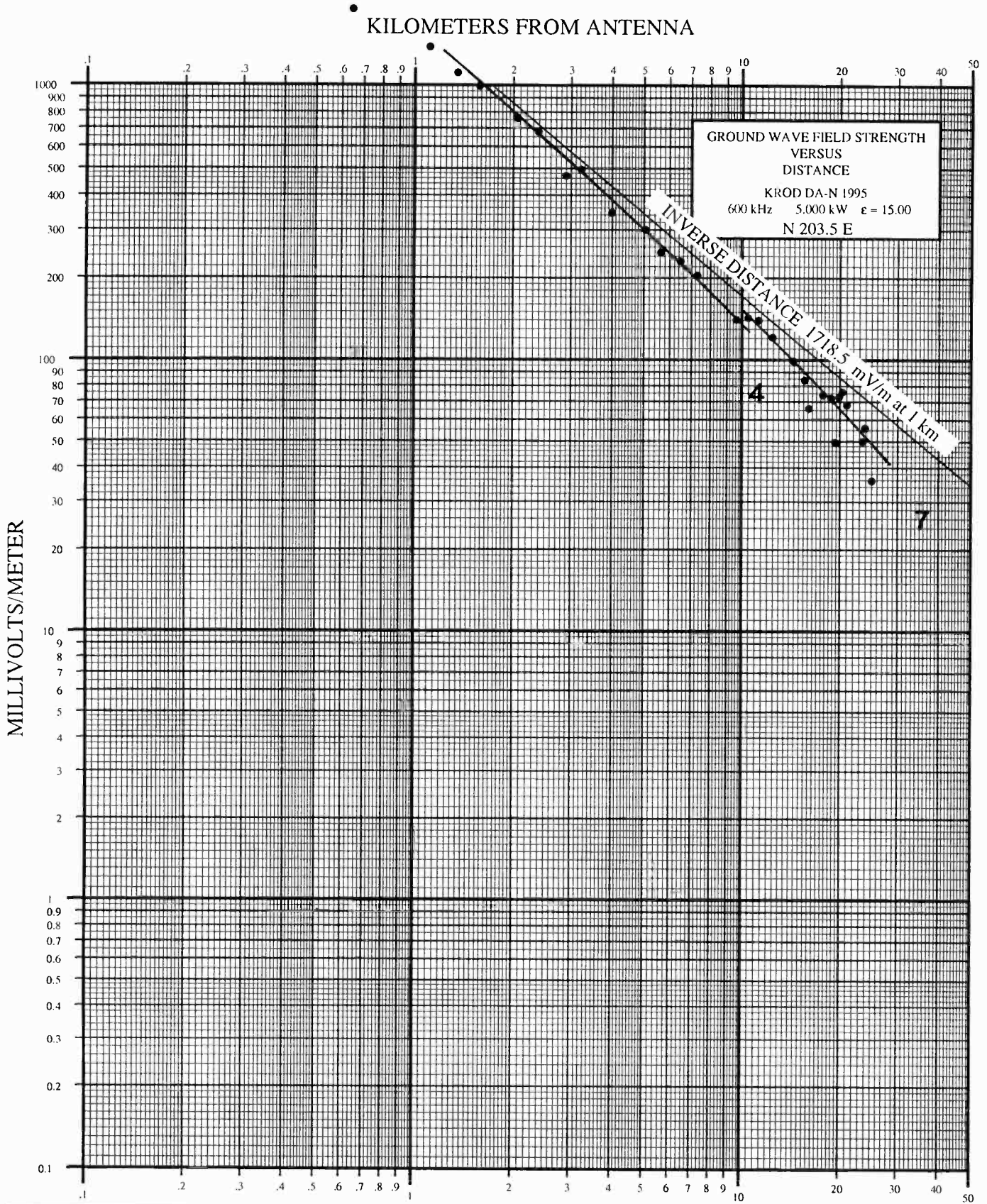


FIELD INTENSITY MEASUREMENTS - N-203.5-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 11-B  
OCTOBER 1995



FIELD INTENSITY MEASUREMENTS - N-203.5-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 11-C  
OCTOBER 1995



# KROD EL PASO, TEXAS 203.50 DEGREES

POINT #	GPS LAT	GPS LON	NDA DATE	TIME	WX	DAN DATE	TIME	WX
1	31 54.61	106 23.71	15 NOVEMB. 94	10:00	CLEAR	15 NOVEMB. 94	11:50	CLEAR
2	31 54.37	106 23.83	15 NOVEMB. 94	10:05	CLEAR	15 NOVEMB. 94	11:59	CLEAR
3	31 54.26	106 23.89	15 NOVEMB. 94	10:10	CLEAR	15 NOVEMB. 94	12:05	CLEAR
4	31 54.15	106 23.95	15 NOVEMB. 94	10:18	CLEAR	15 NOVEMB. 94	12:11	CLEAR
5	31 53.91	106 24.07	15 NOVEMB. 94	10:25	CLEAR	15 NOVEMB. 94	12:17	CLEAR
6	31 53.75	106 24.15	15 NOVEMB. 94	10:30	CLEAR	15 NOVEMB. 94	12:24	CLEAR
7	31 53.50	106 24.27	15 NOVEMB. 94	10:39	CLEAR	15 NOVEMB. 94	12:32	CLEAR
8	31 53.34	106 24.35	15 NOVEMB. 94	10:46	CLEAR	15 NOVEMB. 94	12:38	CLEAR
9	31 52.95	106 24.54	15 NOVEMB. 94	10:52	CLEAR	15 NOVEMB. 94	12:47	CLEAR
10	31 52.43	106 24.82	15 NOVEMB. 94	11:04	CLEAR	15 NOVEMB. 94	12:52	CLEAR
11	31 52.14	106 24.98	15 NOVEMB. 94	11:09	CLEAR	15 NOVEMB. 94	12:59	CLEAR
12	31 51.73	106 25.18	15 NOVEMB. 94	11:12	CLEAR	15 NOVEMB. 94	1:05	CLEAR
13	31 51.33	106 25.39	15 NOVEMB. 94	11:16	CLEAR	15 NOVEMB. 94	1:17	CLEAR
14	31 50.92	106 25.59	15 NOVEMB. 94	11:22	CLEAR	15 NOVEMB. 94	1:26	CLEAR
15	31 50.18	106 25.98	15 NOVEMB. 94	11:38	CLEAR	15 NOVEMB. 94	1:52	CLEAR
16	31 49.75	106 26.19	15 NOVEMB. 94	11:41	CLEAR	15 NOVEMB. 94	2:01	CLEAR
17	31 49.36	106 26.39	15 NOVEMB. 94	11:53	CLEAR	15 NOVEMB. 94	2:17	CLEAR
18	31 48.77	106 26.69	15 NOVEMB. 94	11:58	CLEAR	15 NOVEMB. 94	2:21	CLEAR
19	31 48.54	106 26.80	15 NOVEMB. 94	12:03	CLEAR	15 NOVEMB. 94	2:27	CLEAR
20	31 47.80	106 27.18	15 NOVEMB. 94	12:09	CLEAR	15 NOVEMB. 94	2:32	CLEAR
21	31 47.21	106 27.47	15 NOVEMB. 94	12:14	CLEAR	15 NOVEMB. 94	2:40	CLEAR
22	31 46.97	106 27.60	15 NOVEMB. 94	12:19	CLEAR	15 NOVEMB. 94	2:48	CLEAR
23	31 46.13	106 28.03	15 NOVEMB. 94	12:26	CLEAR	15 NOVEMB. 94	2:55	CLEAR
24	31 45.59	106 28.30	15 NOVEMB. 94	12:33	CLEAR	15 NOVEMB. 94	3:02	CLEAR
25	31 45.32	106 28.45	15 NOVEMB. 94	12:37	CLEAR	15 NOVEMB. 94	3:08	CLEAR
26	31 45.04	106 28.58	15 NOVEMB. 94	12:40	CLEAR	15 NOVEMB. 94	3:13	CLEAR
27	31 44.83	106 28.72	18 NOVEMB. 94	3:30	CLEAR	18 NOVEMB. 94	11:00	CLEAR
28	31 44.50	106 28.86	18 NOVEMB. 94	3:35	CLEAR	18 NOVEMB. 94	11:12	CLEAR
29	31 43.59	106 29.31	18 NOVEMB. 94	3:15	CLEAR	18 NOVEMB. 94	11:07	CLEAR
30	31 43.26	106 29.48	14 NOVEMB. 94	3:21	CLEAR	14 NOVEMB. 94	11:30	CLEAR
31	31 43.08	106 29.58	14 NOVEMB. 94	3:27	CLEAR	14 NOVEMB. 94	11:37	CLEAR
32	31 42.74	106 29.75	14 NOVEMB. 94	3:41	CLEAR	14 NOVEMB. 94	11:40	CLEAR
33	31 42.51	106 29.86	14 NOVEMB. 94	3:45	CLEAR	14 NOVEMB. 94	11:44	CLEAR

**MULLANEY ENGINEERING, INC.**  
GAITHERSBURG, MARYLAND

FIGURE 11-D

NOVEMBER 1995

MULLANEY ENGINEERING, INC.

KROD EL PASO, TX 1995 PROOF

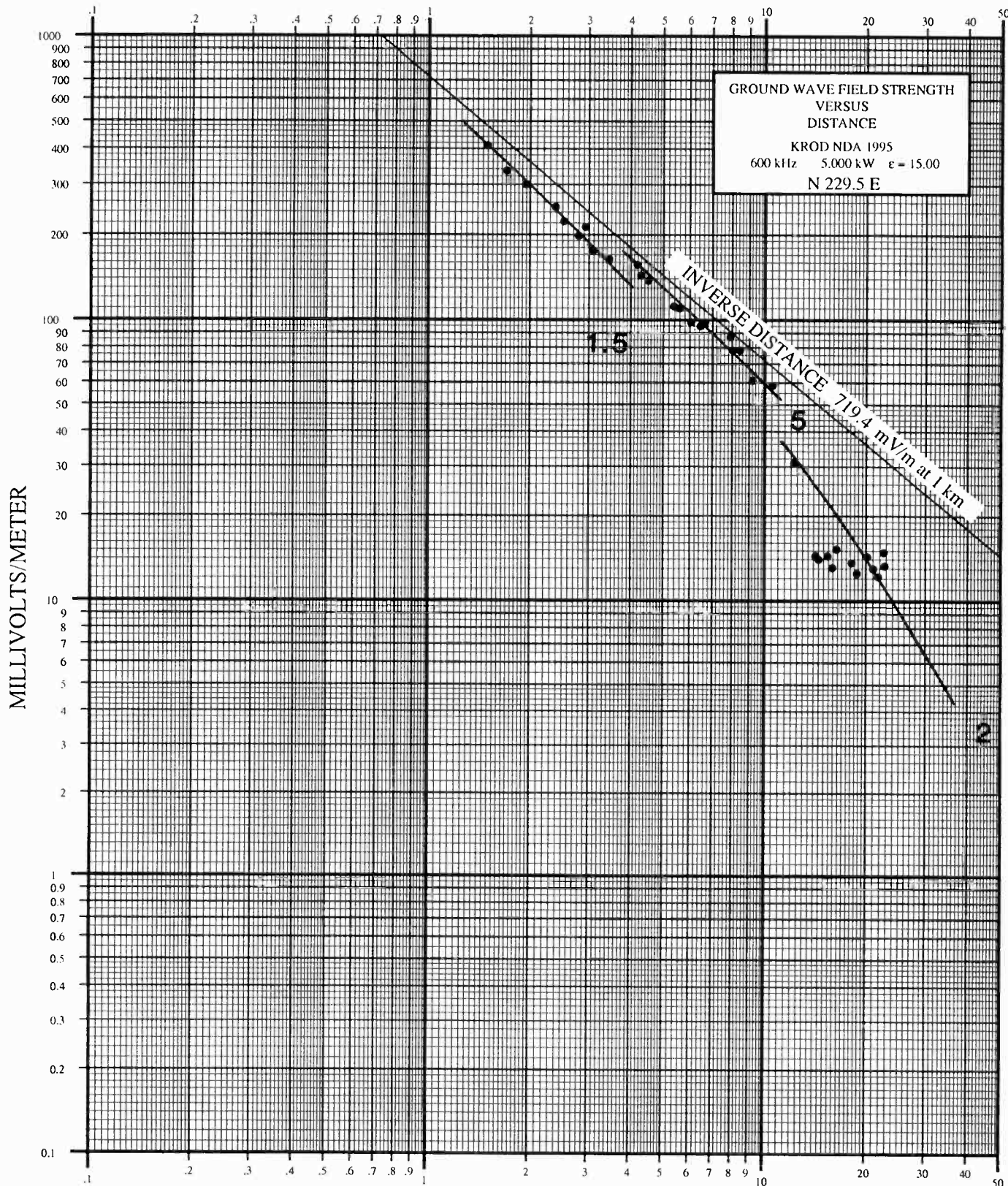
TABULATION OF FIELD INTENSITY MEASUREMENTS  
BEARING IN DEGREES 229.50

POINT *****	DISTANCE (MILES) *****	DISTANCE (KILOMETERS) *****	DA (MV/M) *****	N-DA (MV/M) *****	RATIO DA/N-DA *****
1	0.93	1.50	620.000	410.000	1.512
2	1.06	1.71	515.000	335.000	1.537
3	1.21	1.95	460.000	300.000	1.533
4	1.48	2.38	400.000	250.000	1.600
5	1.57	2.53	341.000	223.000	1.529
6	1.74	2.80	325.000	198.000	1.641
7	1.82	2.93	341.000	213.000	1.601
8	1.92	3.09	279.000	176.000	1.585
9	2.14	3.44	258.000	164.000	1.573
10	2.60	4.18	251.000	157.000	1.599
11	2.66	4.28	231.000	144.000	1.604
12	2.80	4.51	221.000	138.000	1.601
13	3.34	5.38	182.000	112.000	1.625
14	3.47	5.58	179.000	110.000	1.627
15	3.76	6.05	158.000	98.000	1.612
16	4.00	6.44	155.000	95.000	1.632
17	4.14	6.66	156.000	98.000	1.592
18	4.91	7.90	132.000	87.000	1.517
19	4.99	8.03	132.000	78.000	1.692
20	5.24	8.43	124.000	78.000	1.590
21	5.72	9.21	103.000	61.000	1.689
22	6.00	9.66	96.000	46.000	2.087
23	6.55	10.54	96.000	58.500	1.641
24	7.61	12.25	53.000	30.800	1.721
25	8.82	14.19	25.900	14.400	1.799
26	9.00	14.48	24.900	14.000	1.779
27	9.56	15.38	24.800	14.400	1.722
28	9.88	15.90	21.500	13.100	1.641
29	10.17	16.37	22.200	15.200	1.461
30	11.27	18.14	20.500	13.600	1.507
31	11.67	18.78	20.400	12.500	1.632
32	12.54	20.18	23.800	14.300	1.664
33	13.06	21.02	20.900	13.000	1.608
34	13.50	21.73	20.400	12.200	1.672
35	14.02	22.56	23.100	14.800	1.561
36	14.12	22.72	22.200	13.300	1.669

THE AVERAGE RATIO IS : 1.629

INVERSE FIELD = 1.629 \* 719.4 = 1171.9 MV/M  
\*\*\*\*\*

KILOMETERS FROM ANTENNA



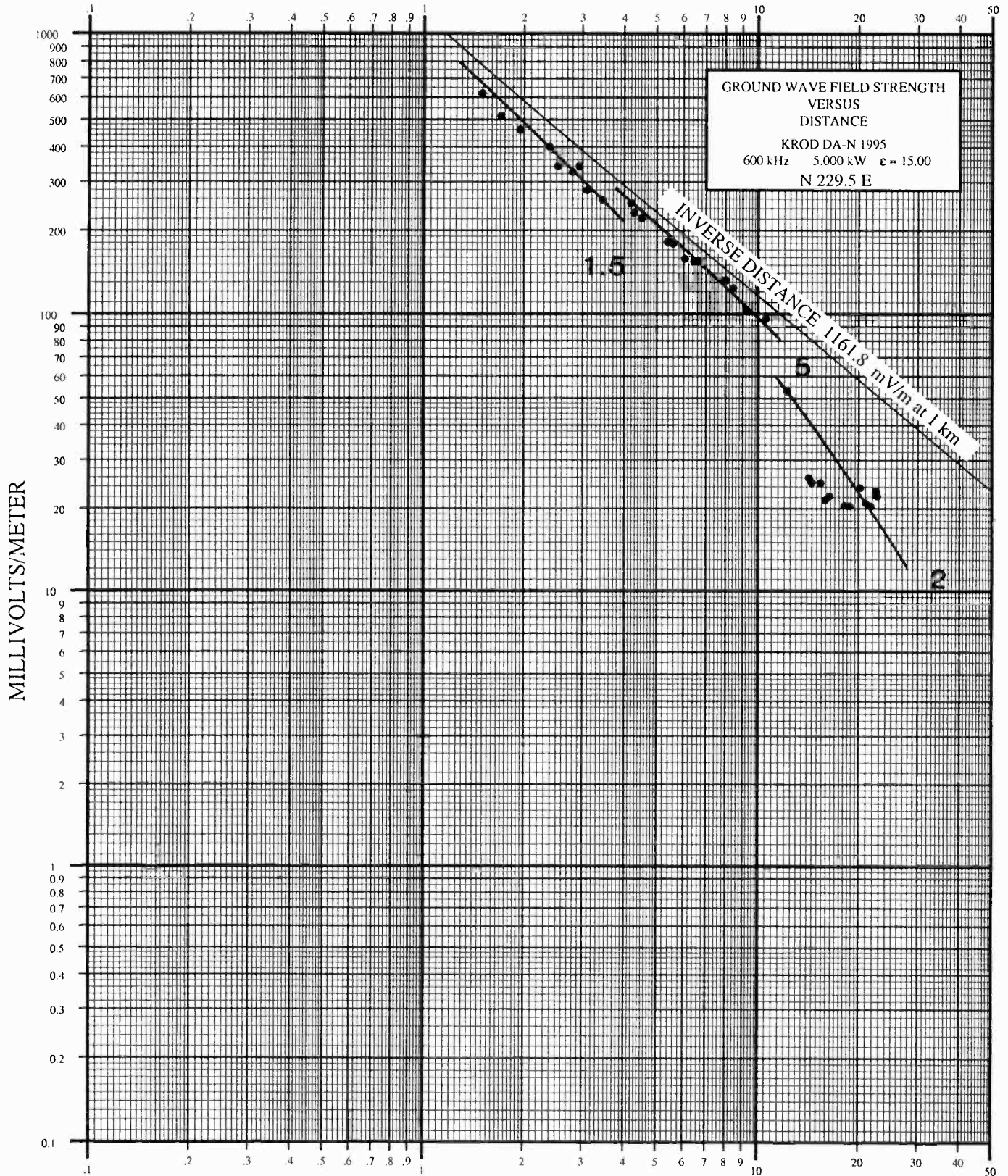
FIELD INTENSITY MEASUREMENTS - N-229.0-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 12-B  
OCTOBER 1995

KILOMETERS FROM ANTENNA



FIELD INTENSITY MEASUREMENTS - N-229.0-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 12-C  
OCTOBER 1995

# KROD EL PASO, TEXAS 229.50 DEGREES

POINT #	GPS LAT	GPS LON	NDA DATE	TIME	WX	DAN DATE	TIME	WX
1	31 54.40	106 24.27	14 NOVEMB. 94	10:34	P CLOUD	14 NOVEMB. 94	11:36	P CLOUD
2	31 54.34	106 24.39	14 NOVEMB. 94	10:41	P CLOUD	14 NOVEMB. 94	11:53	P CLOUD
3	31 54.25	106 24.49	14 NOVEMB. 94	10:44	P CLOUD	14 NOVEMB. 94	12:00	P CLOUD
4	31 54.08	106 24.69	14 NOVEMB. 94	10:47	P CLOUD	14 NOVEMB. 94	12:03	P CLOUD
5	31 54.06	106 24.77	14 NOVEMB. 94	10:51	P CLOUD	14 NOVEMB. 94	12:07	P CLOUD
6	31 53.94	106 24.89	14 NOVEMB. 94	10:55	P CLOUD	14 NOVEMB. 94	12:13	P CLOUD
7	31 53.90	106 24.96	14 NOVEMB. 94	10:58	P CLOUD	14 NOVEMB. 94	12:19	P CLOUD
8	31 53.85	106 25.05	14 NOVEMB. 94	11:05	P CLOUD	14 NOVEMB. 94	12:24	P CLOUD
9	31 53.72	106 25.21	14 NOVEMB. 94	11:08	P CLOUD	14 NOVEMB. 94	12:26	P CLOUD
10	31 53.46	106 25.57	14 NOVEMB. 94	11:12	P CLOUD	14 NOVEMB. 94	12:31	P CLOUD
11	31 53.43	106 25.61	14 NOVEMB. 94	11:20	P CLOUD	14 NOVEMB. 94	12:41	P CLOUD
12	31 53.35	106 25.71	14 NOVEMB. 94	11:24	P CLOUD	14 NOVEMB. 94	12:46	P CLOUD
13	31 53.04	106 26.14	14 NOVEMB. 94	11:35	P CLOUD	14 NOVEMB. 94	12:55	P CLOUD
14	31 52.97	106 26.24	14 NOVEMB. 94	11:38	P CLOUD	14 NOVEMB. 94	1:01	P CLOUD
15	31 52.80	106 26.46	14 NOVEMB. 94	11:42	P CLOUD	14 NOVEMB. 94	1:08	P CLOUD
16	31 52.65	106 26.63	14 NOVEMB. 94	11:46	P CLOUD	14 NOVEMB. 94	1:11	P CLOUD
17	31 52.59	106 26.76	14 NOVEMB. 94	11:51	P CLOUD	14 NOVEMB. 94	1:20	P CLOUD
18	31 52.15	106 27.37	14 NOVEMB. 94	11:56	P CLOUD	14 NOVEMB. 94	1:26	P CLOUD
19	31 52.11	106 27.41	14 NOVEMB. 94	11:58	P CLOUD	14 NOVEMB. 94	1:28	P CLOUD
20	31 51.96	106 27.61	14 NOVEMB. 94	12:11	P CLOUD	14 NOVEMB. 94	1:34	P CLOUD
21	31 51.70	106 28.00	16 NOVEMB. 94	11:43	P CLOUD	16 NOVEMB. 94	1:54	P CLOUD
22	31 51.53	106 28.19	16 NOVEMB. 94	11:30	P CLOUD	16 NOVEMB. 94	2:03	P CLOUD
23	31 51.23	106 28.63	16 NOVEMB. 94	11:23	P CLOUD	16 NOVEMB. 94	2:19	P CLOUD
24	31 50.60	106 29.43	14 NOVEMB. 94	12:35	P CLOUD	14 NOVEMB. 94	3:10	P CLOUD
25	31 49.94	106 30.38	14 NOVEMB. 94	1:07	P CLOUD	14 NOVEMB. 94	3:28	P CLOUD
26	31 49.84	106 30.51	14 NOVEMB. 94	1:13	P CLOUD	14 NOVEMB. 94	3:31	P CLOUD
27	31 49.53	106 30.96	14 NOVEMB. 94	1:16	P CLOUD	14 NOVEMB. 94	3:36	P CLOUD
28	31 49.35	106 31.21	14 NOVEMB. 94	1:22	P CLOUD	14 NOVEMB. 94	3:40	P CLOUD
29	31 49.17	106 31.42	14 NOVEMB. 94	1:30	P CLOUD	14 NOVEMB. 94	3:44	P CLOUD
30	31 48.56	106 32.28	14 NOVEMB. 94	1:11	P CLOUD	14 NOVEMB. 94	3:50	P CLOUD
31	31 48.32	106 32.60	14 NOVEMB. 94	2:43	P CLOUD	14 NOVEMB. 94	12:35	P CLOUD
32	31 47.83	106 33.28	14 NOVEMB. 94	1:58	P CLOUD	14 NOVEMB. 94	12:41	P CLOUD

MULLANEY ENGINEERING, INC.  
GAITHERSBURG, MARYLAND

FIGURE 12-D

NOVEMBER 1995

**KROD EL PASO, TEXAS 229.50 DEGREES (CONTINUED)**

33	31 47.54	106 33.68	14 NOVEMB. 94	2:01	P CLOUD 14 NOVEMB. 94	12:48	P CLOUD
34	31 47.25	106 33.98	14 NOVEMB. 94	2:05	P CLOUD 14 NOVEMB. 94	12:54	P CLOUD
35	31 47.00	106 34.42	14 NOVEMB. 94	2:24	P CLOUD 14 NOVEMB. 94	1:19	P CLOUD
36	31 46.93	106 34.49	14 NOVEMB. 94	2:30	P CLOUD 14 NOVEMB. 94	1:09	P CLOUD

MULLANEY ENGINEERING, INC.

KROD EL PASO, TX 1995 PROOF

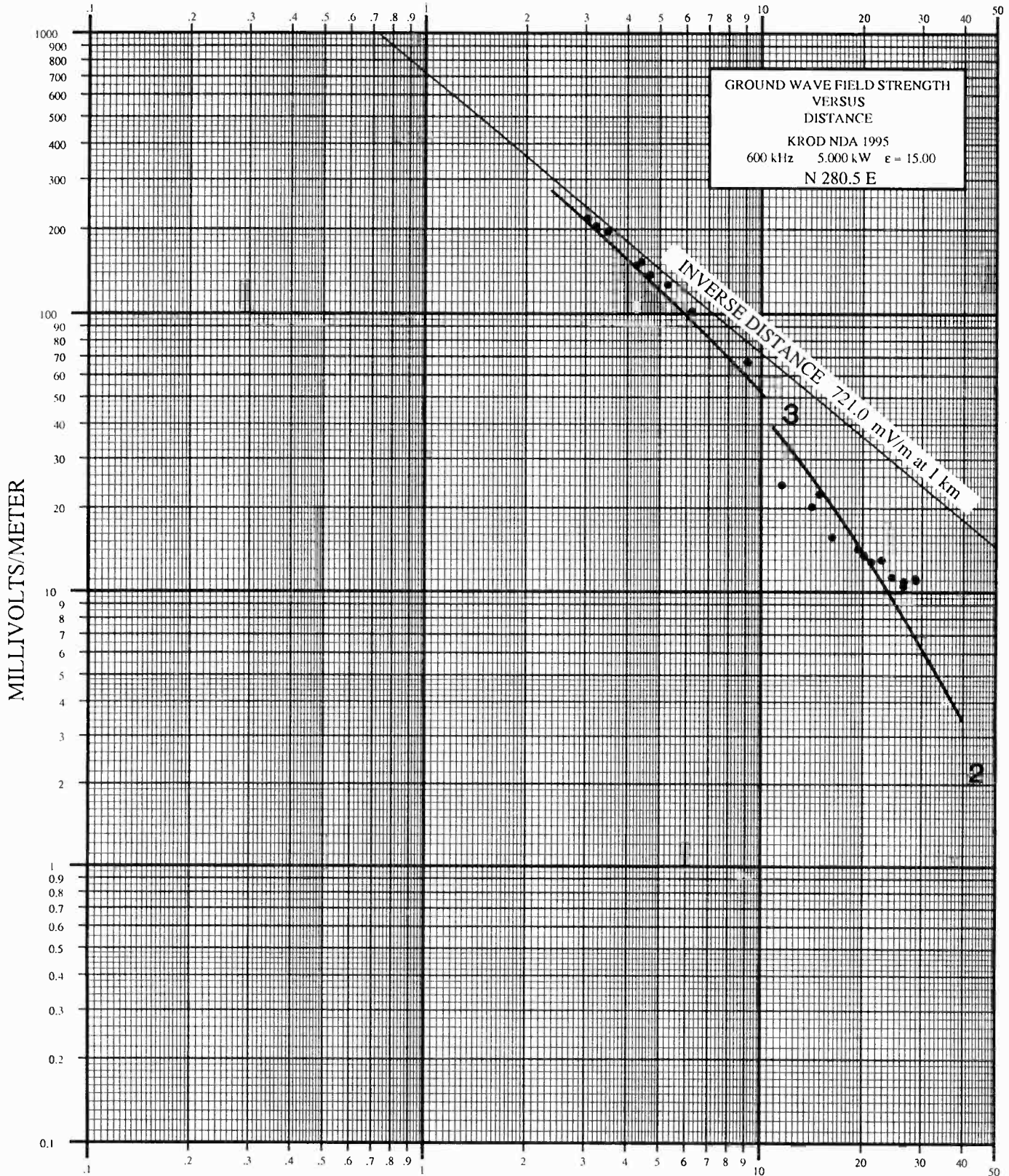
TABULATION OF FIELD INTENSITY MEASUREMENTS  
BEARING IN DEGREES 280.50

POINT *****	DISTANCE (MILES) *****	DISTANCE (KILOMETERS) *****	DA (MV/M) *****	N-DA (MV/M) *****	RATIO DA/N-DA *****
1	1.89	3.04	22.200	218.000	0.102
2	2.00	3.22	21.900	205.000	0.107
3	2.16	3.48	23.300	196.000	0.119
4	2.64	4.25	19.700	149.000	0.132
5	2.73	4.39	19.000	153.000	0.124
6MP	2.90	4.67	19.800	138.000	0.143
7	3.28	5.28	18.200	127.000	0.143
8	3.87	6.23	14.500	102.000	0.142
9	4.50	7.24	15.800	92.000	0.172
10	4.96	7.98	13.000	81.000	0.160
11	5.65	9.09	10.600	67.000	0.158
12	7.15	11.51	4.250	24.200	0.176
13	8.77	14.11	4.450	20.200	0.220
14	9.21	14.82	4.150	22.400	0.185
15	10.07	16.21	2.280	15.700	0.145
16	11.30	18.19	3.700	14.800	0.250
17	12.01	19.33	3.100	14.200	0.218
18	12.52	20.15	1.780	13.500	0.132
19	13.15	21.16	1.420	12.800	0.111
20	14.12	22.72	2.200	13.000	0.169
21	15.15	24.38	2.120	11.300	0.188
22	16.40	26.39	1.680	10.500	0.160
23	16.45	26.47	1.810	10.900	0.166
24	17.77	28.60	1.500	11.200	0.134
25	17.90	28.81	1.550	11.010	0.141

THE AVERAGE RATIO IS : 0.156

INVERSE FIELD = 0.156 \* 721.0 = 112.5 MV/M  
\*\*\*\*\*

KILOMETERS FROM ANTENNA



FIELD INTENSITY MEASUREMENTS - N-280.5-E

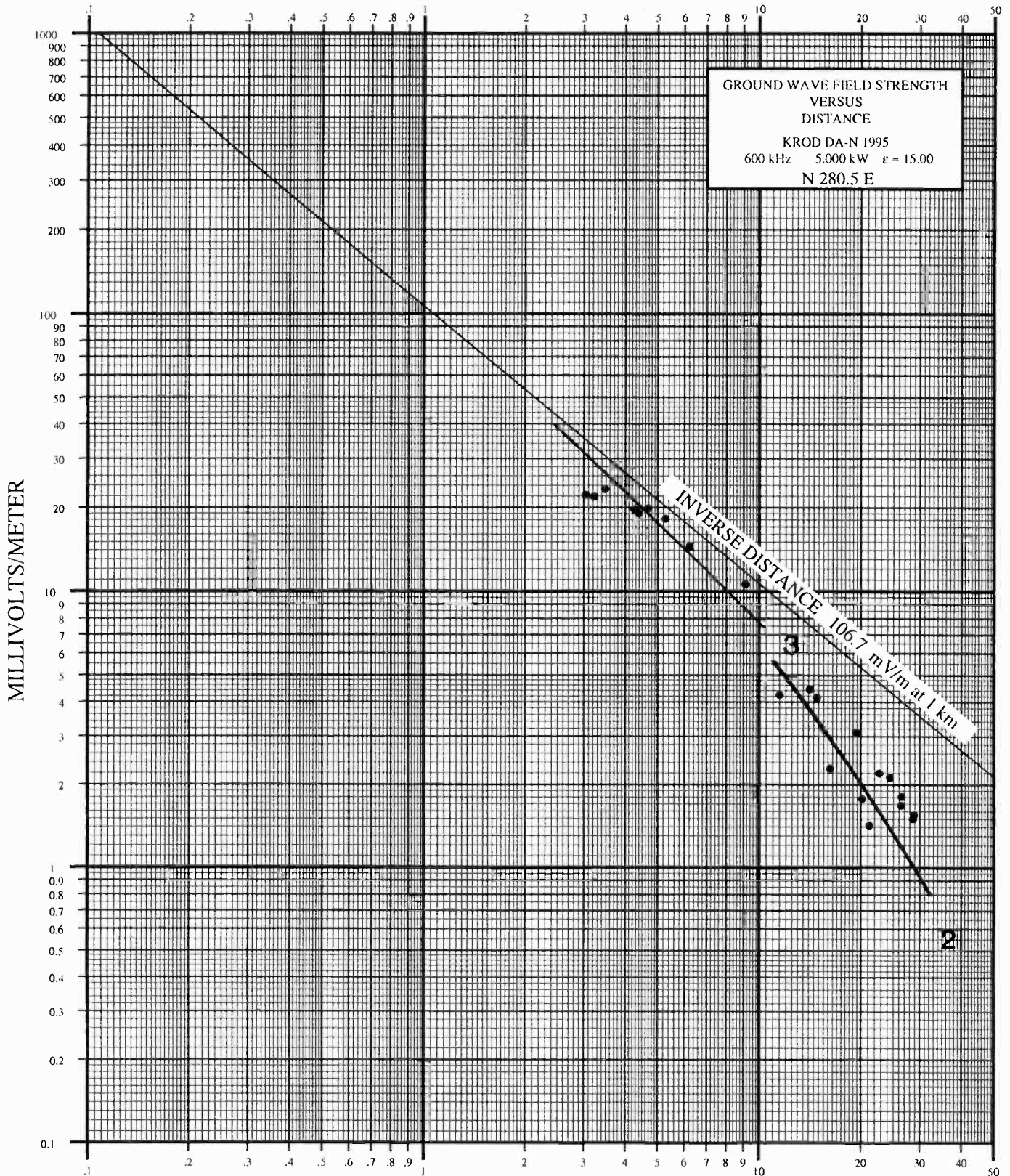
RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 13-B  
OCTOBER 1995



KILOMETERS FROM ANTENNA



FIELD INTENSITY MEASUREMENTS - N-280.5-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 13-C  
OCTOBER 1995

# KROD EL PASO, TEXAS 280.50 DEGREES

POINT #	GPS LAT	GPS LON	NDA DATE	TIME	WX	DAN DATE	TIME	WX
1	31 55.23	106 25.45	06 DECEMB. 94	1:43	P CLOUD	07 DECEMB. 94	11:41	CLEAR
2	31 55.25	106 25.55	06 DECEMB. 94	1:48	P CLOUD	07 DECEMB. 94	11:43	CLEAR
3	31 55.27	106 25.72	06 DECEMB. 94	1:54	P CLOUD	07 DECEMB. 94	11:46	CLEAR
4	31 55.35	106 26.19	06 DECEMB. 94	1:59	P CLOUD	07 DECEMB. 94	11:51	CLEAR
5	31 55.31	106 26.30	06 DECEMB. 94	2:09	P CLOUD	07 DECEMB. 94	11:54	CLEAR
6MP	31 55.59	106 26.46	06 DECEMB. 94	2:15	P CLOUD	07 DECEMB. 94	11:57	CLEAR
7	31 55.44	106 26.85	06 DECEMB. 94	2:28	P CLOUD	07 DECEMB. 94	12:05	CLEAR
8	31 55.54	106 27.44	06 DECEMB. 94	2:36	P CLOUD	07 DECEMB. 94	12:10	CLEAR
9	31 55.64	106 28.08	06 DECEMB. 94	2:48	P CLOUD	07 DECEMB. 94	12:18	CLEAR
10	31 55.72	106 28.52	06 DECEMB. 94	1:20	P CLOUD	07 DECEMB. 94	12:28	CLEAR
11	31 55.82	106 29.24	06 DECEMB. 94	1:14	P CLOUD	07 DECEMB. 94	12:47	CLEAR
12	31 56.06	106 30.74	06 DECEMB. 94	10:45	P CLOUD	07 DECEMB. 94	3:07	CLEAR
13	31 56.36	106 32.36	06 DECEMB. 94	2:24	P CLOUD	07 DECEMB. 94	4:45	CLEAR
14	31 56.36	106 32.81	06 DECEMB. 94	12:17	P CLOUD	07 DECEMB. 94	2:21	CLEAR
15	31 56.52	106 33.67	06 DECEMB. 94	11:22	P CLOUD	07 DECEMB. 94	2:09	CLEAR
16	31 56.71	106 34.91	06 DECEMB. 94	11:12	P CLOUD	07 DECEMB. 94	1:56	CLEAR
17	31 56.82	106 35.61	06 DECEMB. 94	12:35	P CLOUD	07 DECEMB. 94	2:08	CLEAR
18	31 56.90	106 36.13	06 DECEMB. 94	12:38	P CLOUD	07 DECEMB. 94	2:14	CLEAR
19	31 56.99	106 36.76	06 DECEMB. 94	1:12	P CLOUD	07 DECEMB. 94	2:38	CLEAR
20	31 57.14	106 37.74	06 DECEMB. 94	1:22	P CLOUD	07 DECEMB. 94	2:33	CLEAR
21	31 57.32	106 38.76	06 DECEMB. 94	1:03	P CLOUD	07 DECEMB. 94	2:30	CLEAR
22	31 57.51	106 40.02	06 DECEMB. 94	1:31	P CLOUD	07 DECEMB. 94	2:25	CLEAR
23	31 57.51	106 40.07	06 DECEMB. 94	1:35	P CLOUD	07 DECEMB. 94	2:24	CLEAR
24	31 57.73	106 41.39	06 DECEMB. 94	1:45	P CLOUD	07 DECEMB. 94	2:06	CLEAR
25	31 57.74	106 41.19	06 DECEMB. 94	1:51	P CLOUD	07 DECEMB. 94	2:00	CLEAR

MULLANEY ENGINEERING, INC.  
GAITHERSBURG, MARYLAND

FIGURE 13-D

NOVEMBER 1995

MULLANEY ENGINEERING, INC.

KROD EL PASO, TX 1995 PROOF

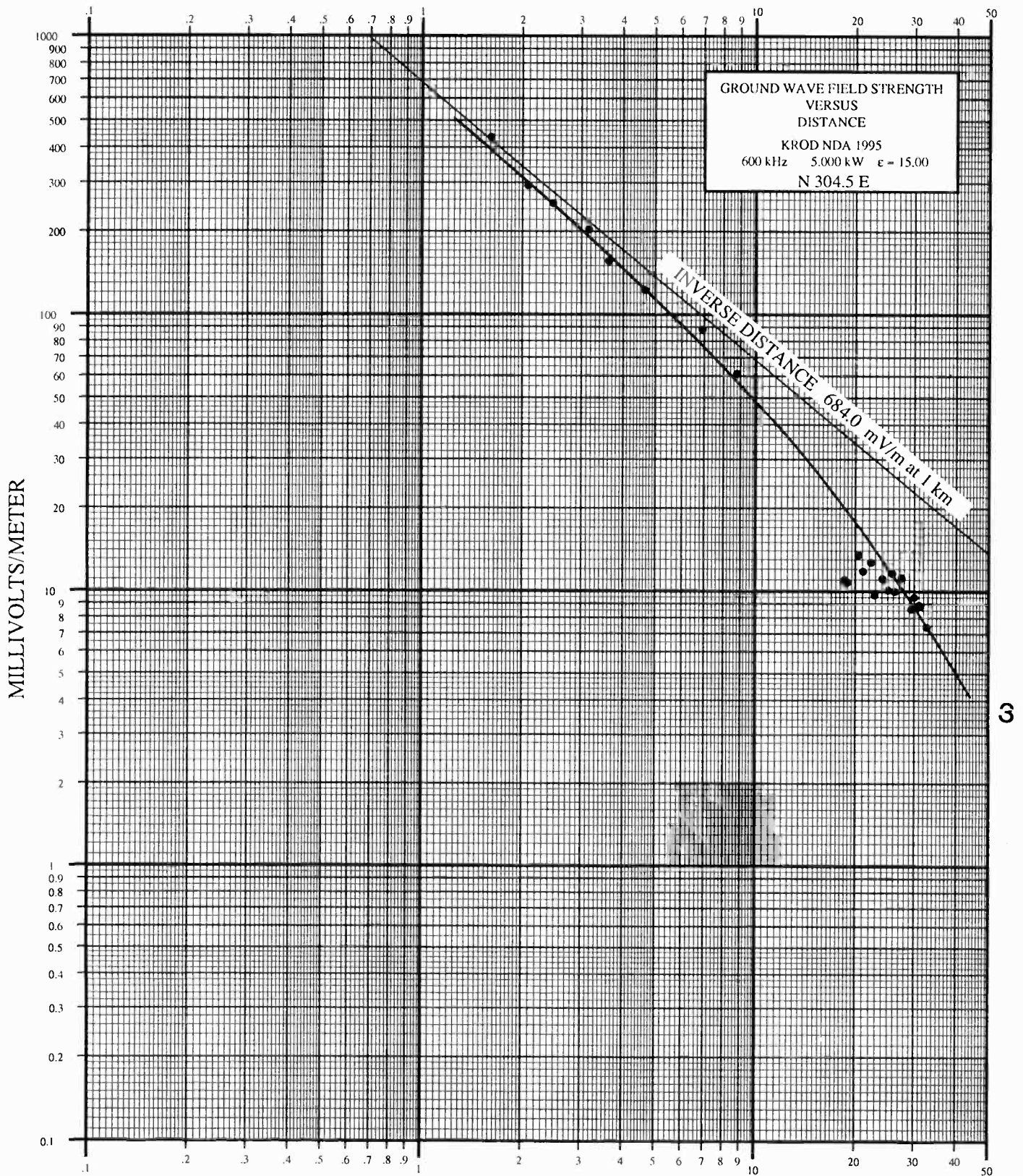
TABULATION OF FIELD INTENSITY MEASUREMENTS  
BEARING IN DEGREES 304.50

POINT *****	DISTANCE (MILES) *****	DISTANCE (KILOMETERS) *****	DA (MV/M) *****	N-DA (MV/M) *****	RATIO DA/N-DA *****
1	1.00	1.61	88.500	435.000	0.203
2	1.29	2.08	61.900	292.000	0.212
3	1.53	2.46	55.800	252.000	0.221
4	1.96	3.15	42.900	203.000	0.211
5	2.25	3.62	35.700	156.000	0.229
6	2.89	4.65	24.600	123.000	0.200
7	4.48	7.21	22.700	111.000	0.205
8	4.29	6.90	20.000	88.000	0.227
9	5.45	8.77	14.100	61.000	0.231
10	11.53	18.56	2.200	11.000	0.200
11	11.76	18.93	2.390	10.800	0.221
12	12.69	20.42	3.310	13.500	0.245
13	13.10	21.08	2.950	11.800	0.250
14	13.83	22.26	3.250	12.700	0.256
15	14.19	22.84	1.800	9.700	0.186
16	14.97	24.09	1.750	11.100	0.158
17	15.57	25.06	2.680	10.100	0.265
18	16.01	25.76	2.620	11.600	0.226
19	16.28	26.20	2.380	10.000	0.238
20	16.65	26.79	3.150	11.600	0.272
21	17.05	27.44	3.190	11.200	0.285
22	18.28	29.42	1.750	8.600	0.203
23	18.63	29.98	2.150	9.500	0.226
24	18.88	30.38	2.100	8.800	0.239
25	19.07	30.69	2.000	8.750	0.229
26	19.26	31.00	1.960	8.900	0.220
27	19.44	31.28	1.820	8.800	0.207
28	20.34	32.73	1.450	7.400	0.196

THE AVERAGE RATIO IS : 0.224

INVERSE FIELD = 0.224 \* 684.0 = 153.2 MV/M  
\*\*\*\*\*

KILOMETERS FROM ANTENNA



3

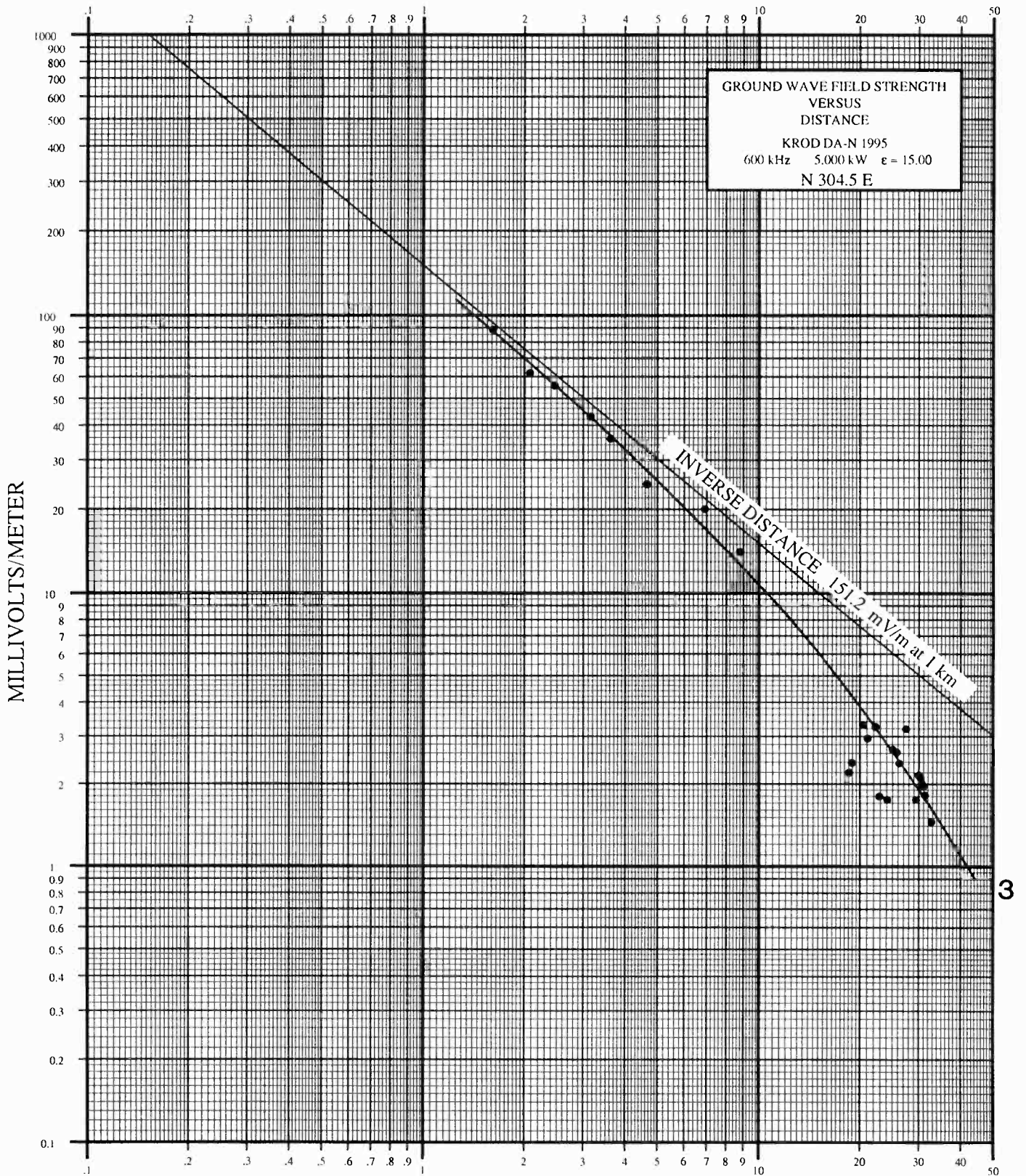
FIELD INTENSITY MEASUREMENTS - N-304.5-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 14-B  
OCTOBER 1995

KILOMETERS FROM ANTENNA



3

FIELD INTENSITY MEASUREMENTS - N-304.5-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 14-C  
OCTOBER 1995

# KROD EL PASO, TEXAS 304.50 DEGREES

POINT #	GPS LAT	GPS LON	NDA DATE	TIME	WX	DAN DATE	TIME	WX
1	31 53.43	106 24.40	12 DECEMB. 94	2:05	CLOUDY	19 DECEMB. 94	2:15	CLOUDY
2	31 55.57	106 24.64	12 DECEMB. 94	2:28	CLOUDY	19 DECEMB. 94	2:24	CLOUDY
3	31 55.68	106 24.84	12 DECEMB. 94	2:34	CLOUDY	19 DECEMB. 94	2:27	CLOUDY
4	31 55.90	106 25.20	12 DECEMB. 94	2:47	CLOUDY	19 DECEMB. 94	2:31	CLOUDY
5	31 56.04	106 25.44	12 DECEMB. 94	3:00	CLOUDY	19 DECEMB. 94	2:40	CLOUDY
6	31 56.37	106 25.95	12 DECEMB. 94	3:14	CLOUDY	19 DECEMB. 94	2:42	CLOUDY
7	31 56.66	106 26.47	12 DECEMB. 94	4:48	CLOUDY	19 DECEMB. 94	2:56	CLOUDY
8	31 57.05	106 27.16	12 DECEMB. 94	4:29	CLOUDY	19 DECEMB. 94	3:04	CLOUDY
9	31 57.61	106 28.13	12 DECEMB. 94	12:42	CLOUDY	19 DECEMB. 94	3:12	CLOUDY
10	32 00.59	106 33.27	12 DECEMB. 94	11:37	CLOUDY	19 DECEMB. 94	11:28	CLOUDY
11	32 00.42	106 33.46	12 DECEMB. 94	11:50	CLOUDY	22 DECEMB. 94	11:31	CLOUDY
12	32 01.19	106 34.24	12 DECEMB. 94	12:09	CLOUDY	22 DECEMB. 94	11:35	CLOUDY
13	32 01.22	106 34.35	12 DECEMB. 94	11:58	CLOUDY	22 DECEMB. 94	11:39	CLOUDY
14	32 01.75	106 35.20	12 DECEMB. 94	12:20	CLOUDY	22 DECEMB. 94	11:47	CLOUDY
15	32 01.93	106 35.51	12 DECEMB. 94	12:30	CLOUDY	22 DECEMB. 94	11:53	CLOUDY
16	32 02.31	106 36.16	16 DECEMB. 94	12:49	SUNNY	22 DECEMB. 94	12:00	CLOUDY
17	32 02.61	106 36.66	16 DECEMB. 94	12:57	SUNNY	22 DECEMB. 94	12:08	CLOUDY
18	32 02.81	106 37.06	16 DECEMB. 94	1:12	SUNNY	22 DECEMB. 94	12:18	CLOUDY
19	32 02.93	106 37.27	16 DECEMB. 94	1:30	SUNNY	22 DECEMB. 94	12:22	CLOUDY
20	32 03.13	106 37.57	16 DECEMB. 94	2:41	SUNNY	22 DECEMB. 94	12:27	CLOUDY
21	32 03.33	106 37.92	16 DECEMB. 94	2:24	SUNNY	22 DECEMB. 94	12:32	CLOUDY
22	32 03.93	106 38.44	17 DECEMB. 94	2:35	SUNNY	22 DECEMB. 94	12:38	CLOUDY
23	32 04.11	106 39.33	17 DECEMB. 94	3:46	SUNNY	22 DECEMB. 94	12:41	CLOUDY
24	32 04.22	106 39.46	17 DECEMB. 94	3:57	SUNNY	22 DECEMB. 94	12:43	CLOUDY
25	32 04.32	106 39.61	17 DECEMB. 94	1:15	SUNNY	22 DECEMB. 94	12:48	CLOUDY
26	32 04.40	106 39.78	22 DECEMB. 94	1:19	CLOUDY	22 DECEMB. 94	1:09	CLOUDY
27	32 04.50	106 39.93	22 DECEMB. 94	1:23	CLOUDY	22 DECEMB. 94	1:06	CLOUDY
28	32 04.95	106 40.70	22 DECEMB. 94	1:26	CLOUDY	22 DECEMB. 94	1:00	CLOUDY

MULLANEY ENGINEERING, INC.  
GAITHERSBURG, MARYLAND

FIGURE 14-D

NOVEMBER 1995

MULLANEY ENGINEERING, INC.

KROD EL PASO, TX 1995 PROOF

TABULATION OF FIELD INTENSITY MEASUREMENTS  
BEARING IN DEGREES 324.00

POINT *****	DISTANCE (MILES) *****	DISTANCE (KILOMETERS) *****	DA (MV/M) *****	N-DA (MV/M) *****	RATIO DA/N-DA *****
1	1.88	3.03	20.500	190.000	0.108
2MP	2.31	3.72	13.500	145.000	0.093
3	2.84	4.57	12.600	123.000	0.102
4	3.55	5.71	9.400	93.000	0.101
5	4.01	6.45	7.950	85.000	0.094
6	4.85	7.81	6.800	70.000	0.097
7	5.00	8.05	6.100	62.100	0.098
8	5.80	9.33	4.200	60.500	0.069
9	6.20	9.98	5.300	56.200	0.094
10	6.98	11.23	3.850	45.800	0.084
11	8.20	13.20	2.890	39.000	0.074
12	8.64	13.90	2.820	37.100	0.076
13	9.38	15.10	2.000	30.500	0.066
14	11.65	18.75	2.460	24.400	0.101
15	12.09	19.46	2.680	23.800	0.113
16	12.84	20.66	2.250	22.600	0.100
17	14.20	22.85	2.200	20.400	0.108
18	14.88	23.95	2.300	20.000	0.115
19	16.78	27.00	0.960	12.100	0.079
20	17.03	27.41	1.050	12.200	0.086
21	18.79	30.24	1.290	12.500	0.103
22	19.41	31.24	1.460	13.000	0.112
23	19.97	32.14	1.310	11.800	0.111

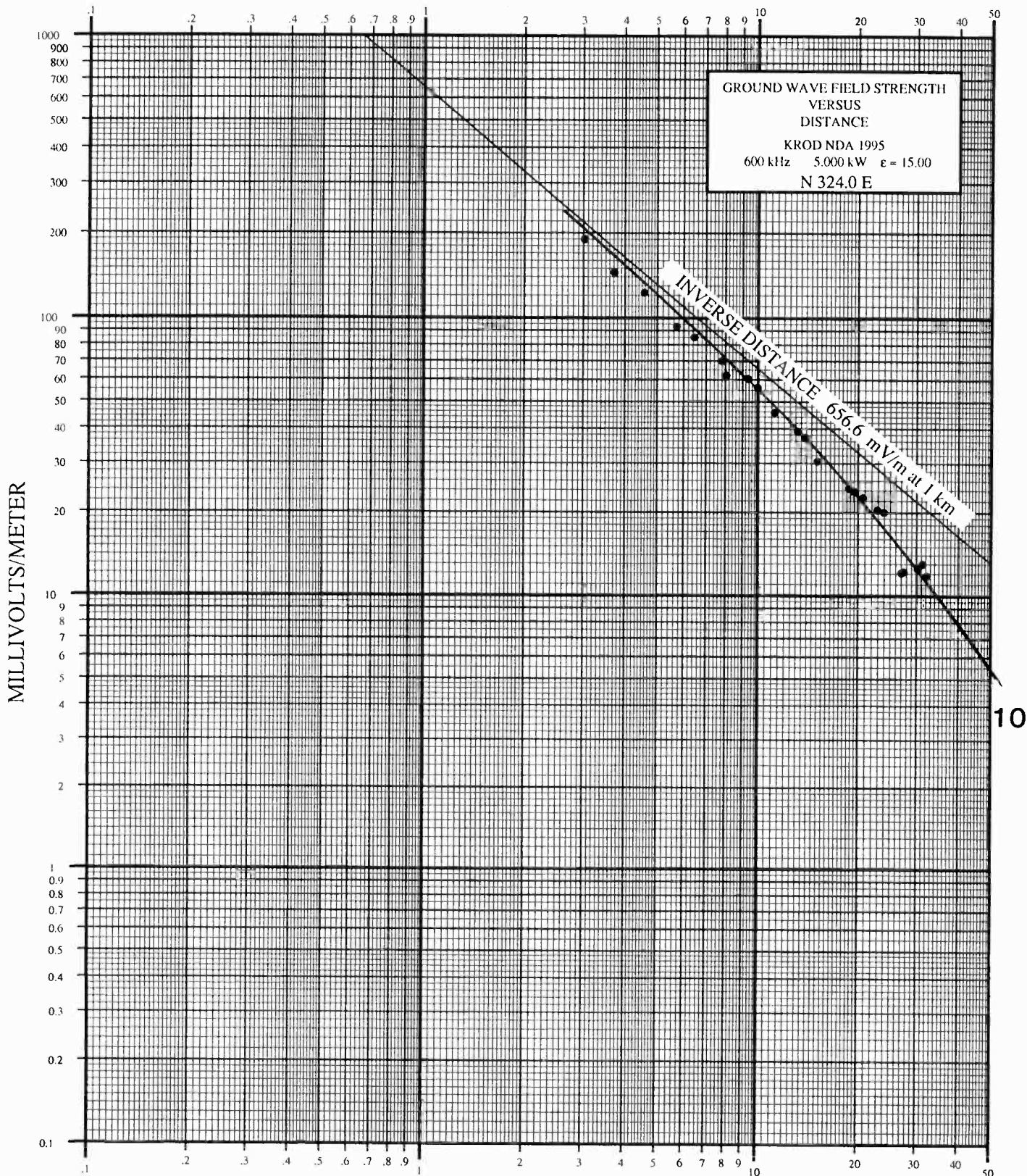
THE AVERAGE RATIO IS : 0.095

INVERSE FIELD = 0.095 \* 656.6 = 62.4 MV/M  
\*\*\*\*\*





KILOMETERS FROM ANTENNA



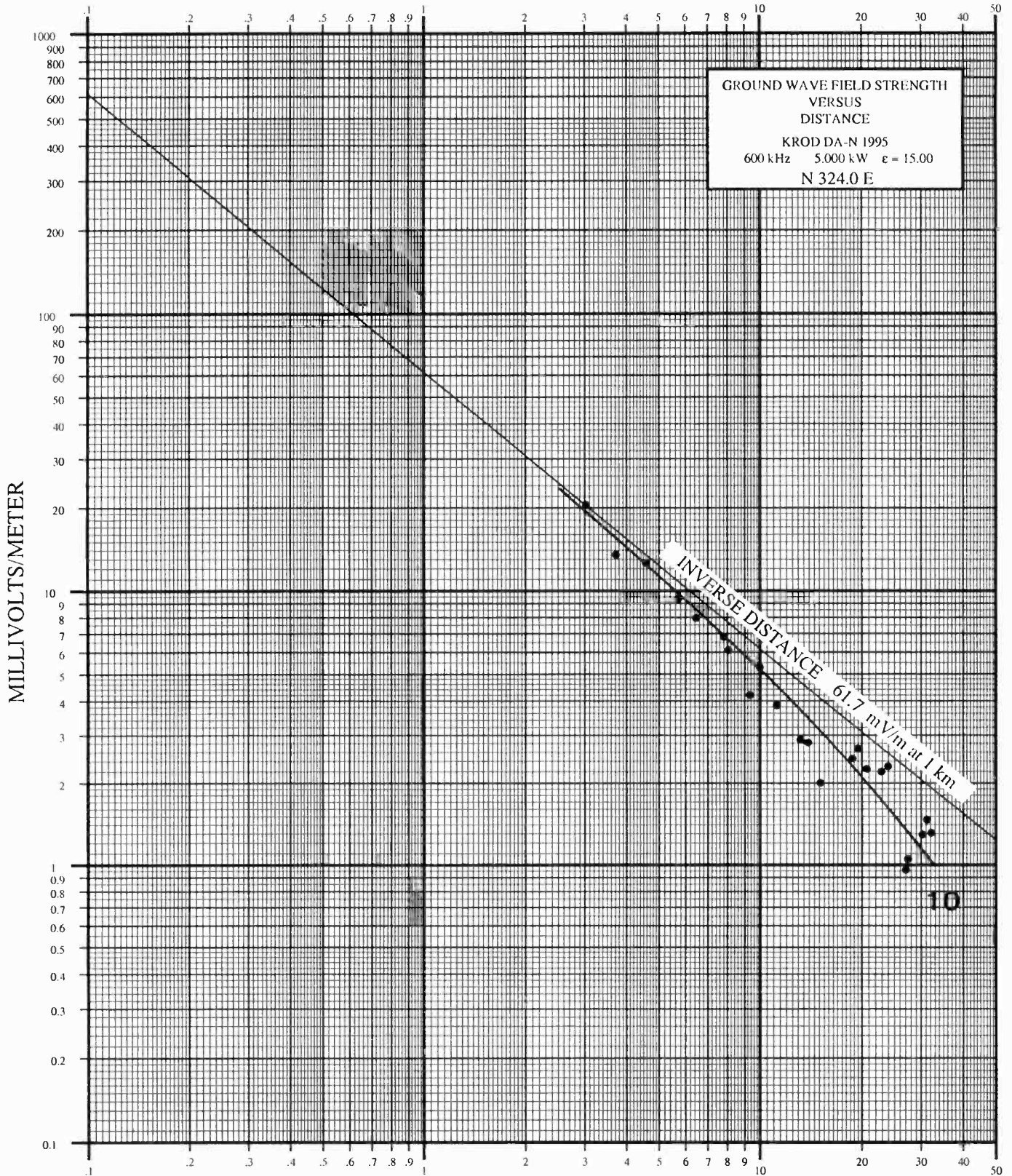
FIELD INTENSITY MEASUREMENTS - N-324.0-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 15-B  
OCTOBER 1995

KILOMETERS FROM ANTENNA



FIELD INTENSITY MEASUREMENTS - N-324.0-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 15-C  
OCTOBER 1995

# KROD EL PASO, TEXAS 324 DEGREES

POINT #	GPS LAT	GPS LON	NDA DATE	TIME	WX	DAN DATE	TIME	WX
1	31 56.26	106 24.68	02 MARCH	10:09	CLEAR	03 MARCH	11:30	CLEAR
2MP	31 56.57	106 24.93	02 MARCH	10:16	CLEAR	03 MARCH	11:40	CLEAR
3	31 56.92	106 25.25	02 MARCH	10:44	CLEAR	03 MARCH	11:47	CLEAR
4	31 57.43	106 25.68	02 MARCH	10:56	CLEAR	03 MARCH	11:55	CLEAR
5	31 57.74	106 25.98	02 MARCH	11:04	CLEAR	03 MARCH	12:00	CLEAR
6	31 58.34	106 26.45	02 MARCH	11:15	CLEAR	03 MARCH	12:12	CLEAR
7	31 58.43	106 26.55	02 MARCH	11:25	CLEAR	03 MARCH	12:16	CLEAR
8	31 59.01	106 26.95	02 MARCH	11:32	CLEAR	03 MARCH	12:20	CLEAR
9	31 59.28	106 27.26	02 MARCH	11:41	CLEAR	03 MARCH	12:25	CLEAR
10	31 59.84	106 27.73	02 MARCH	11:51	CLEAR	03 MARCH	12:40	CLEAR
11	32 00.70	106 28.45	02 MARCH	12:05	CLEAR	03 MARCH	12:50	CLEAR
12	32 01.00	106 28.73	02 MARCH	12:14	CLEAR	03 MARCH	1:00	CLEAR
13	32 01.52	106 29.17	02 MARCH	12:28	CLEAR	03 MARCH	1:05	CLEAR
14	32 03.14	106 30.55	02 MARCH	12:50	CLEAR	03 MARCH	1:15	CLEAR
15	32 03.45	106 30.82	02 MARCH	12:58	CLEAR	03 MARCH	1:25	CLEAR
16	32 03.98	106 31.26	02 MARCH	1:07	CLEAR	03 MARCH	1:28	CLEAR
17	32 04.93	106 32.09	02 MARCH	1:25	CLEAR	03 MARCH	1:45	CLEAR
18	32 05.41	106 32.51	02 MARCH	1:45	CLEAR	03 MARCH	1:50	CLEAR
19	32 06.74	106 33.65	02 MARCH	2:00	CLEAR	03 MARCH	2:02	CLEAR
20	32 06.93	106 33.79	02 MARCH	2:10	CLEAR	03 MARCH	2:09	CLEAR
21	32 08.17	106 34.84	02 MARCH	2:27	CLEAR	03 MARCH	2:16	CLEAR
22	32 08.60	106 35.23	02 MARCH	3:00	CLEAR	03 MARCH	3:18	CLEAR
23	32 09.00	106 35.57	02 MARCH	3:07	CLEAR	03 MARCH	3:13	CLEAR

MULLANEY ENGINEERING, INC.  
GAITHERSBURG, MARYLAND

FIGURE 15-D

NOVEMBER 1995

MULLANEY ENGINEERING, INC.

KROD EL PASO, TX 1995 PROOF

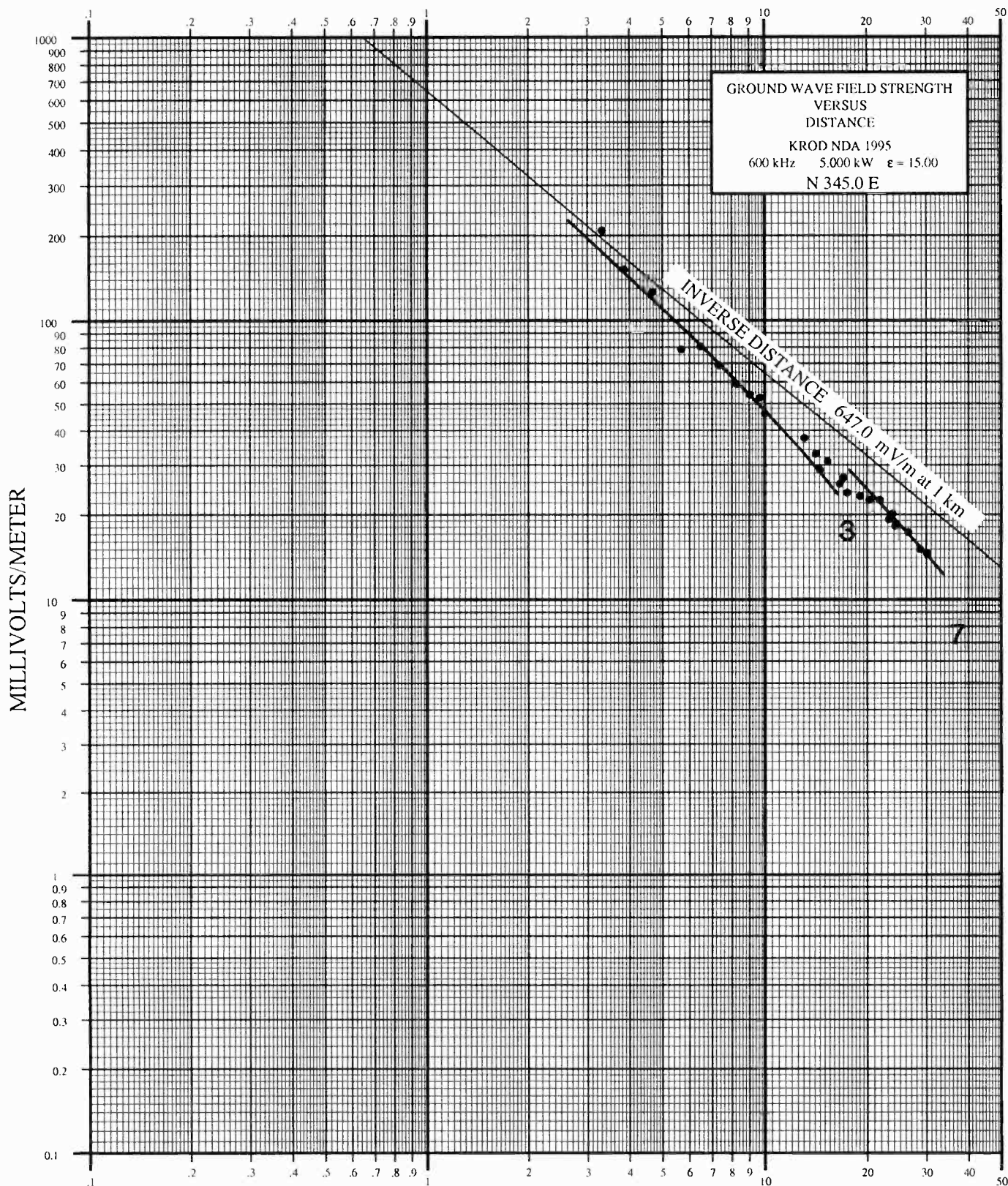
TABULATION OF FIELD INTENSITY MEASUREMENTS  
BEARING IN DEGREES 345.00

POINT *****	DISTANCE (MILES) *****	DISTANCE (KILOMETERS) *****	DA (MV/M) *****	N-DA (MV/M) *****	RATIO DA/N-DA *****
1	2.06	3.32	102.000	208.000	0.490
2	2.39	3.85	72.000	152.000	0.474
3	2.90	4.67	59.500	126.000	0.472
4	3.53	5.68	37.500	78.500	0.478
5	4.02	6.47	36.700	80.500	0.456
6	4.54	7.31	34.200	69.000	0.496
7	5.13	8.26	28.000	59.000	0.475
8	5.62	9.04	26.000	53.900	0.482
9	6.01	9.67	24.900	52.500	0.474
10	6.22	10.01	20.700	46.000	0.450
11	8.12	13.07	18.200	37.500	0.485
12	8.78	14.13	16.000	32.900	0.486
13	9.02	14.52	13.500	28.800	0.469
14	9.51	15.30	14.200	30.900	0.460
15	10.32	16.61	12.000	25.700	0.467
16	10.58	17.03	12.200	27.000	0.452
17	10.85	17.46	10.900	23.900	0.456
18	11.87	19.10	11.700	23.200	0.504
19	12.63	20.33	11.000	22.500	0.489
20	13.54	21.79	10.900	22.500	0.484
21	14.40	23.17	11.700	19.200	0.609
22	14.78	23.79	11.000	201.000	0.055
23	15.05	24.22	9.400	18.200	0.516
24	16.48	26.52	8.500	17.250	0.493
25	17.85	28.73	6.800	15.000	0.453
26	18.70	30.09	7.000	14.500	0.483

THE AVERAGE RATIO IS : 0.466

INVERSE FIELD = 0.466 \* 647.0 = 301.5 MV/M  
\*\*\*\*\*

KILOMETERS FROM ANTENNA



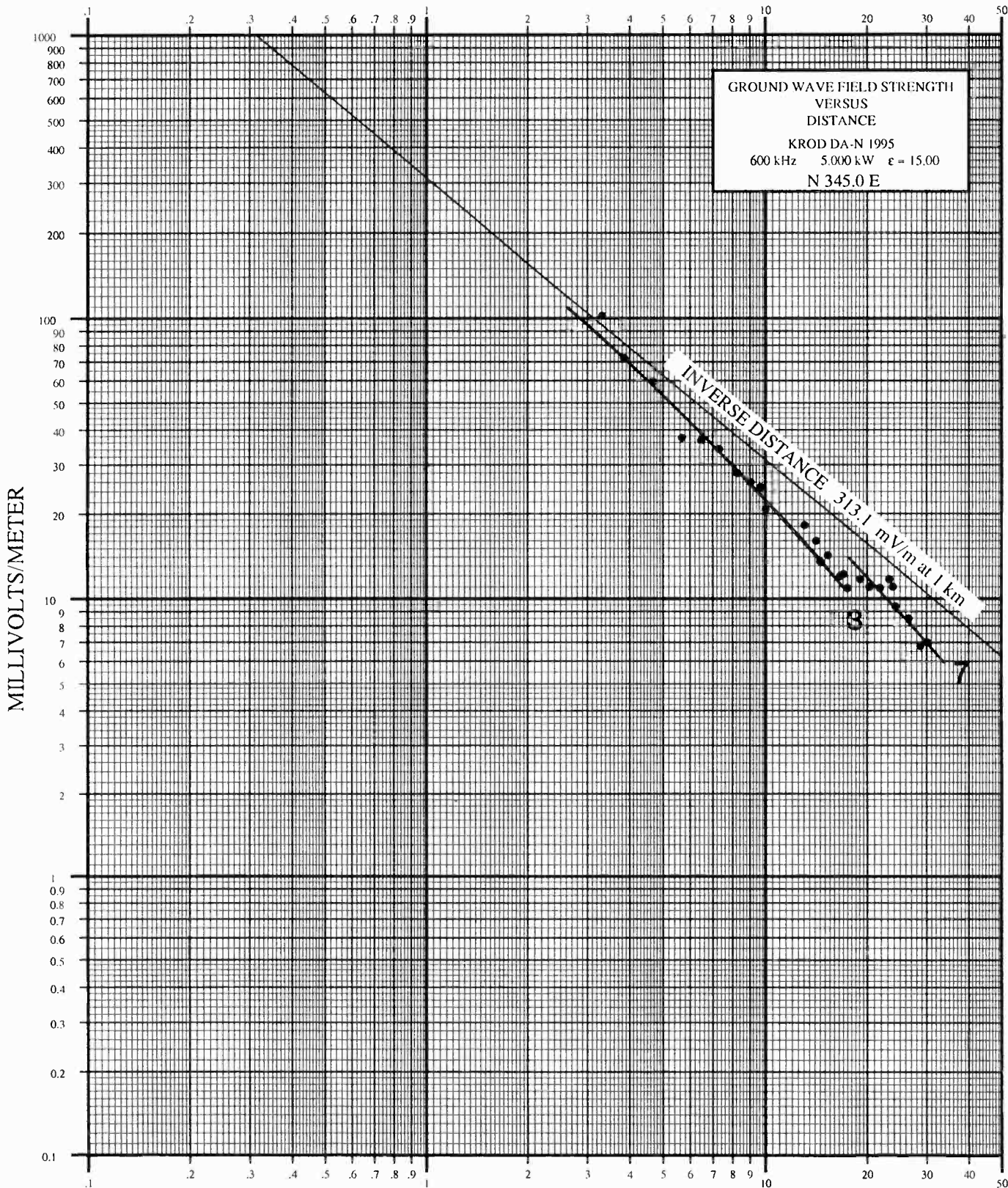
FIELD INTENSITY MEASUREMENTS - N-345.0-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 16-B  
OCTOBER 1995

KILOMETERS FROM ANTENNA



FIELD INTENSITY MEASUREMENTS - N-345.0-E

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 16-C  
OCTOBER 1995

# KROD EL PASO, TEXAS 345 DEGREES

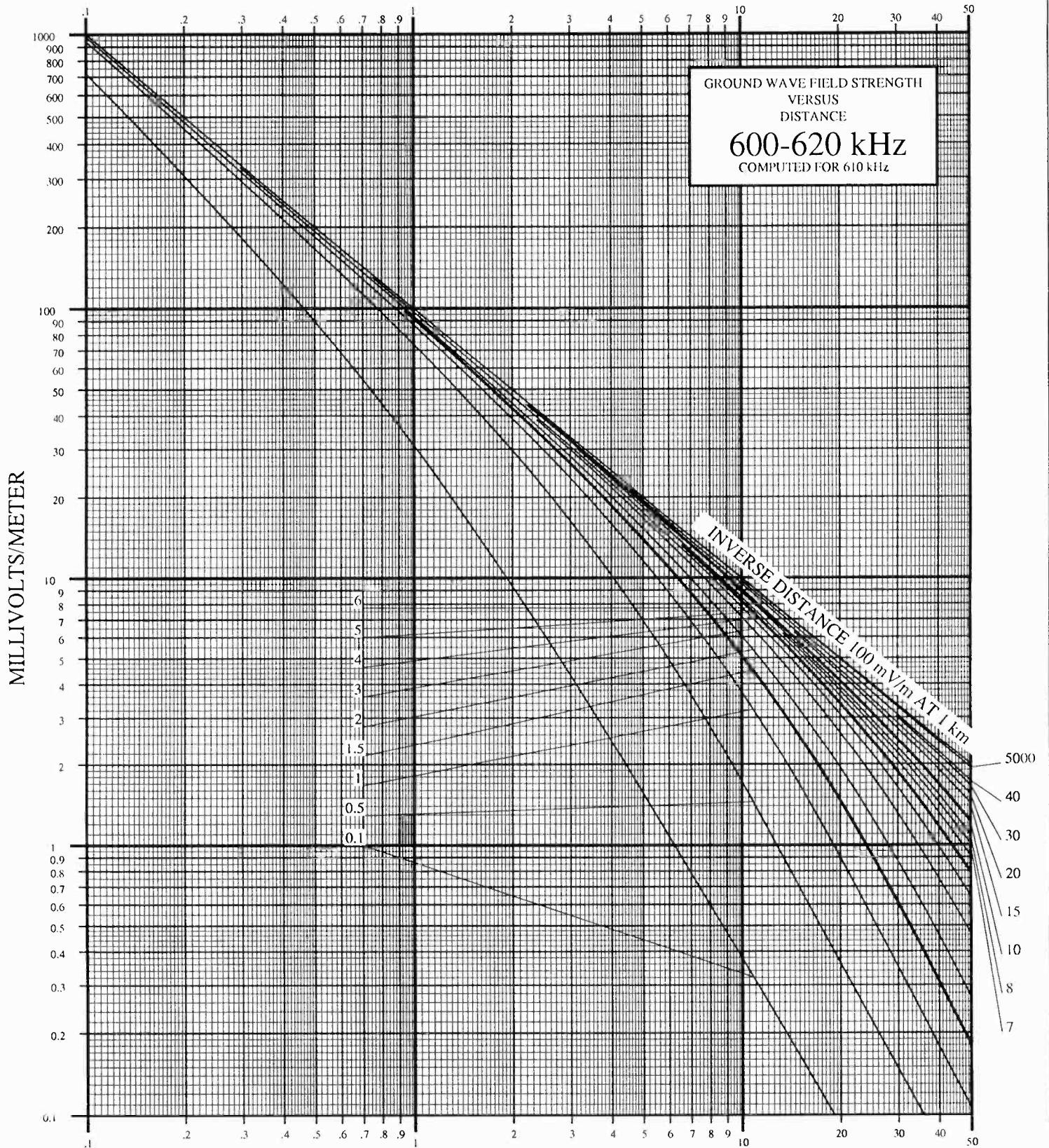
POINT #	GPS LAT	GPS LON	NDA DATE	TIME	WX	DAN DATE	TIME	WX
1	31 56.66	106 24.09	14 MARCH	1:27	CLEAR	15 MARCH	4:13	CLEAR
2	31 56.94	106 24.18	14 MARCH	1:37	CLEAR	15 MARCH	4:09	CLEAR
3	31 57.37	106 24.30	14 MARCH	1:50	CLEAR	15 MARCH	4:05	CLEAR
4	31 57.89	106 24.48	14 MARCH	2:00	CLEAR	15 MARCH	4:05	CLEAR
5	31 58.30	106 24.61	14 MARCH	2:08	CLEAR	15 MARCH	3:57	CLEAR
6	31 58.74	106 24.73	14 MARCH	2:15	CLEAR	15 MARCH	3:53	CLEAR
7	31 59.23	106 24.90	14 MARCH	2:30	CLEAR	15 MARCH	3:48	CLEAR
8	31 59.64	106 25.03	14 MARCH	2:45	CLEAR	15 MARCH	3:42	CLEAR
9	31 59.98	106 25.12	14 MARCH	3:05	CLEAR	15 MARCH	3:37	CLEAR
10	32 00.15	106 25.20	14 MARCH	3:15	CLEAR	15 MARCH	3:30	CLEAR
11	32 01.74	106 25.70	14 MARCH	4:00	CLEAR	15 MARCH	3:20	CLEAR
12	32 02.24	106 25.85	14 MARCH	3:35	CLEAR	15 MARCH	2:40	CLEAR
13	32 02.49	106 25.94	14 MARCH	4:05	CLEAR	15 MARCH	2:37	CLEAR
14	32 02.90	106 26.08	14 MARCH	4:10	CLEAR	15 MARCH	2:34	CLEAR
15	32 03.59	106 26.26	14 MARCH	4:15	CLEAR	15 MARCH	2:30	CLEAR
16	32 03.80	106 26.34	15 MARCH	10:45	CLEAR	15 MARCH	2:27	CLEAR
17	32 04.02	106 26.43	15 MARCH	11:00	CLEAR	15 MARCH	2:23	CLEAR
18	32 04.92	106 26.69	15 MARCH	11:22	CLEAR	15 MARCH	2:17	CLEAR
19	32 05.56	106 26.89	15 MARCH	11:45	CLEAR	15 MARCH	2:15	CLEAR
20	32 06.32	106 27.14	15 MARCH	1:55	CLEAR	15 MARCH	1:40	CLEAR
21	32 07.04	106 27.37	15 MARCH	12:10	CLEAR	15 MARCH	1:45	CLEAR
22	32 07.37	106 27.45	15 MARCH	12:20	CLEAR	15 MARCH	1:48	CLEAR
23	32 07.59	106 27.55	15 MARCH	12:25	CLEAR	15 MARCH	1:50	CLEAR
24	32 08.80	106 27.92	15 MARCH	12:45	CLEAR	15 MARCH	1:25	CLEAR
25	32 09.95	106 28.29	15 MARCH	12:55	CLEAR	15 MARCH	1:20	CLEAR
26	32 10.66	106 28.50	15 MARCH	1:05	CLEAR	15 MARCH	1:15	CLEAR

MULLANEY ENGINEERING, INC.  
GAITHERSBURG, MARYLAND

FIGURE 16-D

NOVEMBER 1995

KILOMETERS FROM ANTENNA



GRAPH 3 - A

STANDARD CONDUCTIVITY CURVES

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

Mullaney Engineering, Inc.  
Gaithersburg, Maryland

FIGURE 17  
OCTOBER 1995



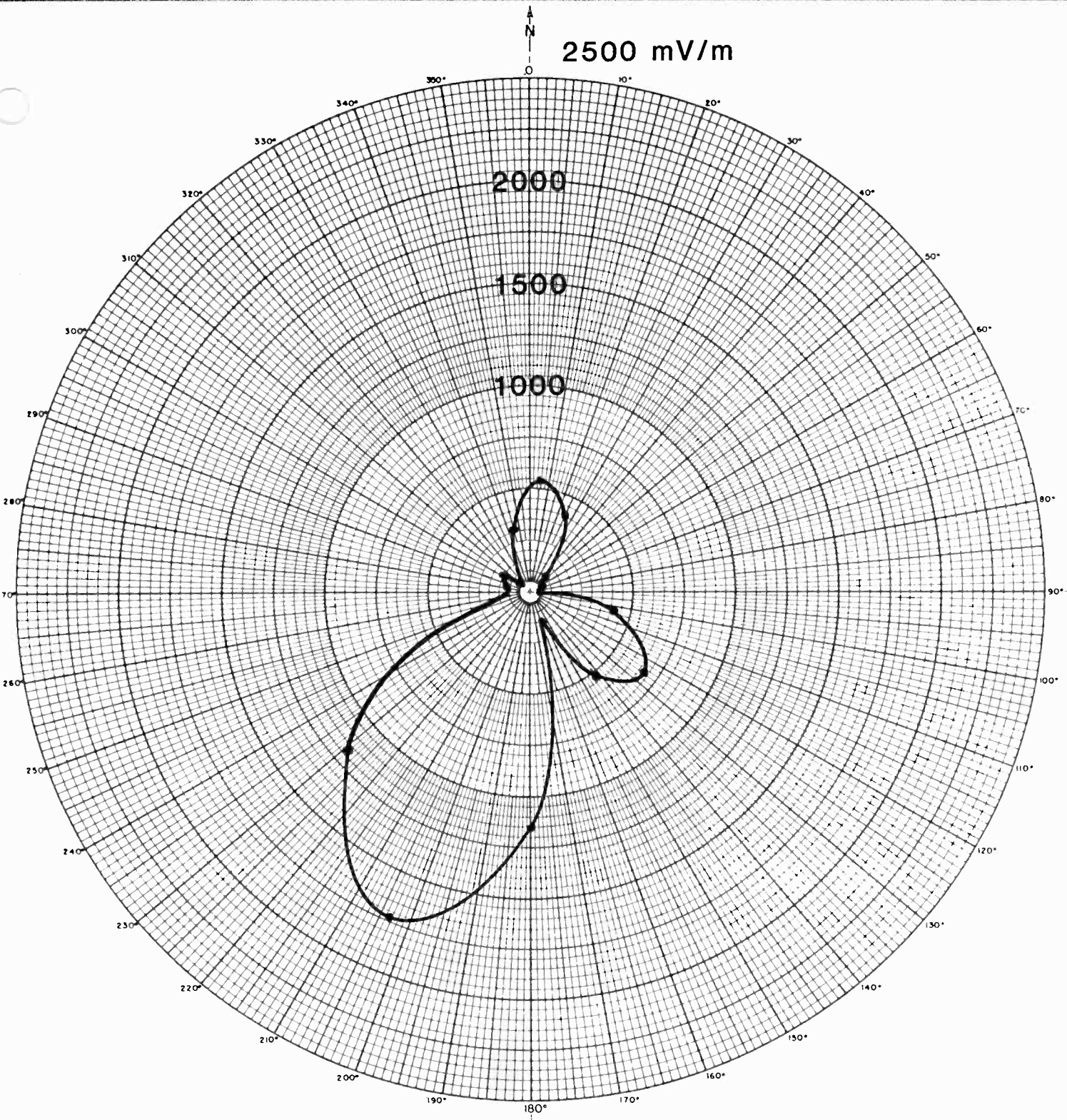
**FIGURES 18-A & 18-B:**

**ON FILE: NO CHANGE**

FIGURE 19-A  
DA-N INVERSE FIELDS

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

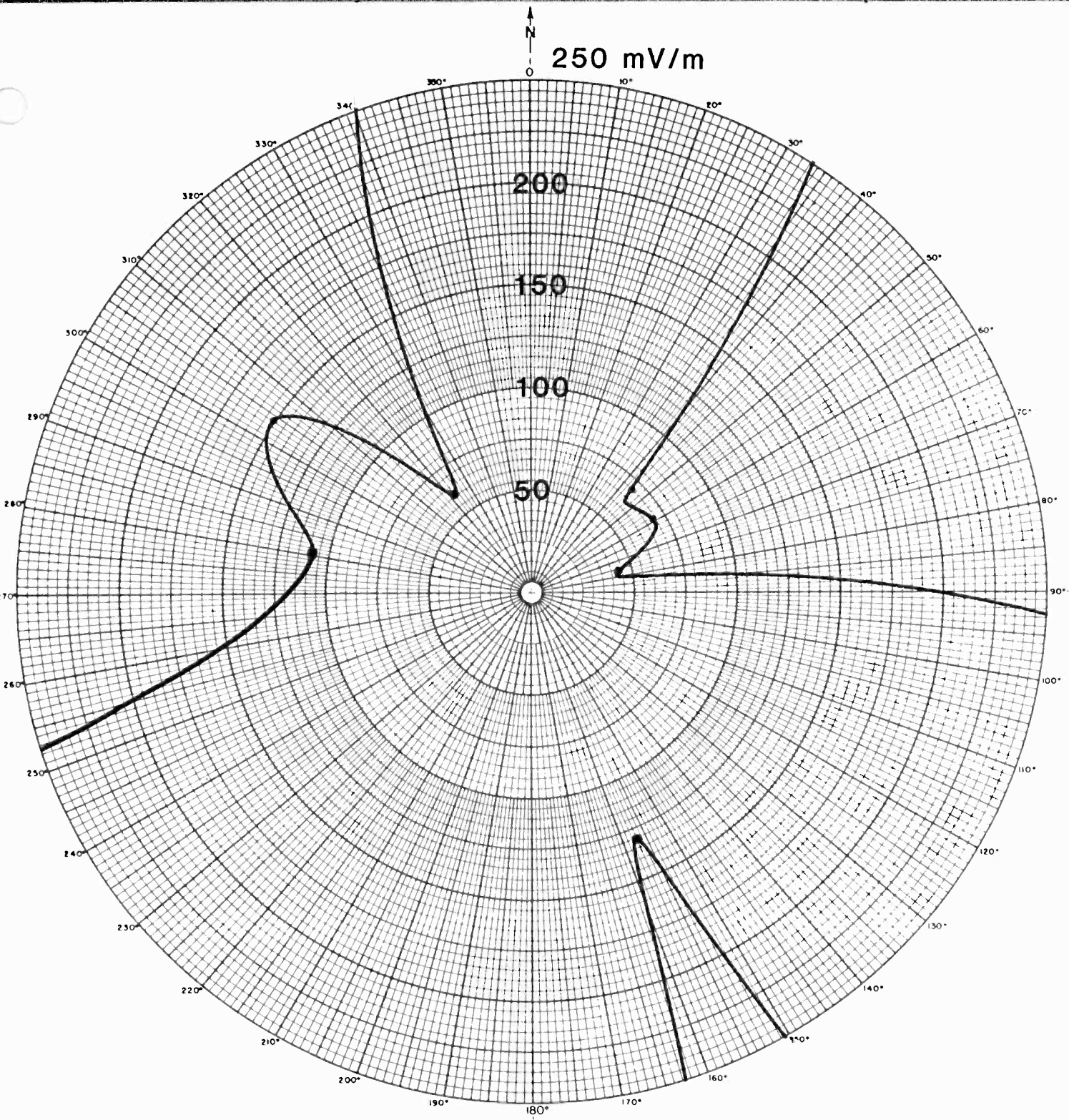
BEARING	RADIATION
5.5	554.0
25.0	407.7
44.5	64.8
59.0	70.1
76.5	42.7
102.0	420.0
125.5	669.5
142.0	488.9
157.0	128.4
180.0	1137.9
203.5	1718.5
229.5	1161.8
280.5	106.7
304.5	151.2
324.0	61.7
345.0	313.1



DA-N INVERSE FIELDS  
 RADIO STATION KROD  
 EL PASO, TEXAS  
 600 kHz 5.0 kW DA-N-U

**MULLANEY ENGINEERING, INC.**  
 GAITHERSBURG, MARYLAND  
 FIGURE 19-B  
 SEPTEMBER 1995

250 mV/m



DA-N INVERSE FIELDS - EXPANDED  
RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

MULLANEY ENGINEERING, INC.  
GAITHERSBURG, MARYLAND  
FIGURE 19-C  
AUGUST 1995

FIGURE 20-A  
TOWER NO. 1 BASE IMPEDANCE

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

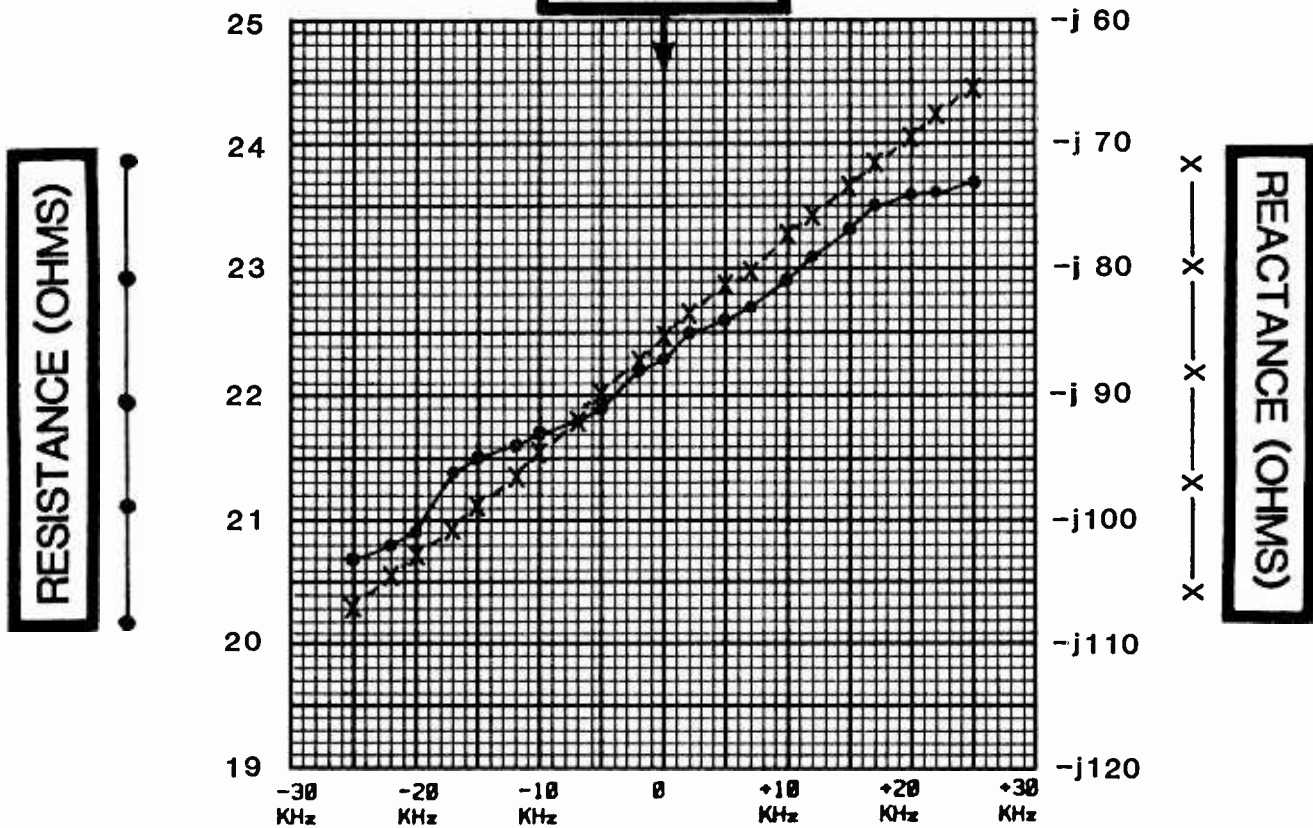
FREQUENCY (kHz)	RESISTANCE (OHMS)	REACTANCE (OHMS)
575	20.7	-j107.0
578	20.8	-j104.3
580	20.9	-j102.7
583	21.4	-j100.6
585	21.5	-j98.9
588	21.6	-j96.4
590	21.7	-j94.4
593	21.8	-j91.9
595	21.9	-j89.8
598	22.2	-j87.3
* 600	22.3	-j85.2
602	22.5	-j83.7
605	22.6	-j81.1
607	22.7	-j80.1
610	22.9	-j77.5
612	23.1	-j75.9
615	23.3	-j73.5
617	23.5	-j71.7
620	23.6	-j69.4
622	23.6	-j67.7
625	23.7	-j65.5

\* - OPERATING FREQUENCY

# MEASURED IMPEDANCES

OPERATING FREQUENCY (KHz): 600

OPERATING  
FREQUENCY



OCTOBER 1995

MULLANEY ENGINEERING, INC.  
GAITHERSBURG, MARYLAND

FIGURE 20-B  
TOWER NO. 1 BASE IMPEDANCE

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

FIGURE 21-A  
 NIGHTTIME COMMON POINT IMPEDANCES

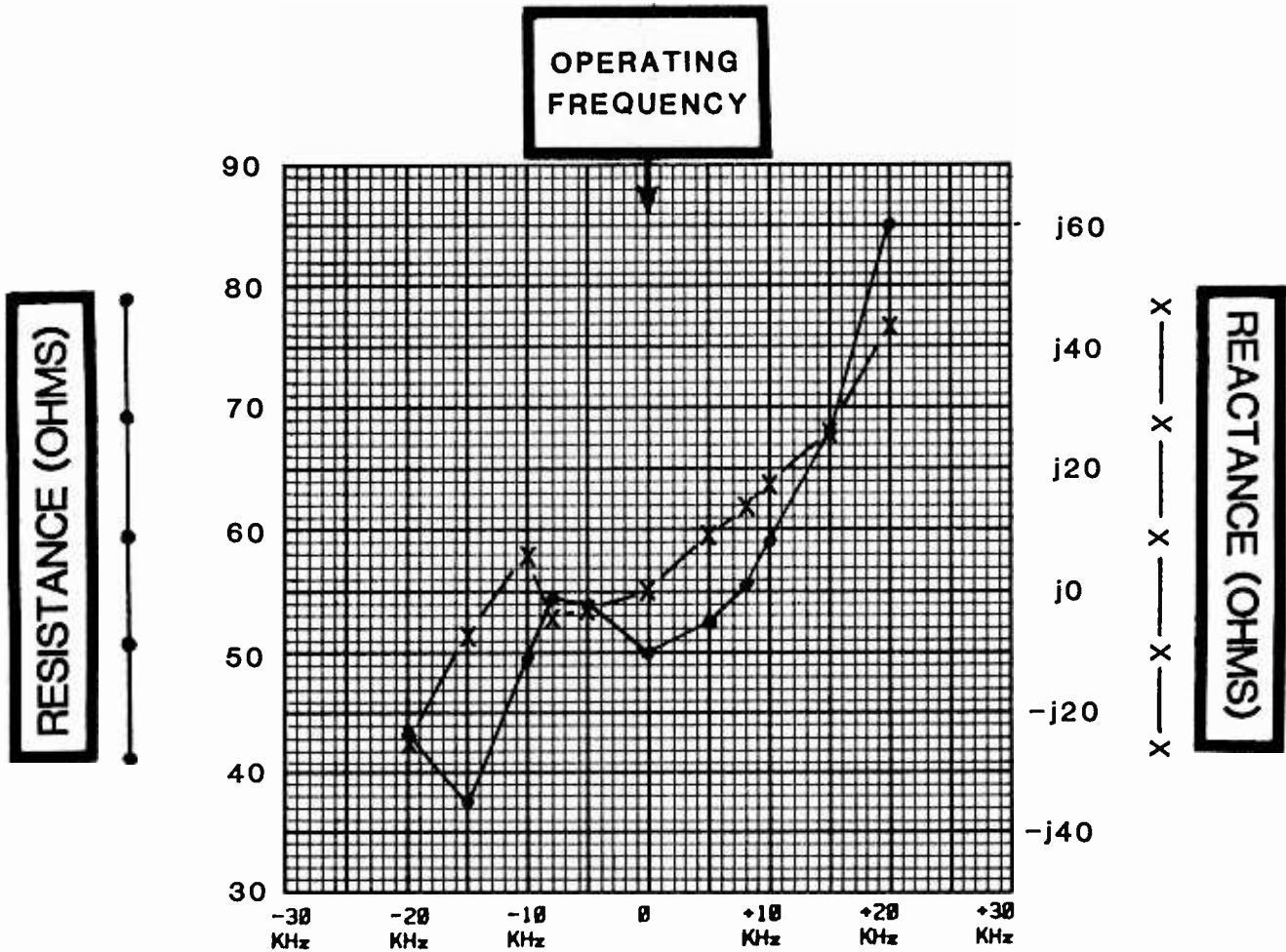
RADIO STATION KROD  
 EL PASO, TEXAS  
 600 kHz 5.0 kW DA-N-U

FREQUENCY (kHz)	RESISTANCE (OHMS)	REACTANCE (OHMS)
580	43.5	-j24.65
585	37.5	-j 7.02
590	49.5	+j 5.90
592	54.5	+j 4.74
595	54.0	-j 2.98
* 600	50.0	j 0.0
605	52.2	+j 9.08
608	55.5	+j13.68
610	59.0	+j17.69
615	68.0	+j26.14
620	85.0	+j43.40

\* - OPERATING FREQUENCY

**MEASURED IMPEDANCES**

**OPERATING FREQUENCY (KHz): 600**



**MULLANEY ENGINEERING, INC.**  
GAITHERSBURG, MARYLAND

**FIGURE 21-B**  
**NIGHTTIME COMMON POINT IMPEDANCE**  
RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U



MULLANEY ENGINEERING, INC.

FIGURE 22  
KROD - EL PASO, TEXAS  
OCTOBER 1995

Monitor Point # 1  
44.5 degrees  
31° 56' 38" NL 106° 21' 34" WL

From the KROD transmitter building proceed 0.09 miles down the access road to Dyer Street. Turn right (north) on Dyer and proceed 0.9 mile to Angora Loop Road. Turn right (east) onto Angora Loop Road and proceed 1.28 miles to the intersection with Railroad Drive. Turn left (north) onto Railroad drive and go 1.5 miles. Monitor point is on the right edge of the pavement of Railroad Drive approximately 50 ft. (north) past the intersection to the railroad tracks. Distance to the array is 2.76 miles



MULLANEY ENGINEERING, INC.

FIGURE 23  
KROD - EL PASO, TEXAS  
OCTOBER 1995

Monitor Point #2  
76.5 degrees  
31° 55' 48" NL 106° 19' 18" WL

From Point #1, return to the intersection with the railroad crossing. Turn left (east) and cross the railroad tracks and go to the stop sign at the intersection with Sanitary Road, a wide dirt road. Turn right on Sanitary Road and go approximately 250 feet to an intersection with three dirt trails on the left. Turn left (east) onto the center dirt trail. (this is a pipeline road) . Continue on the dirt trail 2.15 miles to an intersection with a wide dirt road with sign "Tracked Vehicle Crossing". Turn left (north) onto the wide military dirt road and proceed 0.9 miles to a small dirt road crossing the wide one. Turn right onto the small winding dirt trail. Continue down dirt trail 0.24 miles. Monitor point is on the right approximately 20 feet south of dirt trail (behind large mound of dirt). Distance to the array is 4.27 miles



MULLANEY ENGINEERING, INC.

FIGURE 24  
KROD - EL PASO, TEXAS  
OCTOBER 1995

Monitor Point #3  
157 degrees  
31° 53' 11" NL 106° 22' 43" WL

From Monitor Point #2 return to intersection of Sanitary Road and three pipeline trails near the railroad crossing. Turn left (south) onto Sanitary Road and travel for 4.25 miles to an intersection with a wide dirt road on left. This road is marked "Authorized Tank Trail". Turn left (east) onto "Tank Trail" and go 1.0 mile. Monitor Point is on the north side of the "Tank Trail" 5 feet north of the edge of the road. Distance to the array is 2.17 miles.



MULLANEY ENGINEERING, INC.

FIGURE 25  
KROD - EL PASO, TEXAS  
OCTOBER 1995

Monitor Point #4  
280.5 degrees  
31° 55' 24" NL 106° 26' 27" WL

From the KROD transmitter building go 0.09 to Dyer Street. Turn right (north) onto Dyer and go 0.1 mile and make a U-turn. Proceed southwest on Dyer 0.6 mile to Sun Valley. Turn right (west) onto Sun Valley and travel 1.8 miles to Kenworthy Street. Turn right onto Kenworthy and travel 1.1 miles until Kenworthy merges with the road to White Sands Missile Range (Martin Luther King Blvd.). When divided roadway ends, make a U-turn and go south 0.14 miles on Gateway South (Martin Luther King Blvd) to monitor point. Monitor point is 14 feet west of pavement (Gateway South) and approximately 350 feet south of street light # 15032. Distance to the array is 2.89 miles.



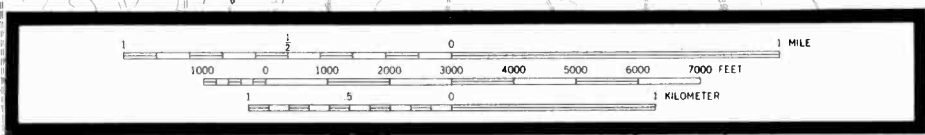
MULLANEY ENGINEERING, INC.

FIGURE 26  
KROD - EL PASO, TEXAS  
OCTOBER 1995

Monitor Point #5  
324 degrees  
31° 56' 35" NL 106° 24' 54" WL

From the KROD transmitter building go 0.09 to Dyer Street. Turn right (north) onto Dyer and go 0.1 mile and make a U-turn. Proceed southwest on Dyer 0.6 miles to Sun Valley. Turn right (west) onto Sun Valley and travel 0.28 miles to McCombs Road. Turn right (north northwest) on McCombs and travel 2.25 miles until divided roadway ends. Make a U-turn and go 0.12 miles. Turn right (west) just before guard rail. Take the northern most trail around behind the pumping station. At approximately 0.2 miles down trail take the fork to the north and continue down this dirt trail until it ends at gully 0.48 miles from McCombs. Exit vehicle, cross the gully and walk on the dirt road (west) for 25 feet. Monitor point is in the center of the dirt road. Distance to the array is 2.31 miles.



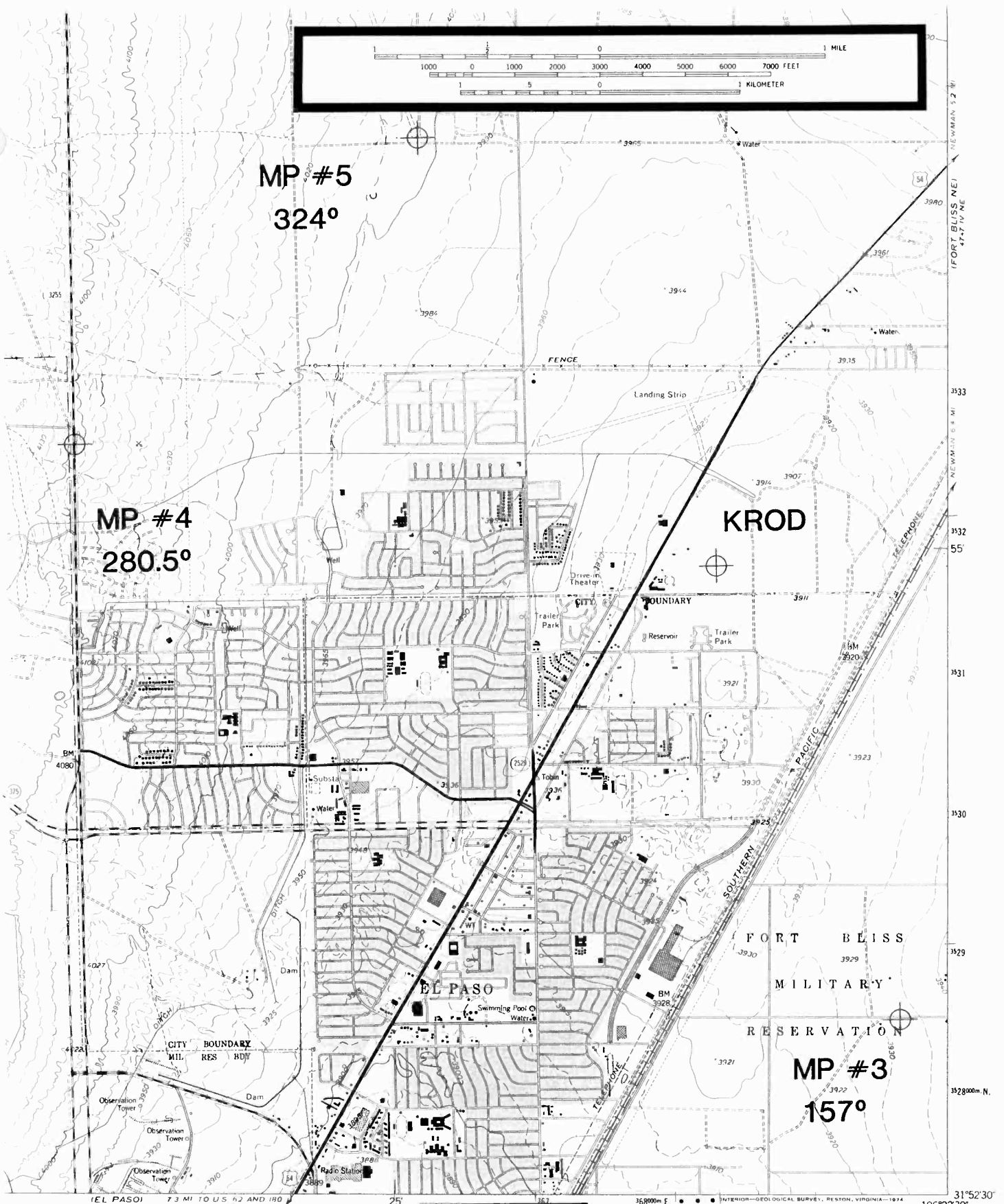


MP #5  
324°

MP #4  
280.5°

KROD

MP #3  
157°



EL PASO 7.3 MI TO U.S. 52 AND 180  
4747 IV SW EL PASO (COURTHOUSE) MI MI

SCALE 1:24,000

OCTOBER 1995

**MULLANEY ENGINEERING, INC.**  
GAITHERSBURG, MARYLAND

**FIGURE 27-A**  
**MONITOR POINT LOCATION MAP**

**RADIO STATION KROD**  
EL PASO, TEXAS  
600 kHz 5.0 kW DA-N-U

ROAD CLASSIFICATION

Heavy-duty ——— Light-duty ———  
Medium-duty ——— Unimproved dirt - - - - -

U.S. Route      State Route

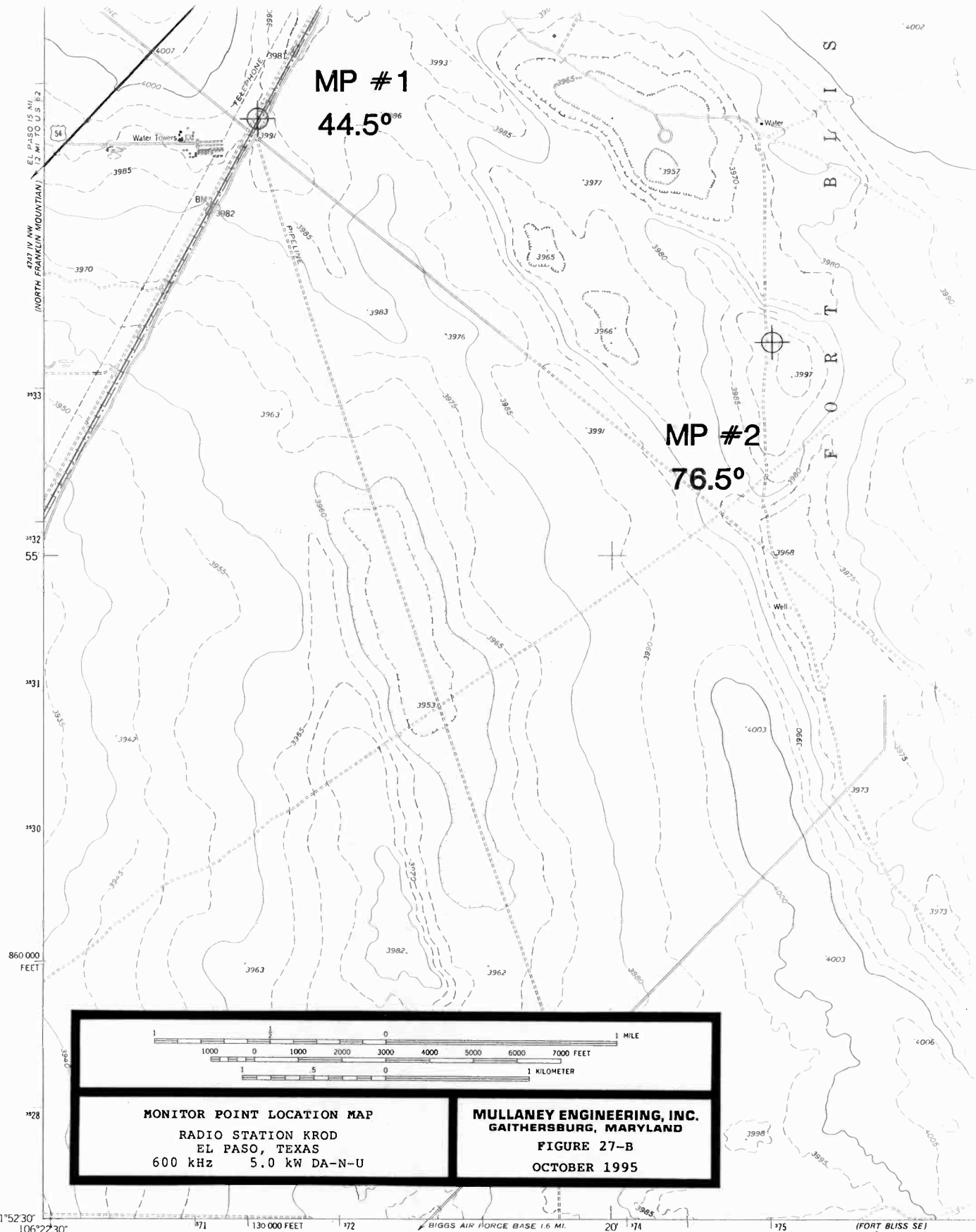
NORTH FRANKLIN MOUNTAIN, TEX.

N3152.5-W10622.5/7.5

1955  
PHOTOREVISED 1967 AND 1973  
AMS 4747 IV NW-SERIES V8B2

CONTOUR INTERVAL 20 FEET  
DASHED LINES REPRESENT 5 AND 10-FOOT CONTOURS  
NATIONAL GEODETIC VERTICAL DATUM OF 1929

MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
LOGICAL SURVEY, DENVER, COLORADO 80225 OR RESTON, VIRGINIA 22092  
ADDITIONAL TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



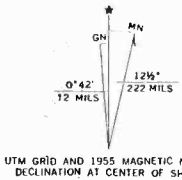
<p>1 0 1000 0 1000 2000 3000 4000 5000 6000 7000 FEET</p> <p>1 0 5 10 1 KILOMETER</p>	
<p><b>MONITOR POINT LOCATION MAP</b></p> <p>RADIO STATION KROD EL PASO, TEXAS 600 kHz 5.0 kW DA-N-U</p>	<p><b>MULLANEY ENGINEERING, INC.</b> GAITHERSBURG, MARYLAND</p> <p><b>FIGURE 27-B</b> OCTOBER 1995</p>

31°52'30" 106°22'30"

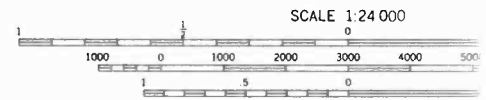
(EL PASO)  
4247 IV SW

Mapped by the Army Map Service  
Published for civil use by the Geological Survey  
Control by USGS, USC&GS, and USCE  
Topography from aerial photographs by photogrammetric methods  
Aerial photographs taken 1954. Photography field annotated 1955  
Polyconic projection. 1927 North American datum  
10,000-foot grid based on Texas coordinate system, central zone  
1000-meter Universal Transverse Mercator grid ticks, zone 13, shown in blue  
Unchecked elevations are shown in brown

To place on the predicted North American Datum 1983  
move the projection lines 7 meters south and  
51 meters east as shown by dashed corner ticks



UTM GRID AND 1955 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET  
There may be private inholdings within the boundaries of the National or State reservations shown on this map  
Map photoinspected 1973  
No major culture or drainage changes observed



SCALE 1:24 000

CONTOUR INTERVAL 20 FEET  
DASHED LINES REPRESENT 5 AND 10 FOOT CONT  
NATIONAL GEODETIC VERTICAL DATUM OF 192

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AV

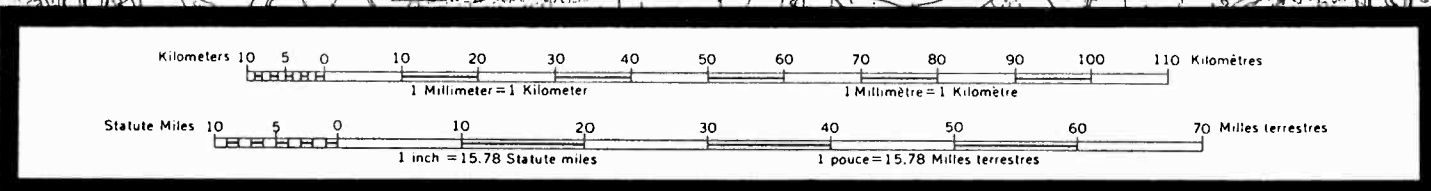
MULLANEY ENGINEERING, INC.

FIGURE 28-A  
MEASURED DAYTIME 5.0 mV/m COVERAGE

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz      5.0 kW DA-N-U

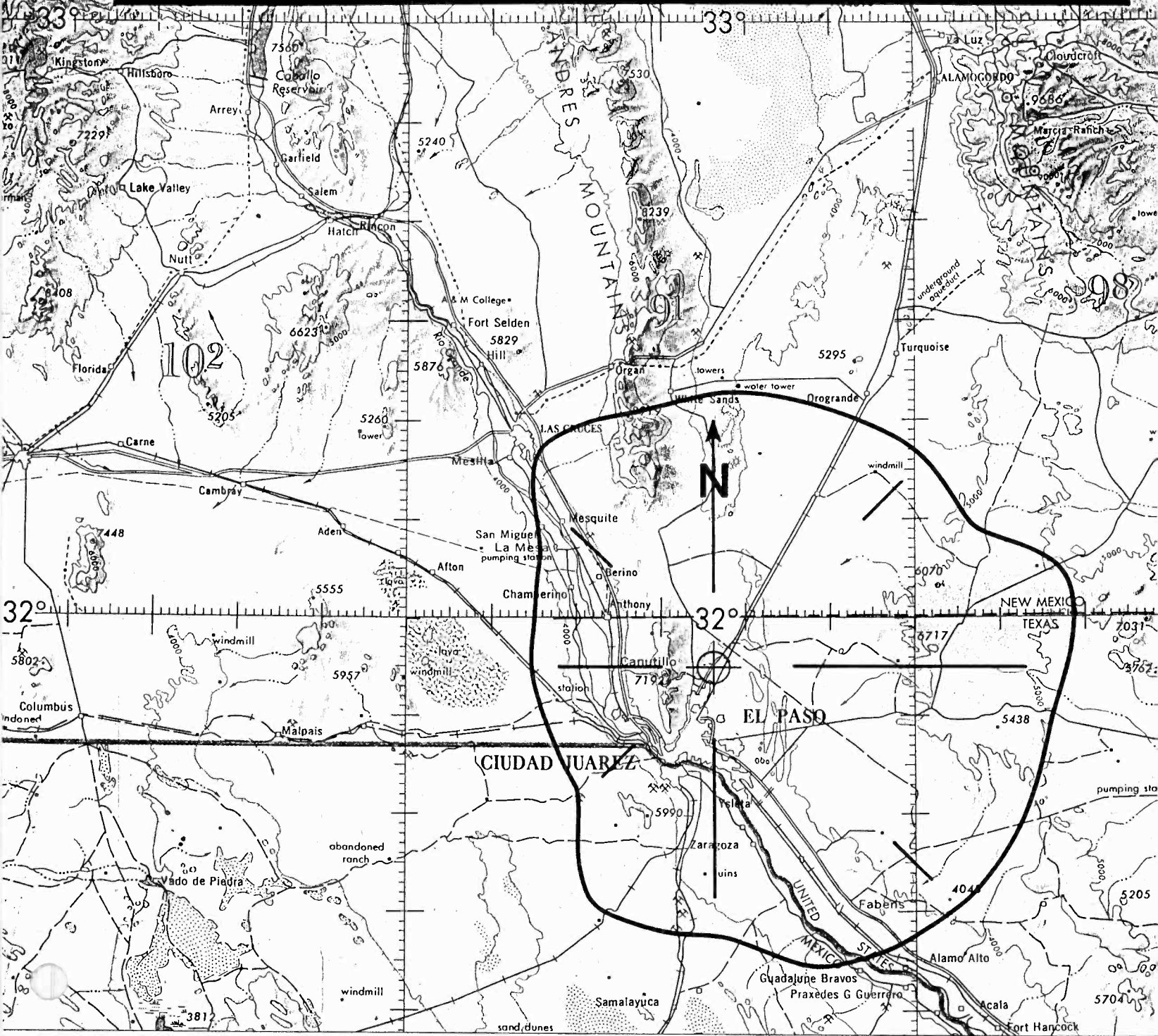
BEARING	KILOMETERS
5.5	51.8
25.0	53.0
44.5	55.2
59.0	54.4
76.5	67.5
102.0	62.9
125.5	64.3
142.0	63.2
157.0	60.9
180.0	50.7
203.5	50.5
229.5	34.0
280.5	34.0
304.5	38.7
324.0	52.3
345.0	50.0





**MEASURED DAYTIME 5.0 mV/m COVERAGE**  
**RADIO STATION KROD**  
**EL PASO, TEXAS**  
**600 kHz 5.0 kW DA-N-U**

**MULLANEY ENGINEERING, INC.**  
**GAITHERSBURG, MARYLAND**  
**FIGURE 28-B**  
**OCTOBER 1995**



107°

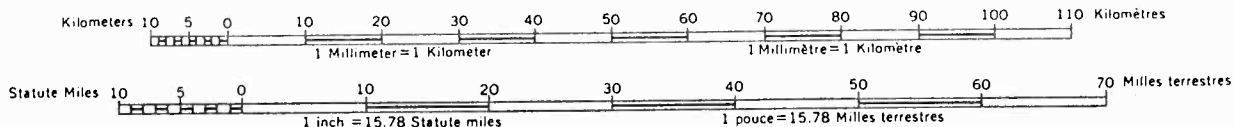
106°

MULLANEY ENGINEERING, INC.

FIGURE 28-C  
MEASURED NIGHTTIME 7.03 mV/m COVERAGE

RADIO STATION KROD  
EL PASO, TEXAS  
600 kHz      5.0 kW DA-N-U

BEARING	KILOMETERS
5.5	47.0
25.0	40.0
44.5	9.1
59.0	8.2
76.5	6.1
102.0	40.5
125.5	51.8
142.0	44.5
157.0	14.5
180.0	55.4
203.5	64.0
229.5	37.0
280.5	10.0
304.5	13.5
324.0	7.7
345.0	29.5

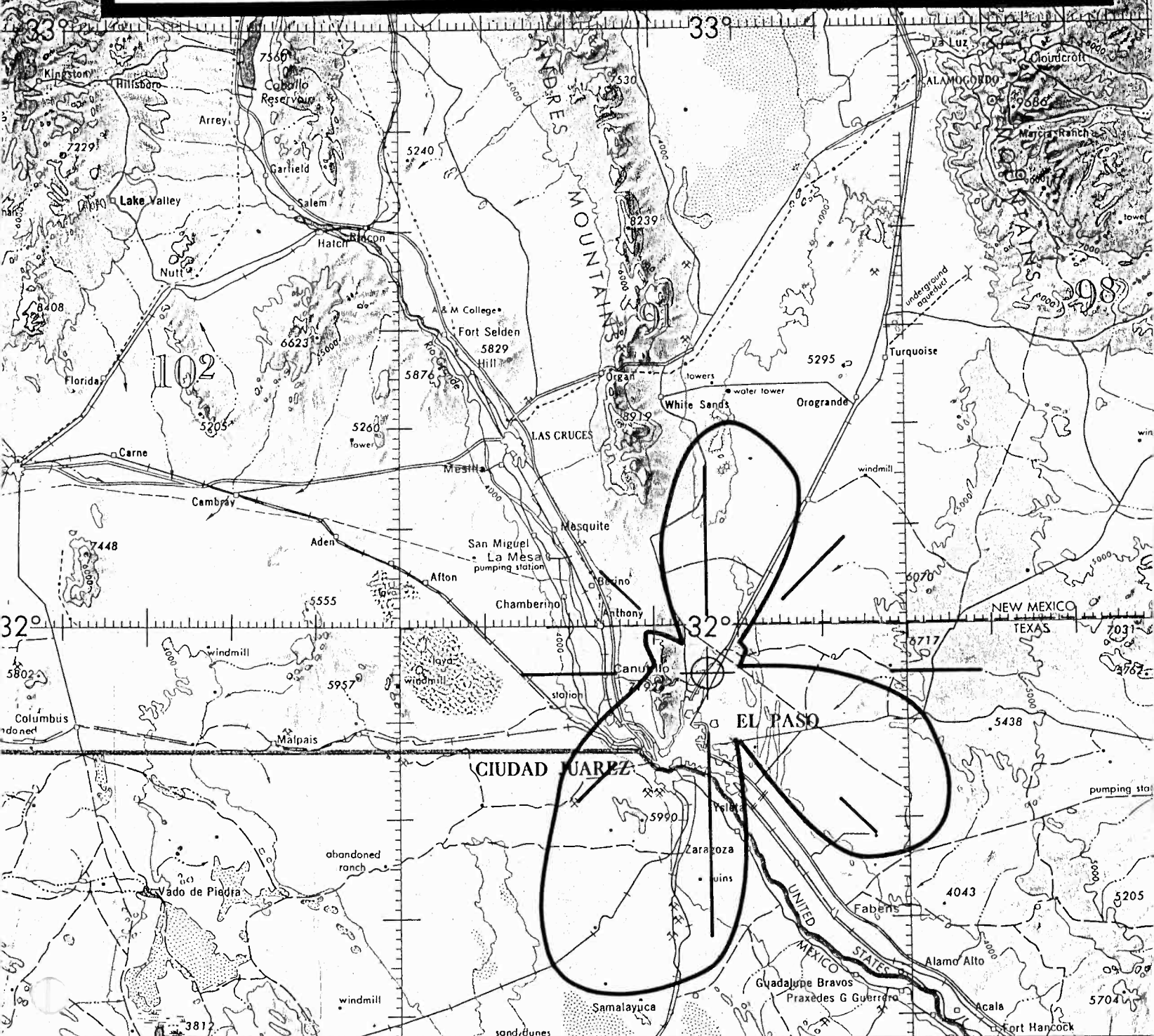


**MEASURED NIGHTTIME 7.03 mV/m COVERAGE**

RADIO STATION KROD  
 EL PASO, TEXAS  
 600 kHz 5.0 kW DA-N-U

**MULLANEY ENGINEERING, INC.**  
**GAITHERSBURG, MARYLAND**

FIGURE 28-D  
 OCTOBER 1995



107°

106°

FIGURE 29-B  
 COMPONENT LIST  
 RADIO STATION KROD EL PASO, TEXAS  
 600 KHZ KW-U DA-N

	<u>LABEL</u>	<u>QUAN.</u>	<u>DESCRIPTION</u>
<b>J-plug assemblies</b>	J1-J403	18	J-PLUG C0016-1
<b>Plug in meters</b>			
	M2	1	Model 371 0-15 Amp
	M3	1	Model 371 0-20 Amp
	M4	1	Model 308 0-8 Amp
<b>Inductors</b>			
	*L1	1	15uh, 30A, Variable M15-30V
	L2	1	10uh, 40A, Fixed M10-40T
	L3	1	10uh, 40A, Fixed M10-40T
	*L11	1	18uh, 15A, Variable M18-15V
	*L12	1	18uh, 15A, Variable M18-15V
	L13	1	18uh, 20A, Fixed M18-20
	*L20	1	54uh, 15A, Variable M54-15V
	*L21	1	13uh, 15A Variable M13-15V
	*L30	1	54uh, 15A, Variable M54-15V
	*L31	1	18uh, 15A, Variable M18-15V
	*L32	1	18uh, 15A, Variable M18-15V
	*L40	1	54uh, 15A, Variable M54-15V
	*L41	1	18uh, 15A, Variable M18-15V
	*L42	1	18uh, 15A, Variable M18-15V
	L43	1	16uh, 15A, Fixed M16-15
	L101	1	16uh, 20A, Fixed M16-20
	L102	1	69uh, 30A, Fixed M69-30T
	L103	1	10uh, 30A, Fixed M10-30T
	L201	1	16uh, 15A, Fixed M16-15
	L202	1	53uh, 15A, Fixed M53-15
	L203	1	16uh, 20A, Fixed M16-20
	L301	1	16uh, 15A, Fixed M16-15
	L302	1	50uh, 15A Variable LV50-15
	L303	1	18uh, 15A, Variable M18-15V
	L401	1	16uh, 15A, Fixed M16-15
	L402	1	47uh, 20A, Fixed M47-20
	L403	1	16uh, 20A, Fixed M16-20

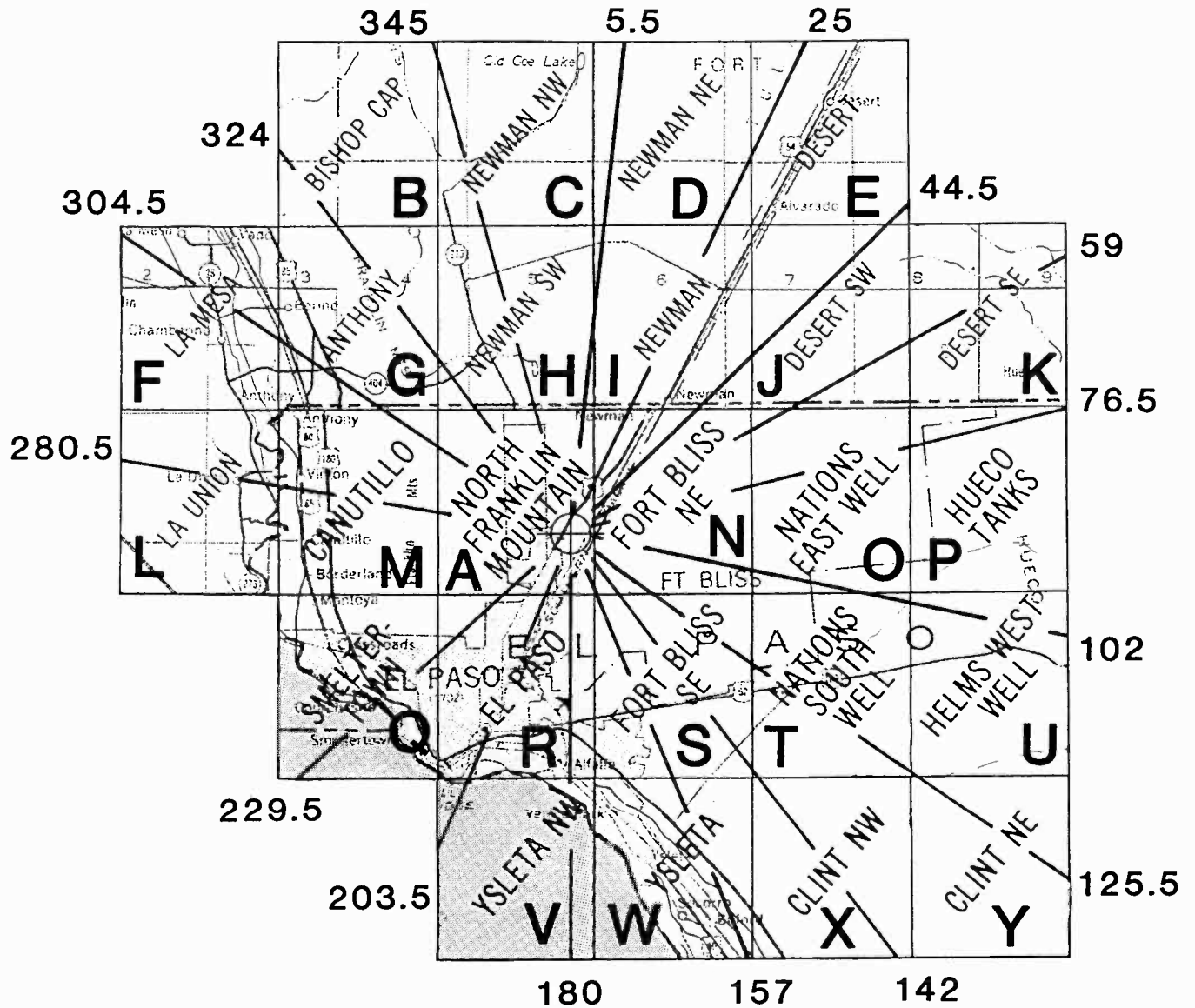
\*FRONT PANEL CONTROL



## COMPONENT LIST CONTINUED

## RADIO STATION KROD

	<u>LABEL</u>	<u>QUAN.</u>	<u>DESCRIPTION</u>
<b>Capacitors</b>			
	C2	1	2857 (CM93) .0047 uf, 30A, 15KV
	*C3	1	UCSXF-2300-12S 2300pf, 70A, 12KV
	C4A	1	2530 (CM88) .0015 uf, 16A, 15KV
	C4B	1	2530 (CM88) .0015 uf, 16A, 15KV
	C13	1	2337 (CM83).00476 uf, 20A, 6KV
	C21	1	2360 (CM83) .01 uf, 20A, 5KV
	C31	1	2337 (CM83).00476 uf, 20A, 6KV
	C32	1	2337 (CM83).00476 uf, 20A, 6KV
	C43	1	2337 (CM83).00476 uf, 20A, 6KV
	C101	1	2280 (CM83) .001 uf, 10A, 10KV
	C102	1	2610 (CM88) .01 uf, 39A, 8KV
	C103	1	2337 (CM83).00476 uf, 20A, 6KV
	C201	1	2280 (CM83) .001 uf, 10A, 10KV
	C202	1	2360 (CM83) .01 uf, 20A, 5KV
	C203	1	2337 (CM83).00476 uf, 20A, 6KV
	C301	1	2280 (CM83) .001 uf, 10A, 10KV
	C302	1	2360 (CM83) .01 uf, 20A, 5KV
	C303	1	2337 (CM83).00476 uf, 20A, 6KV
	C401	1	2280 (CM83) .001 uf, 10A, 10KV
	C402	1	2360 (CM83) .01 uf, 20A, 5KV
	C403	1	2337 (CM83).00476 uf, 20A, 6KV
<b>RF Contactors</b>			
	K1-K5	5	Multronics 160-220-1 DPDT 24KV
<b>Isolation Coils</b>			
	SDC 101-SDC 401	4	CHOKe, STATIC DISCHARGE, SDC-IF
<b>Miscellaneous Items</b>			
	CPB-1	1	Impedance Bridge, Common point
	M1	1	Com. Point Ammeter, Delta TCA-20EXR#
	M101	1	Ammeter, RF TCA-20 EXR
	B 101-B 401	4	Insulator, Bowl 5" Feed through
	* FRONT PANEL CONROL		
	# Consists of TCT-1 (Torodial Current Transformer) and TCTR-1 (Rectifier)		



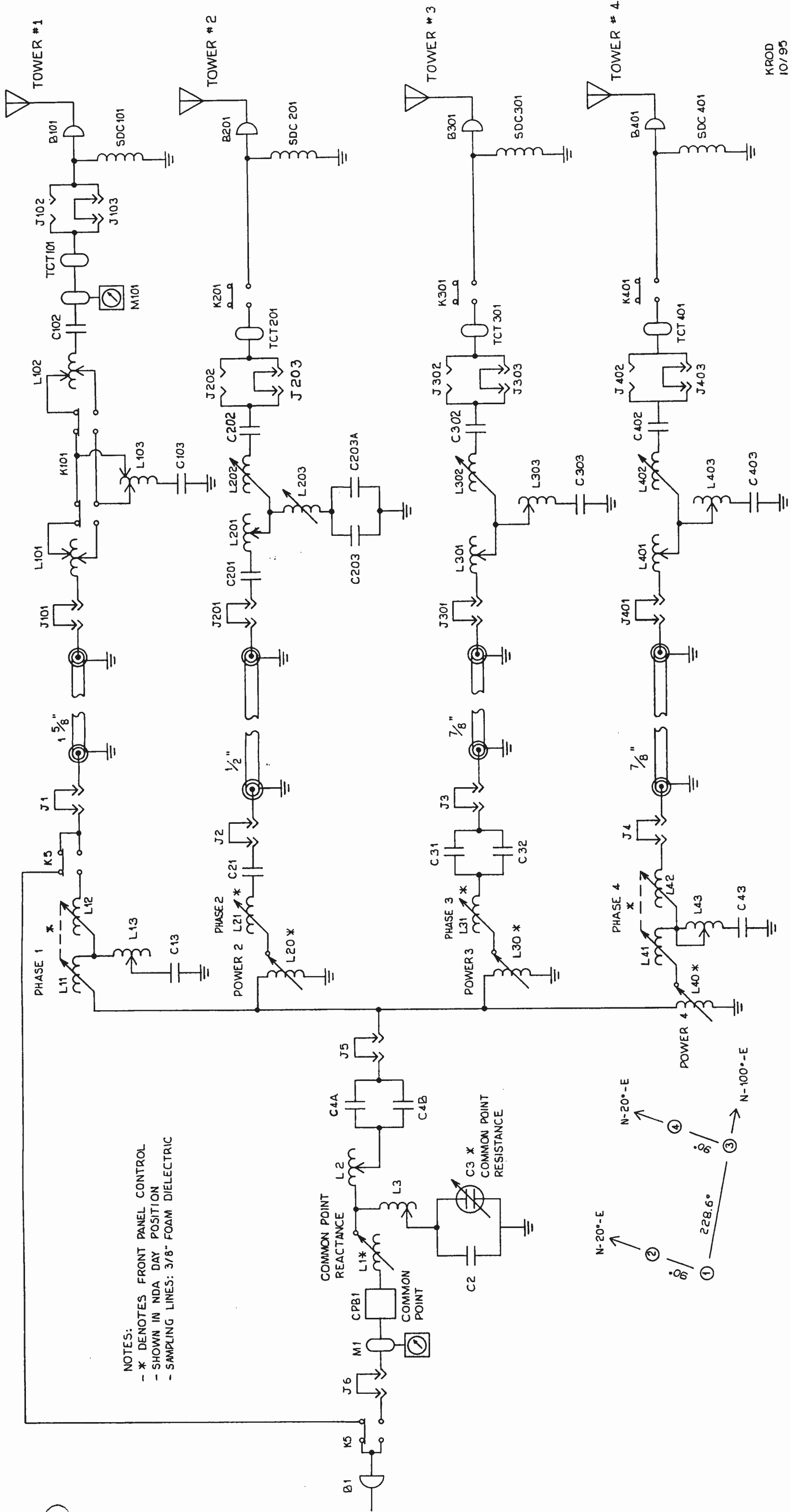
**OCTOBER 1995**

**MULLANEY ENGINEERING, INC.**  
**GAITHERSBURG, MARYLAND**

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**FIGURE 30**  
**F.I.M. MAP INDEX**

RADIO STATION KROD  
 EL PASO, TEXAS  
 600 kHz 5.0 kW DA-N-U

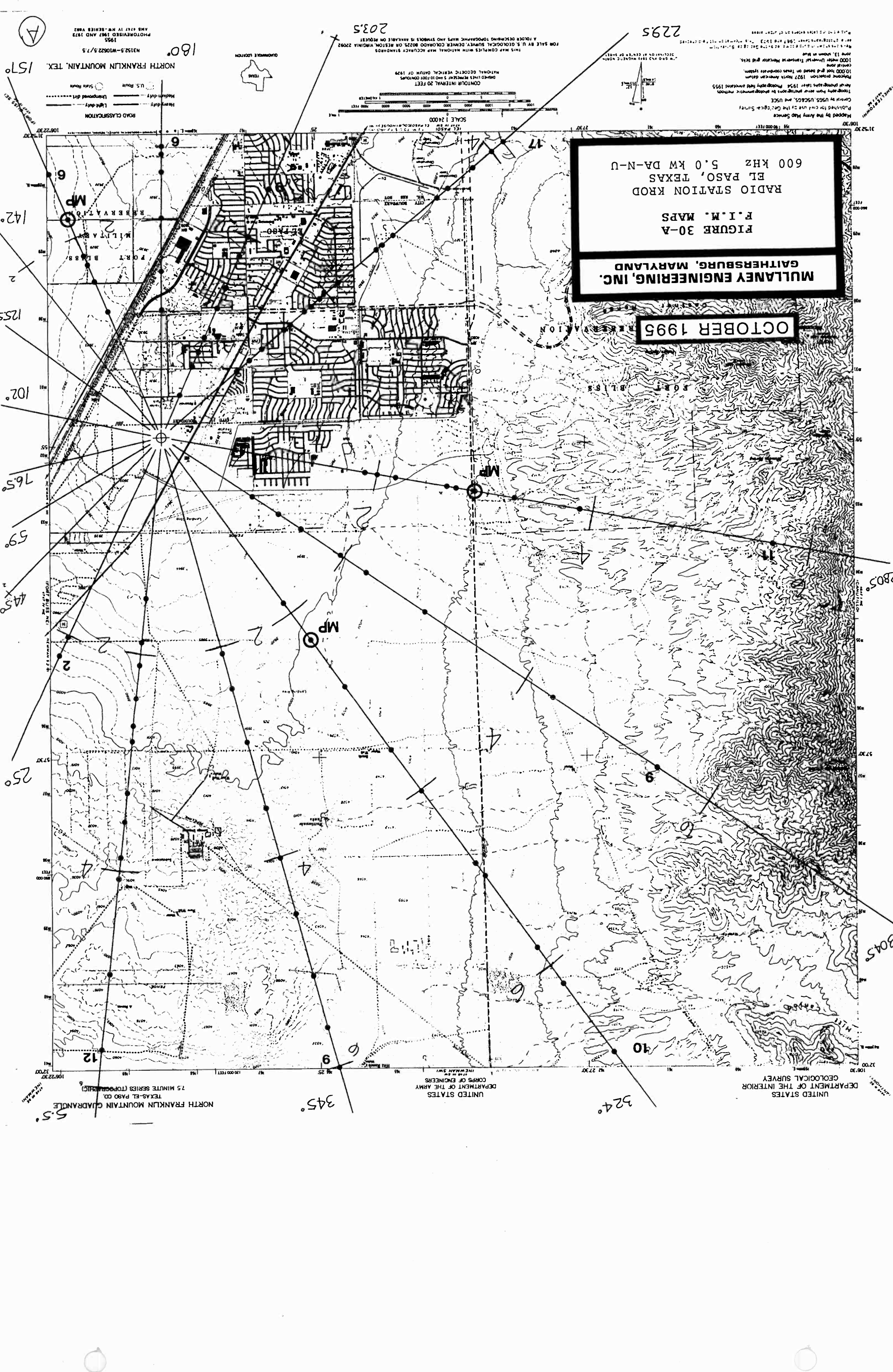


NOTES:  
 - \* DENOTES FRONT PANEL CONTROL  
 - SHOWN IN NDA DAY POSITION  
 - SAMPLING LINES: 3/8" FOAM DIELECTRIC

KROD  
 10/95

PHASOR AND ATU SCHEMATIC  
 RADIO STATION KROD  
 EL PASO, TEXAS  
 600 kHz 5.0 kW DA-N-U

MULLANEY ENGINEERING, INC.  
 GAITHERSBURG, MARYLAND  
 FIGURE 29-A  
 OCTOBER 1995



**RADIO STATION KROD**  
**EL PASO, TEXAS**  
**600 KHZ 5.0 KW DA-N-U**

**FIGURE 30-A**  
**F.I.M. MAPS**  
**MULLANEY ENGINEERING, INC.**  
**GAITHERSBURG, MARYLAND**

**OCTOBER 1995**

DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY  
UNITED STATES

UNITED STATES  
CORPS OF ENGINEERS  
DEPARTMENT OF THE ARMY

NORTH FRANKLIN MOUNTAIN QUADRANGLE  
TEXAS-EL PASO CO.  
75 MINUTE SERIES (TOPOGRAPHIC)

1995  
PHOTODUPLICATION SERVICE  
AND SALE BY U.S. GEOLOGICAL SURVEY  
DEPARTMENT OF THE INTERIOR  
WASHINGTON, D.C. 20508

**180°**  
**157°**

**2035**

**2295**

**142°**

**1255°**

**102°**

**765°**

**59°**

**495°**

**25°**

**345°**

**324°**

**3045**

**5.5°**



UNITED STATES DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY

BISHOP CAP QUADRANGLE  
7.5 MINUTE SERIES TOPOGRAPHIC  
NEW MEXICO-DONA ANA CO.

ROAD CLASSIFICATION  
Primary highway, hard or  
Light duty road, hard or  
Improved surface  
Secondary highway,  
Unimproved road  
Interstate Route  
U.S. Route  
State Route

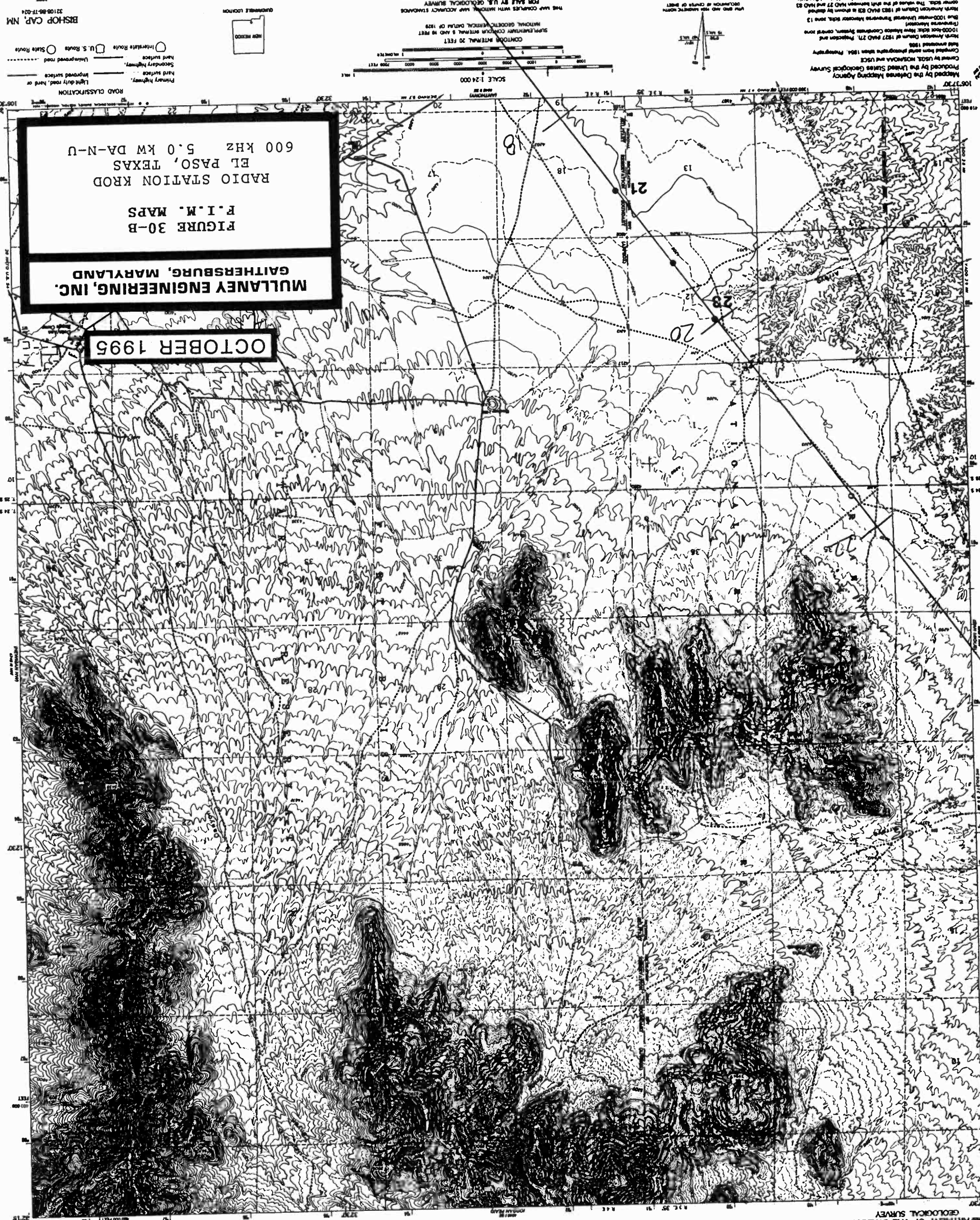
**MULLANEY ENGINEERING, INC.**  
**GAITHERSBURG, MARYLAND**  
**FIGURE 30-B**  
**F.I.M. MAPS**  
**RADIO STATION KROD**  
**EL PASO, TEXAS**  
**600 KHZ 5.0 KM DA-N-U**

OCTOBER 1995

SCALE 1:24,000  
CONTOUR INTERVAL 20 FEET  
SUPERMERCATOR CONIC SYSTEM, 6 AND 16 FEET  
NATIONAL GEODETIC SURVEY, DATA OF 1928

THIS MAP COMPARES WITH NATIONAL MAP CONTACT STANDARDS  
FOR STATE U.S. GEOLOGICAL SURVEY  
FROM 1984 TO 1985, NATIONAL GEODETIC SURVEY  
DENVER, COLORADO, DATA ON REGIONAL SURVEY  
A POLAR PROJECTION TOPOGRAPHIC MAP, SYMBOLS IS AVAILABLE ON REQUEST

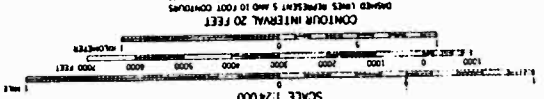
Map by the Defense Mapping Agency  
Produced by the United States Geological Survey  
Controlled by the U.S. Government  
Copyright by the U.S. Government  
1000 feet scale. Three Minute Contour Interval, center line  
of the American Datum of 1922 and 1927. Projection and  
datum same as the American Datum of 1922 and 1927.  
This 100-meter contour interval map is based on the  
United States Geological Survey topographic data of the  
contour interval. The data of the map were derived  
from the American Datum of 1922 and 1927.  
Photoreduced from 1:62,500 scale to 1:24,000 scale  
of the American Datum of 1922 and 1927.  
Photoreduced from 1:62,500 scale to 1:24,000 scale  
of the American Datum of 1922 and 1927.



Topography from aerial photographs by photogrammetric methods  
 Aerial photographs from 1954. Photogrammetry field work from 1955  
 10000-foot grid based on the Mexican coordinate system.  
 Physical projection 1927 North American Datum  
 Central meridian 100° 00' 00" West  
 1000 meter Universal Transverse Mercator grid (UTM)  
 Zone 13, shown in blue  
 Dashed lines indicate approximate locations  
 To show on the projected North American Datum 1983  
 must be projected from 7 meters south and  
 51 meters east as shown by dashed corner ticks  
 These may be printed on the map  
 of the Island or State boundaries shown on this map

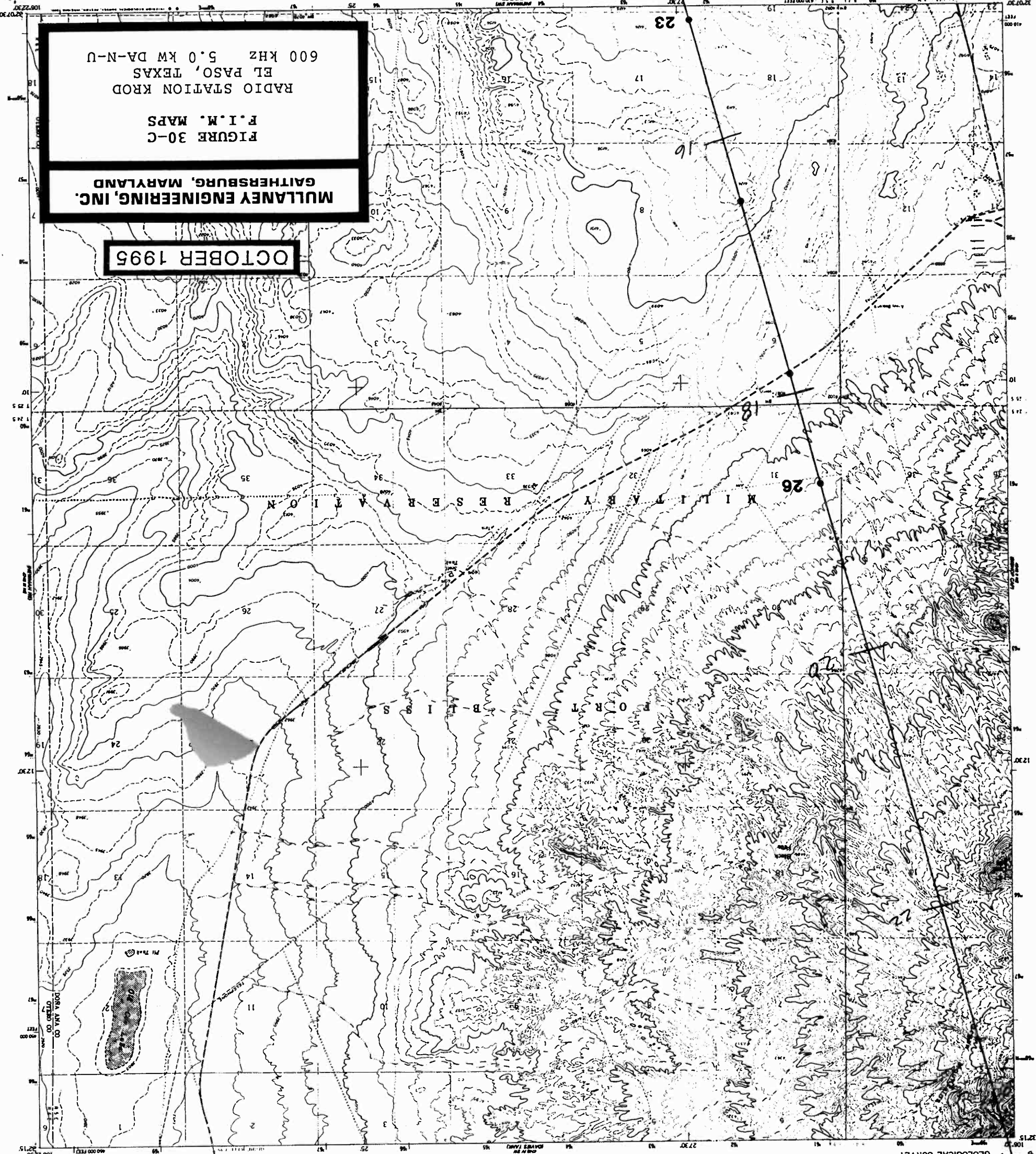
The map complies with National Map Accuracy Standards  
 ON SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092  
 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

NEWMAN NW, N. MEX.  
 32108-84-7F-024  
 1995  
 PHOTOGRAPHED 1976  
 DATA FROM THE 1976



**MULLANEY ENGINEERING, INC.**  
**GAITHERSBURG, MARYLAND**  
**FIGURE 30-C**  
**F.I.M. MAPS**  
**RADIO STATION KROD**  
**EL PASO, TEXAS**  
**600 KHZ 5.0 KM DA-N-U**

**OCTOBER 1995**



NEWMAN NW QUADRANGLE  
 NEW MEXICO  
 75 MINUTE SERIES (TOPOGRAPHIC)  
 1067230

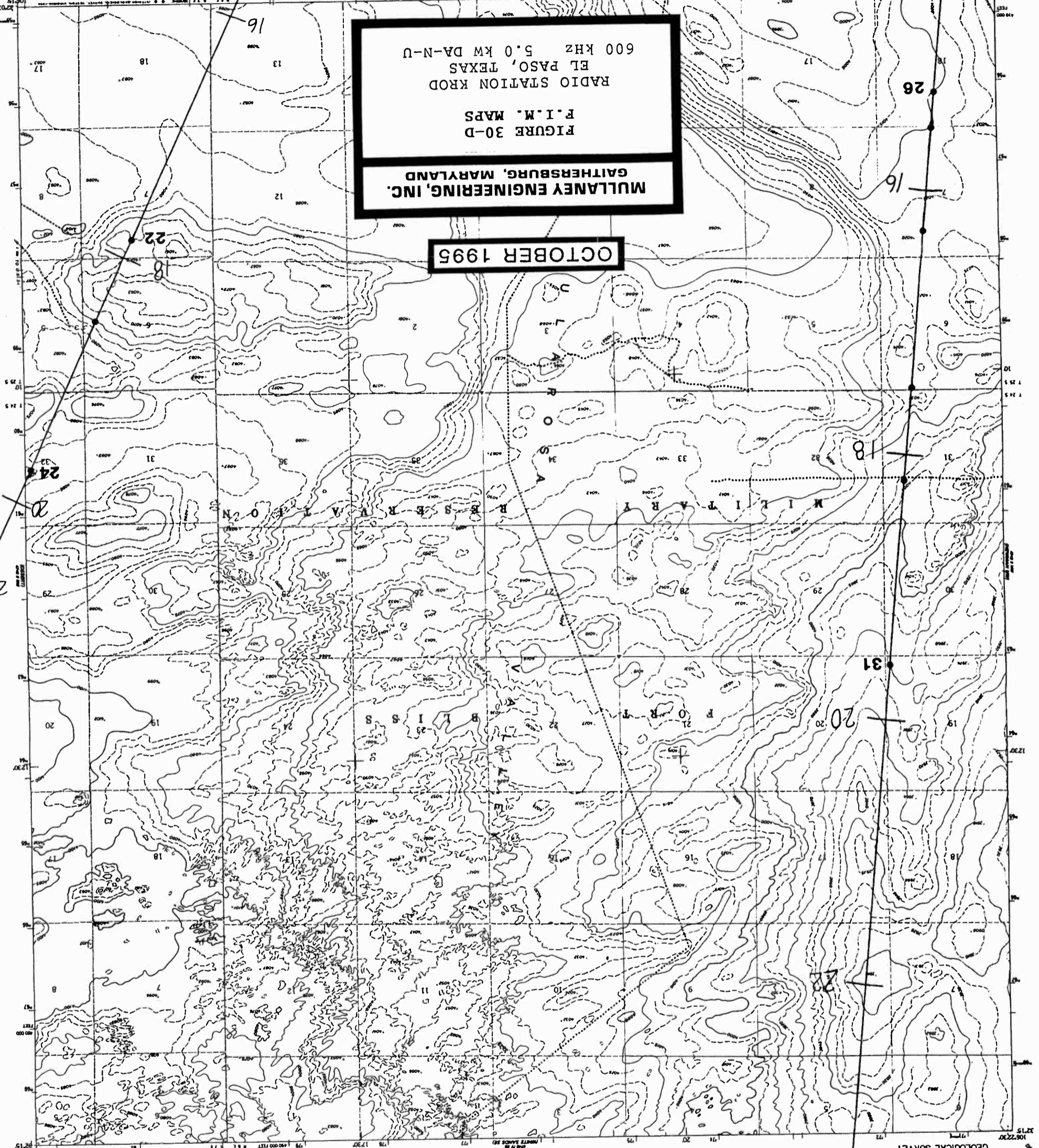
UNITED STATES  
 DEPARTMENT OF THE INTERIOR  
 GEOLOGICAL SURVEY

36

NEWMAN NE, N. MEX.  
27106-83-77-024  
1968  
DINA 4748 IN (28-02328) 7801

SCALE 1:24,000  
CONTOUR INTERVAL 20 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1955  
THIS MAP COMPLETES WITH NATIONAL MAP ACTIVITY STANDBY  
FOR SALE BY U.S. GEOLOGICAL SURVEY, BENTON, OKLAHOMA 73025, OR RESTON, VIRGINIA 22082  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

United States Department of the Interior  
Geological Survey  
This map was prepared by the Geological Survey  
from the photostatic 7.5-minute series and  
from the photostatic 15-minute series  
of the National Map Act of 1947  
There may be some differences between the  
topographic maps and the photostatic maps  
of the National Map Act of 1947  
The map was prepared by the Geological Survey  
from the photostatic 7.5-minute series and  
from the photostatic 15-minute series  
of the National Map Act of 1947  
There may be some differences between the  
topographic maps and the photostatic maps  
of the National Map Act of 1947



NEWMAN NE QUADRANGLE  
NEW MEXICO-OTERO CO  
75 MINUTE SERIES (TOPOGRAPHIC)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

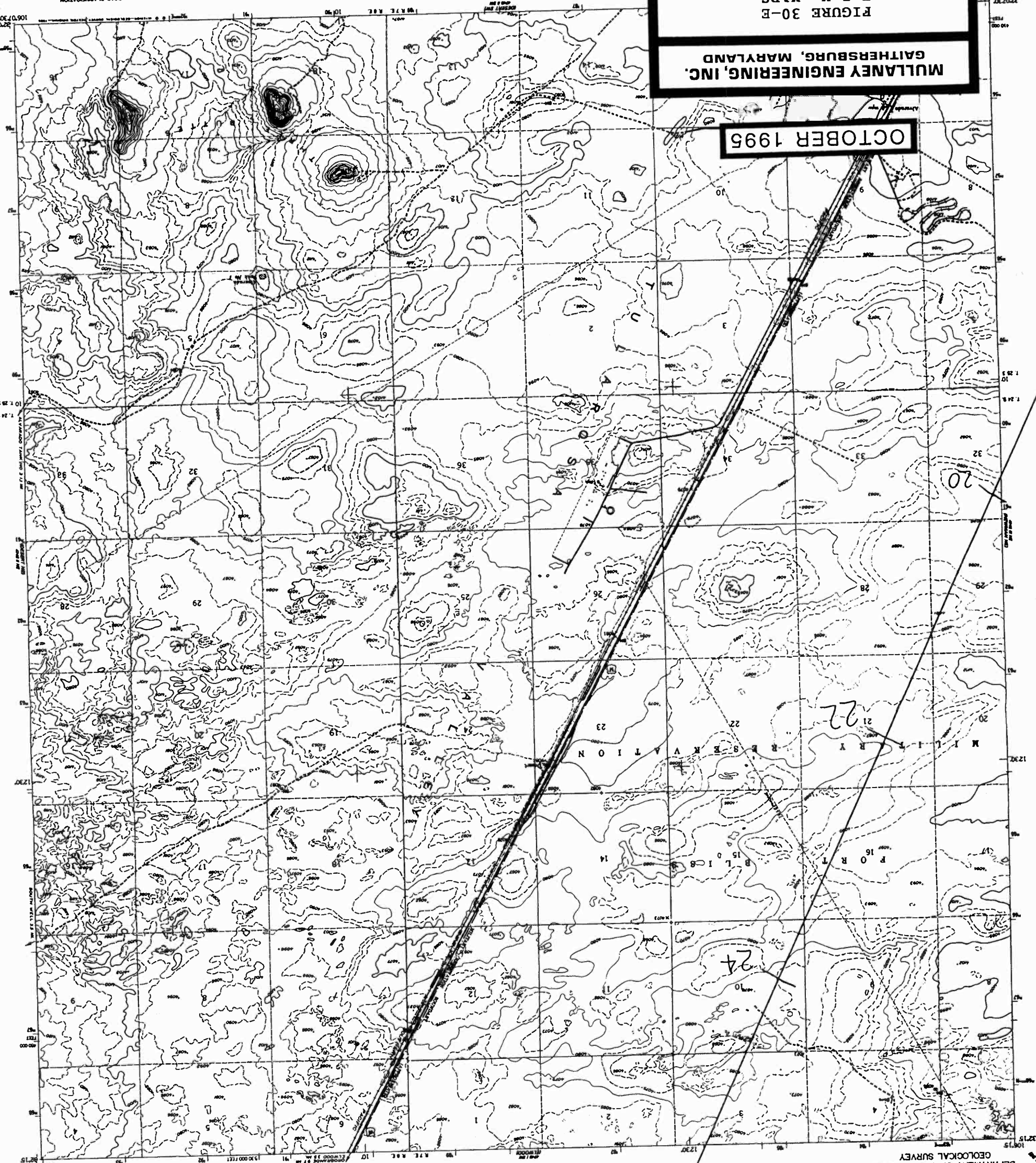
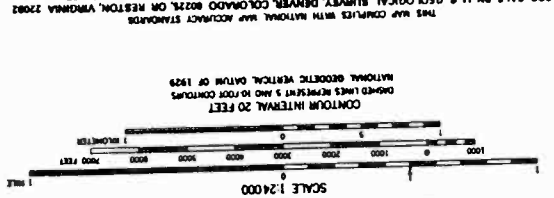
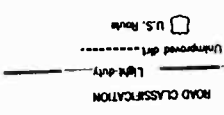
55

RADIO STATION KROD  
EL PASO, TEXAS  
600 KHZ 5.0 KM DA-N-U

MULLANEY ENGINEERING, INC.  
GAITHERSBURG, MARYLAND

OCTOBER 1995

DESCRIPT, N. MEX.  
32108-83-75-024  
1995



25

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

DESCRIPT, N. MEX.  
NEW MEXICO-OTERO CO  
7.5 MINUTE SERIES (TOPOGRAPHIC)

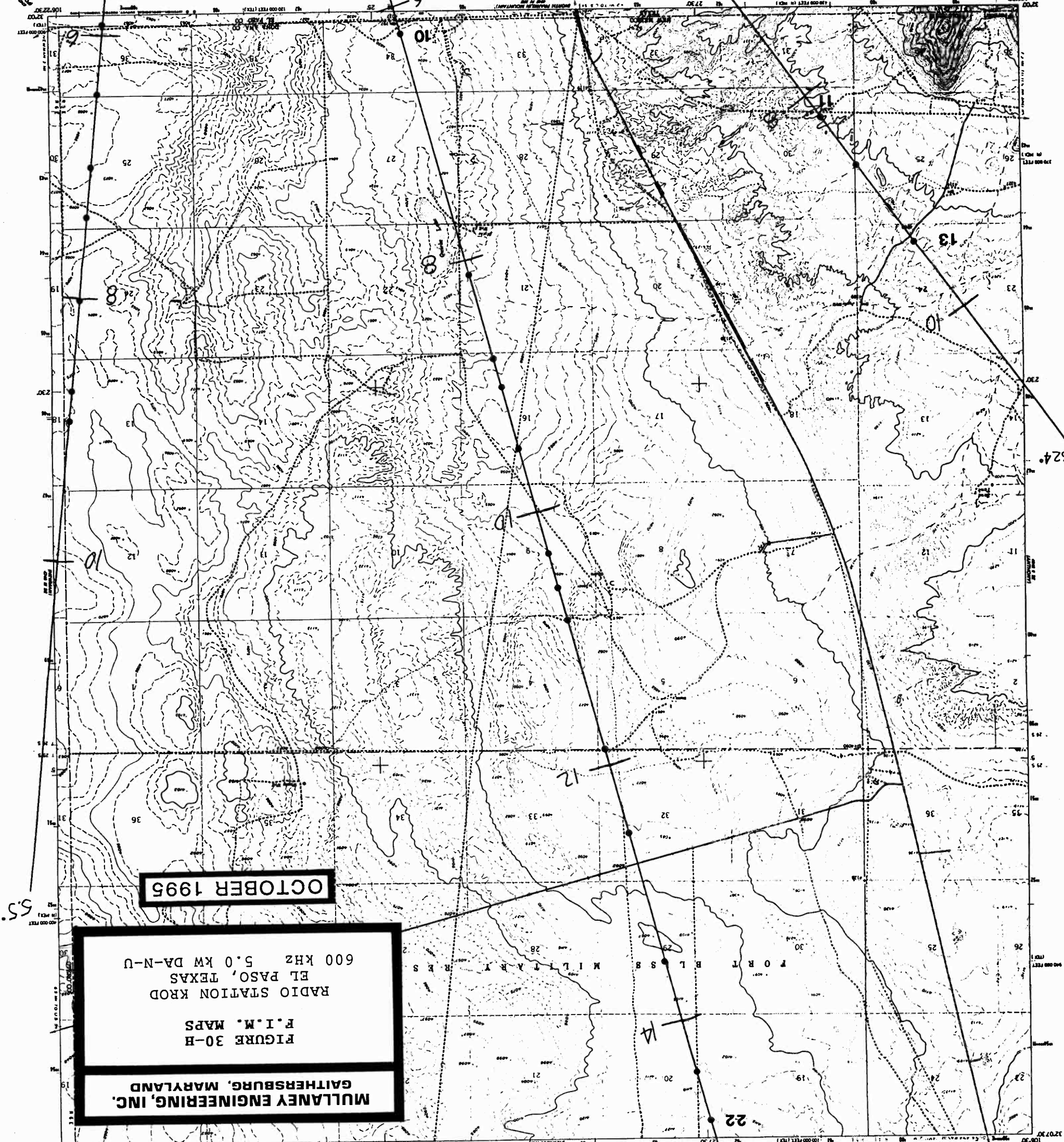
Small text at the top of the page, including copyright and disclaimer information.

NEWMAN SW QUADRANGLE  
 NEW MEXICO-Texas  
 7.5 MINUTE SERIES (TOPOGRAPHIC)  
 1:50,000 SCALE  
 1955



THIS MAP COMPLETES WITH NATIONAL MAP ACQUISITION STANDARDS  
 FROM SALES BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 82222, OR RESTON, VIRGINIA 20192  
 A POLAR PROJECTION TOPOGRAPHIC MAP AND SYMBOLS IS AVAILABLE ON REQUEST  
 NATIONAL GEODETIC VERTICAL DATUM OF 1985  
 DASHED LINES REPRESENT 5 AND 10-FOOT CONTOURS  
 CONTOUR INTERVAL, 20 FEET  
 SCALE 1:50,000

Map of the Army Map Service  
 Published for use by the Geological Survey  
 Control by USGS, USACE, and USMC  
 Topography from 1958 Photogrammetry and Aerial Photographs  
 1:50,000 Scale and 1000 Meter Contour Interval  
 10,000 Meter Grid based on the North American Datum  
 Central Time and Local Standard Time, Central Time  
 1:50,000 Scale  
 10,000 Meter Grid based on the North American Datum  
 1:50,000 Scale  
 10,000 Meter Grid based on the North American Datum  
 1:50,000 Scale  
 10,000 Meter Grid based on the North American Datum  
 1:50,000 Scale



OCTOBER 1995

MILLANNEY ENGINEERING, INC.  
 GAITHERSBURG, MARYLAND  
 F.I.M. MAPS  
 RADIO STATION KROD  
 EL PASO, TEXAS  
 600 KHZ 5.0 KW DA-N-U

NEWMAN SW QUADRANGLE  
 NEW MEXICO-Texas  
 7.5 MINUTE SERIES (TOPOGRAPHIC)  
 1:50,000 SCALE



UNITED STATES  
 DEPARTMENT OF THE INTERIOR  
 GEOLOGICAL SURVEY

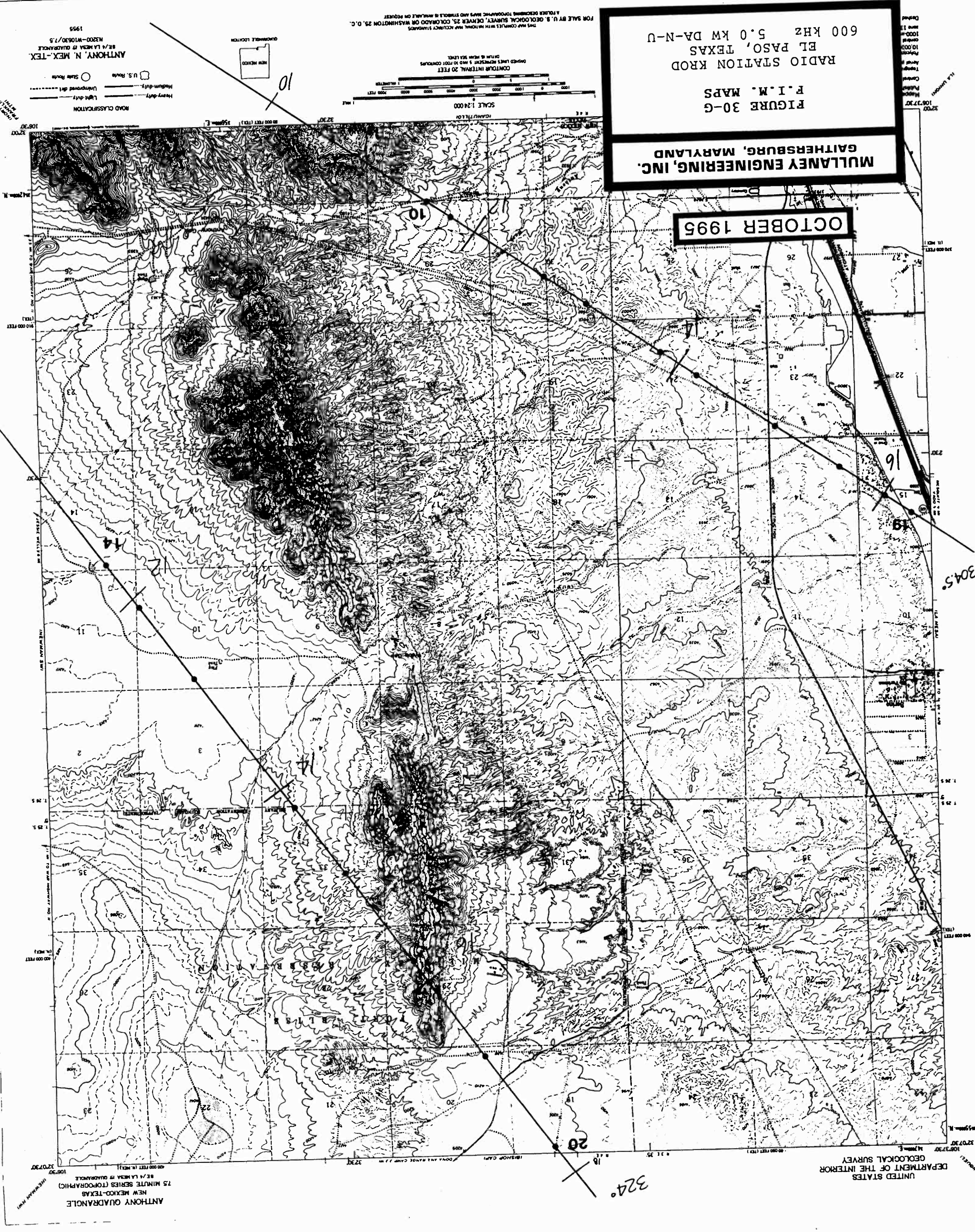
345

324

55

**MULLANEY ENGINEERING, INC.**  
**GAITHERSBURG, MARYLAND**  
**FIGURE 30-G**  
**F.I.M. MAPS**  
**RADIO STATION KROD**  
**EL PASO, TEXAS**  
**600 KHZ**  
**5.0 KM DA-N-U**

**OCTOBER 1995**



ANTHONY, N. MEX.-TEX.  
82/4 LA MEHA 75 QUADRANGLE  
NE200-W1050/7.5  
1995

FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER 25, COLORADO ON WASHINGTON 25, D.C.  
THIS MAP COMPLETES WITH NATIONAL MAP ACCURACY STANDARDS  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST.  
CONTOUR INTERVAL, 20 FEET  
SHADED RELIEF INTERVALS 5 AND 10 FOOT CONTOURS  
DITTO IN NEAR SEA LEVEL

United States  
Department of the Interior  
Geological Survey

ANTHONY QUADRANGLE  
NEW MEXICO-TEXAS  
82/4 LA MEHA 75 QUADRANGLE  
NE200-W1050/7.5  
1995

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

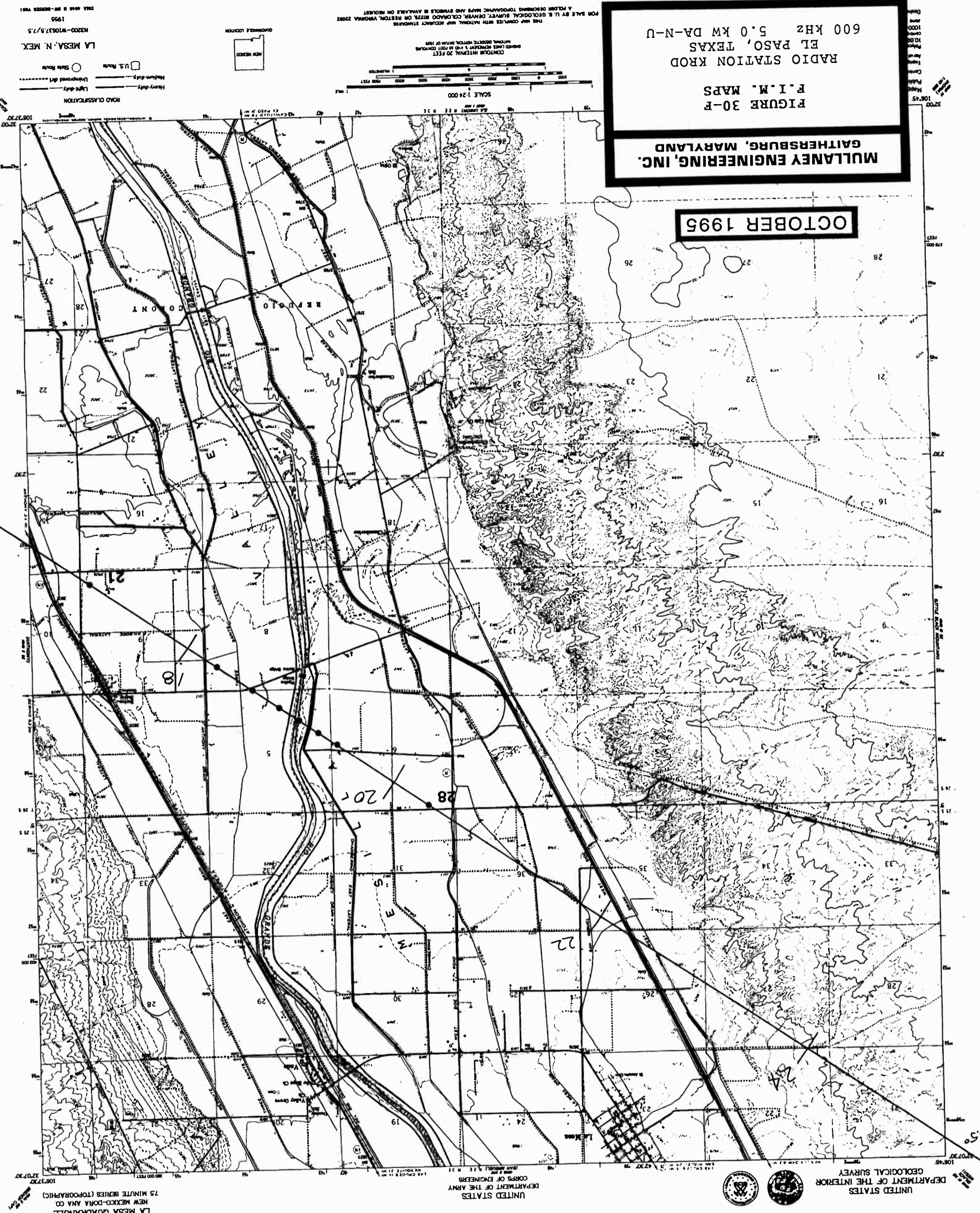
324

3045

600 KHZ  
EL PASO, TEXAS  
5.0 KM DA-N-U  
RADIO STATION KROD  
F.I.M. MAPS  
FIGURE 30-F

MULLANEY ENGINEERING, INC.  
GAITHERSBURG, MARYLAND

OCTOBER 1995



LA MESA QUADRANGLE  
NEW MEXICO-DORA ANA CO  
75 MINUTE SERIES (TOPOGRAPHIC)  
1951  
LA MESA, N. MEX.  
M3200-W10637.9/7.5

SCALE 1:24,000  
CONTOUR INTERVAL 20 FEET  
DASHED LINES REPRESENT 1 AND 10 FOOT CONTOURS  
NATIONAL GEODESIC VERTICAL DATUM OF 1985  
THIS MAP COMPILED WITH NATIONAL MAP ACQUISITION STANDARDS  
FROM STATE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO BASED ON RESTON, VIRGINIA 2002  
A POLAR PROJECTION TOPOGRAPHIC MAP AND SYMBOLS IS AVAILABLE ON REQUEST



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

UNITED STATES  
DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS

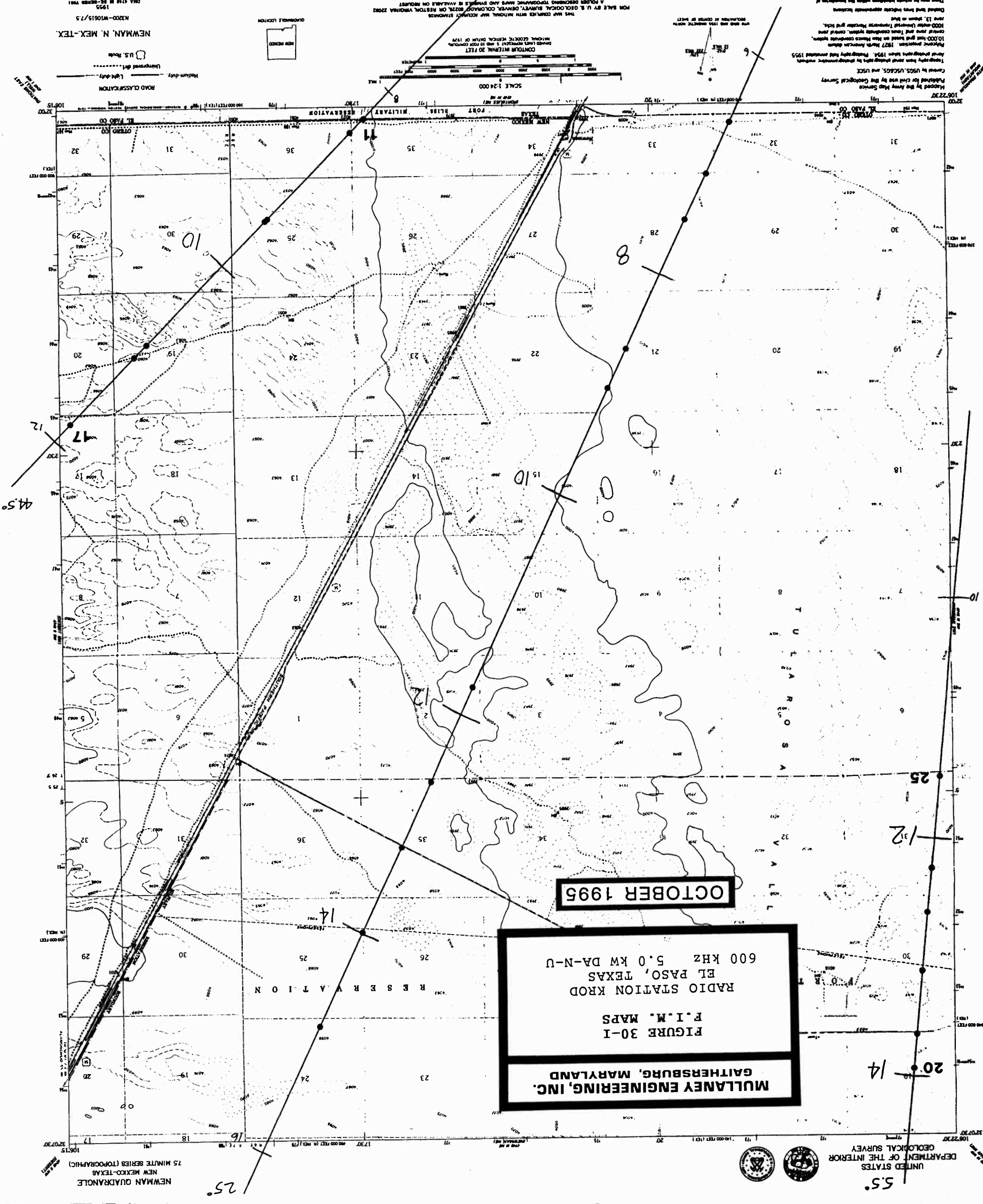
LA MESA QUADRANGLE  
NEW MEXICO-DORA ANA CO  
75 MINUTE SERIES (TOPOGRAPHIC)  
1951

These maps are prepared by the Bureau of Land Management, U.S. Department of the Interior, from the best available data. They are not to be used for navigation. The Department of the Interior is not responsible for any errors or omissions in this publication. The Department of the Interior is not responsible for any damages or injuries resulting from the use of this publication. The Department of the Interior is not responsible for any claims or liabilities resulting from the use of this publication. The Department of the Interior is not responsible for any claims or liabilities resulting from the use of this publication.



SCALE 1:24,000  
 CONTOUR INTERVAL, 20 FEET  
 NATIONAL GEODETIC VERTICAL DATUM OF 1929  
 THIS MAP COMPARES WITH NATIONAL MAP ACCOUNTY SYMBOLS  
 FROM SALES BY U. S. GEOLOGICAL SURVEY, OPENLY MARKETED SINCE 1968. INFORMATION IS AVAILABLE ON REQUEST  
 FROM SALES BY U. S. GEOLOGICAL SURVEY, OPENLY MARKETED SINCE 1968. INFORMATION IS AVAILABLE ON REQUEST

NEWMAN, N. MEX.-TEX.  
 1955  
 NAD-1983-101615/75  
 U.S. Route  
 ROAD CLASSIFICATION  
 Medium-duty  
 Light-duty  
 Unimproved dirt



**MULLANEY ENGINEERING, INC.**  
 GAITHERSBURG, MARYLAND  
 FIGURE 30-1  
 F.I.M. MAPS  
 RADIO STATION KROD  
 EL PASO, TEXAS  
 600 KHZ 5.0 KW DA-N-U  
 OCTOBER 1995

5.5  
 UNITED STATES  
 DEPARTMENT OF THE INTERIOR  
 GEOLOGICAL SURVEY



NEWMAN QUADRANGLE  
 NEW MEXICO-TEXAS  
 75 MINUTE SERIES (TOPOGRAPHIC)

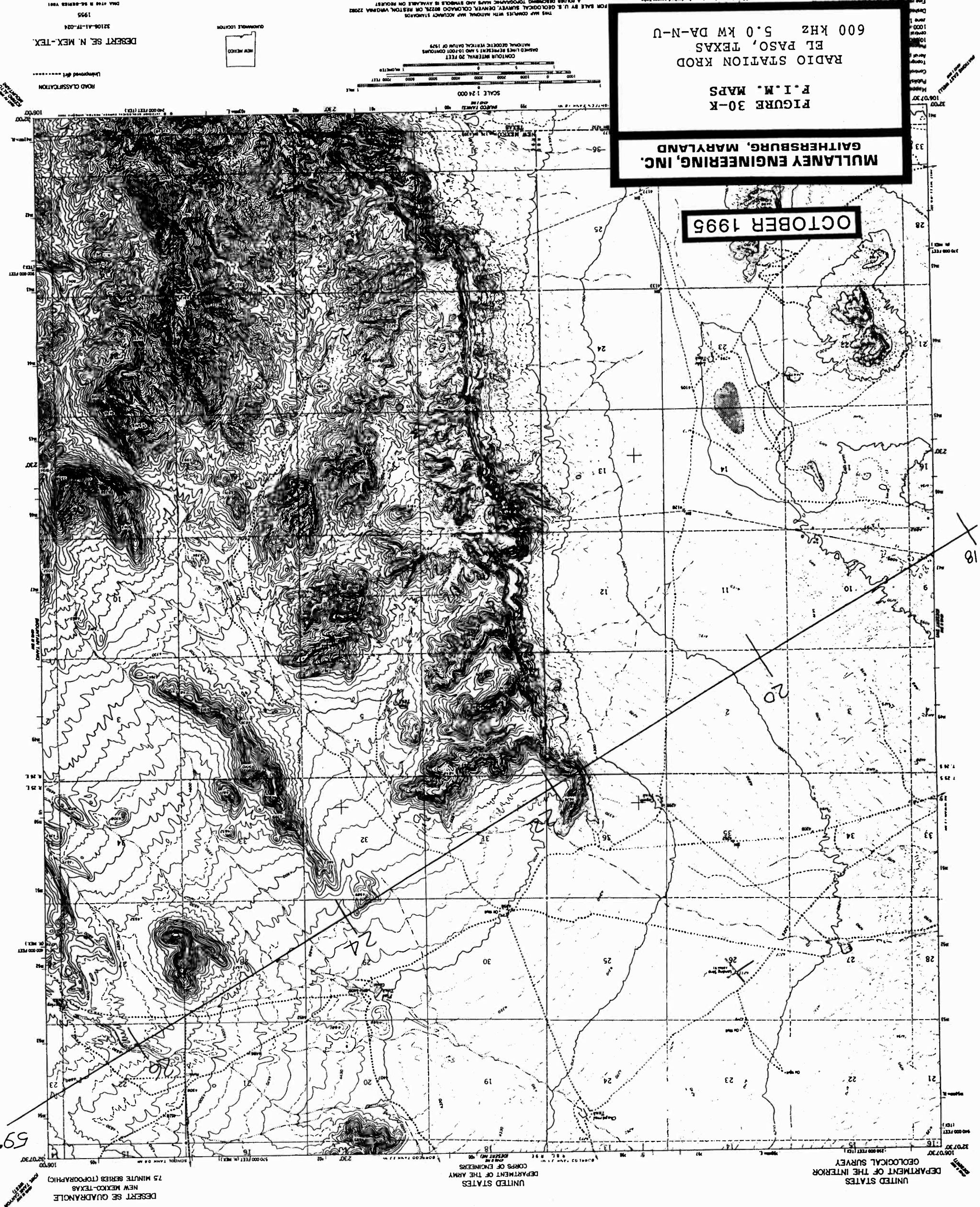


**MULLANEY ENGINEERING, INC.**  
**GAITHERSBURG, MARYLAND**

**FIGURE 30-K**  
**F.I.M. MAPS**

**RADIO STATION KROD**  
**EL PASO, TEXAS**  
**600 KHZ 5.0 KM DA-N-U**

**OCTOBER 1995**



DESCRIPT SE. N. MEX.-TEX.



SCALE 1:24,000  
 METERS  
 FEET  
 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

DESCRIPT SE QUADRANGLE  
 NEW MEXICO-TEXAS  
 7.5 MINUTE SERIES (TOPOGRAPHIC)  
 1995

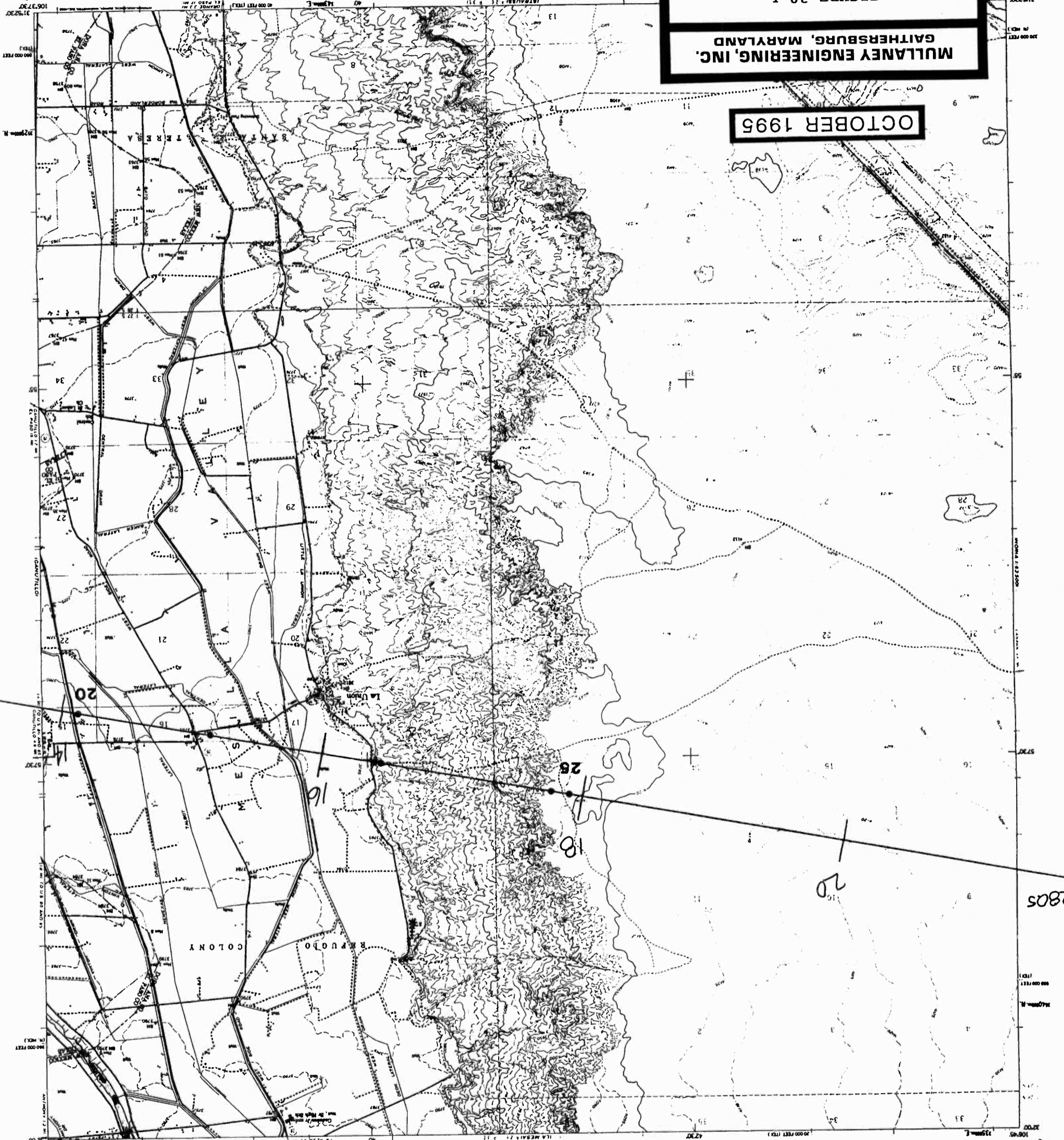
UNITED STATES  
 DEPARTMENT OF THE ARMY  
 CORPS OF ENGINEERS

UNITED STATES  
 DEPARTMENT OF THE INTERIOR  
 GEOLOGICAL SURVEY

Date: 10/13/95  
 Scale: 1:24,000  
 Projection: UTM  
 Contour Interval: 20 Feet  
 Contour Lines: 5 and 15 Foot Contours  
 Datum: NAD 83  
 Contour Interval: 20 Feet  
 Scale: 1:24,000  
 Projection: UTM  
 Contour Interval: 20 Feet  
 Contour Lines: 5 and 15 Foot Contours  
 Datum: NAD 83

**MULLANEY ENGINEERING, INC.**  
**GAITHERSBURG, MARYLAND**  
**FIGURE 30-1**  
**F.I.M. MAPS**  
**RADIO STATION KROD**  
**EL PASO, TEXAS**  
**600 KHZ 5.0 KM DA-N-U**

OCTOBER 1995



ROAD CLASSIFICATION  
 Light duty  
 Medium duty  
 Unimproved dirt  
 State Road  
 LA UNION, N. MEX.-TEX.  
 NEW MEXICO  
 1955

UNITED STATES  
 DEPARTMENT OF THE INTERIOR  
 GEOLOGICAL SURVEY  
 LA UNION QUADRANGLE  
 NEW MEXICO-TEXAS  
 7.5 MINUTE SERIES (TOPOGRAPHIC)  
 NEW MEXICO-TEXAS  
 1955

THIS MAP COULD BE OF USE IN THE FIELD OF SURVEYING, ENGINEERING, AND OTHER PROFESSIONS.  
 FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER 25, COLORADO OR WASHINGTON 25, D.C.  
 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

**MULLANEY ENGINEERING, INC.**  
**GAITHERSBURG, MARYLAND**

**FIGURE 30-M**  
**F.I.M. MAPS**

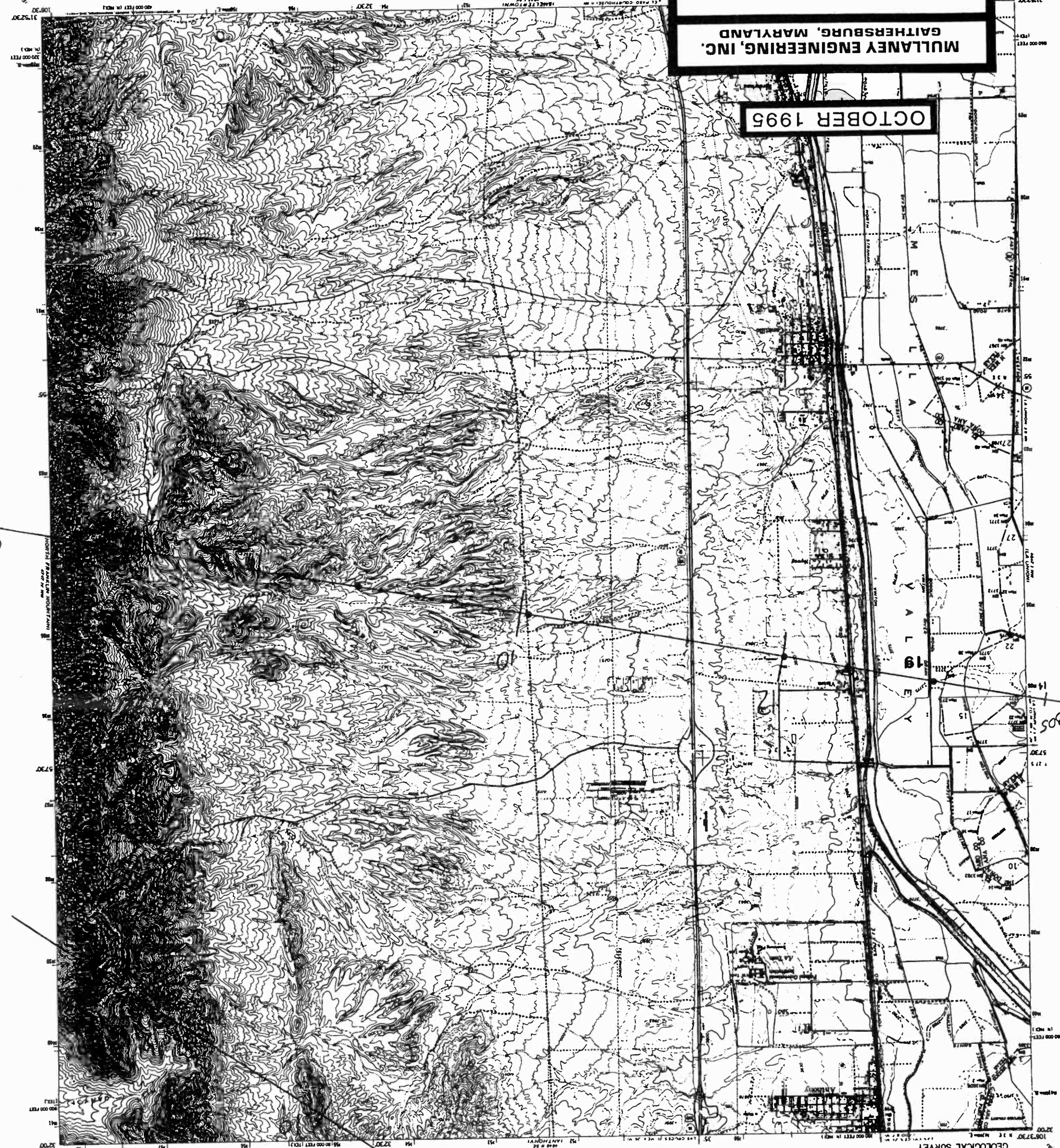
**RADIO STATION KROD**  
**EL PASO, TEXAS**  
**600 KHZ 5.0 KW DA-N-U**

**OCTOBER 1995**

THIS MAP COMPLETES WITH NATIONAL MAP ACCURACY STANDARDS  
 SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D.C. 20542  
 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST  
 PHOTOGRAPHED 1987  
 1995  
 CANUTILLO, TEX.-N. MEX.  
 75 MINUTE SERIES (TOPOGRAPHIC)  
 1:250,000  
 1:250,000

1995  
 CANUTILLO, TEX.-N. MEX.  
 75 MINUTE SERIES (TOPOGRAPHIC)  
 1:250,000  
 1:250,000

ROAD CLASSIFICATION  
 Heavy duty  
 Light duty  
 Underpass  
 U.S. Route  
 State Route  
 Interstate Route



UNITED STATES  
 DEPARTMENT OF THE INTERIOR  
 GEOLOGICAL SURVEY

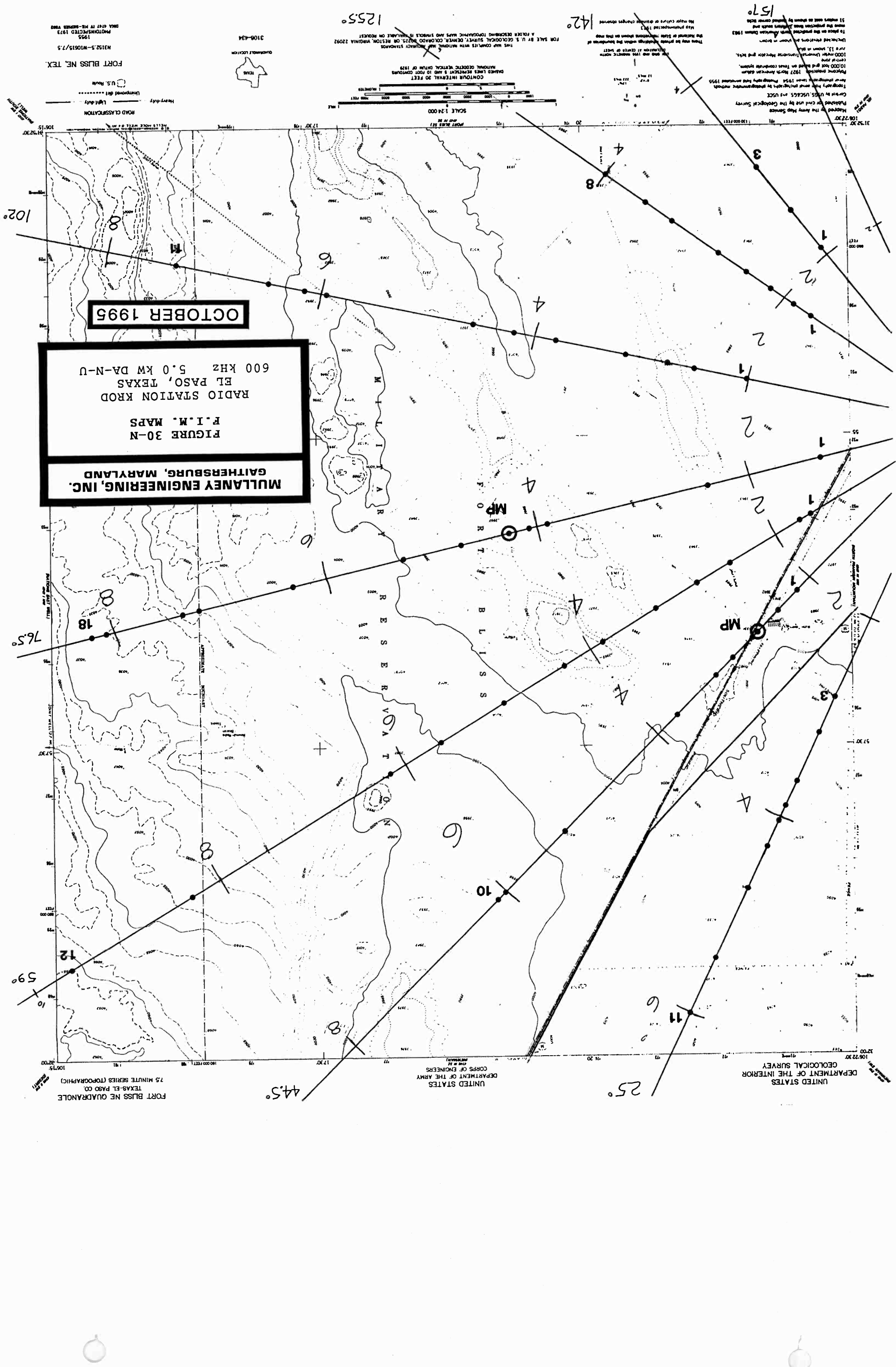
CANUTILLO QUADRANGLE  
 TEXAS-NEW MEXICO  
 75 MINUTE SERIES (TOPOGRAPHIC)  
 1:250,000  
 1:250,000

6

3045

2805

1570  
 1420  
 12550  
 51 meters and as shown by dashed corner ticks  
 Map photoreduced 1973  
 No major culture or drainage changes observed  
 This map complies with National Map Accuracy Standards  
 FROM SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092  
 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST  
 3108-434  
 QUADRANT LOCATION  
 TEXAS  
 1955  
 PHOTOGRAPHED 1973  
 1955  
 M1912-S-W10615/7.5  
 FORT BUSS NE, TEX.  
 ROAD CLASSIFICATION  
 Heavy-duty  
 Light-duty  
 U.S. Route  
 108-2230  
 1:100,000 FEET  
 Mapped by the Army Map Service  
 Published and used by the Geological Survey  
 Control by USGS, US2655, and USGS  
 Topography from aerial photography by photogrammetric methods  
 Aerial photography taken 1954. Photogrammetry had accuracy 1955  
 1:50,000 scale and based on Texas coordinate system.  
 10,000-foot grid and based on Texas coordinate system.  
 1927 North American datum  
 1000 meter Universal Transverse Mercator grid ticks.  
 June 13, 1969 in blue  
 Unchecked elevations are shown in brown  
 To place the projection base on the American Datum 1983  
 1983 datum is shown in brown  
 51 meters and as shown by dashed corner ticks



Produced by the United States Geological Survey  
Map based on 1:50,000 scale and other sources. Field checked 1991.  
Cleared from aerial photographs taken 1984. Revised from aerial  
1:100,000 scale Texas Contour Series, Control zone  
North American Datum of 1983 (NAD 83) is shown by dashed  
lines. The labels of the boundary of the  
Survey (MADCOB) series  
There may be some variations between the boundaries of the  
National Geographic Society maps and symbols available on request.

THIS MAP CONFORMS WITH NATIONAL MAP ACCURACY STANDARDS  
NATIONAL COGNITIVE REFERENCE SYSTEM, NATIONAL GEOGRAPHIC SURVEY  
BUREAU OF LAND MANAGEMENT, NATIONAL GEOGRAPHIC SURVEY  
NATIONAL GEODETIC VERTICAL DATUM OF 1929  
CONTOUR INTERVAL 20 FEET  
GROUND LINES REPRESENT 5 AND 10 FOOT CONTOURS  
FOR STATE BY U.S. GEOLOGICAL SURVEY  
DENVER, COLORADO 80202, ON REVISION, VIRGINIA 22061  
A MODERN DESCRIBED TOPOGRAPHIC MAP AND SYMBOLS IS AVAILABLE ON REQUEST.

UNIT 0 AND 1983 MAP OF NORTH  
DECLINATION AT CENTER OF SHEET

NATIONS EAST WELL, TX  
3118849-74-014  
1988  
DMA 6747 I NAD-83/2011  
Light duty  
UNIMPROVED DRG  
ROAD CLASSIFICATION

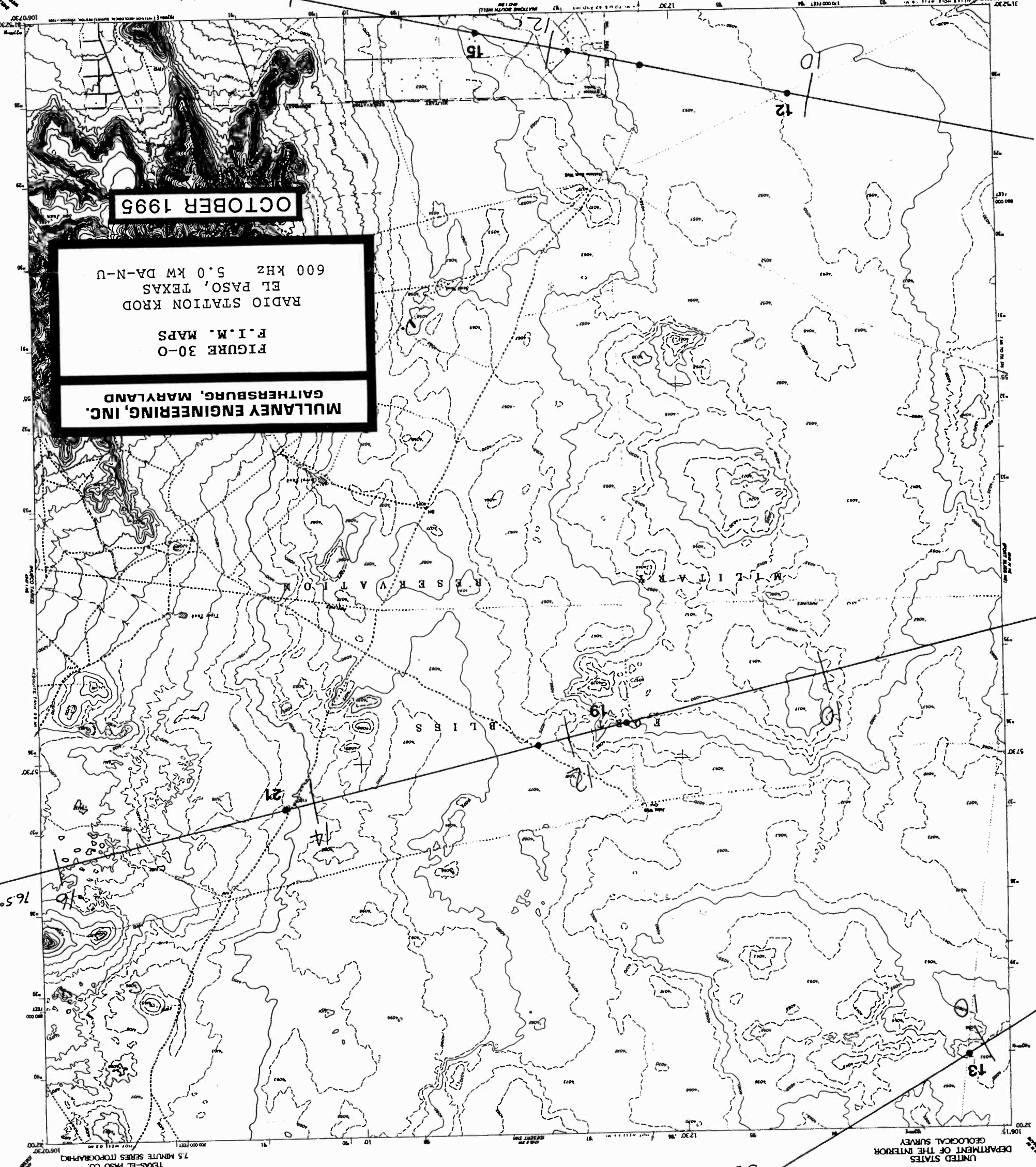
3106443  
GEOGRAPHIC LOCATION

102°

SCALE 1:24,000  
CONTOUR INTERVAL 20 FEET

106°15'

106°15' 106°30' 106°45' 107°00' 107°15' 107°30' 107°45' 108°00' 108°15' 108°30' 108°45' 109°00' 109°15' 109°30' 109°45' 110°00'



OCTOBER 1995

MULLANEY ENGINEERING, INC.  
GAITHERSBURG, MARYLAND  
FIGURE 30-0  
F.I.M. MAPS  
RADIO STATION KROD  
EL PASO, TEXAS  
5.0 KM DA-N-U  
600 KHZ

X 59.0

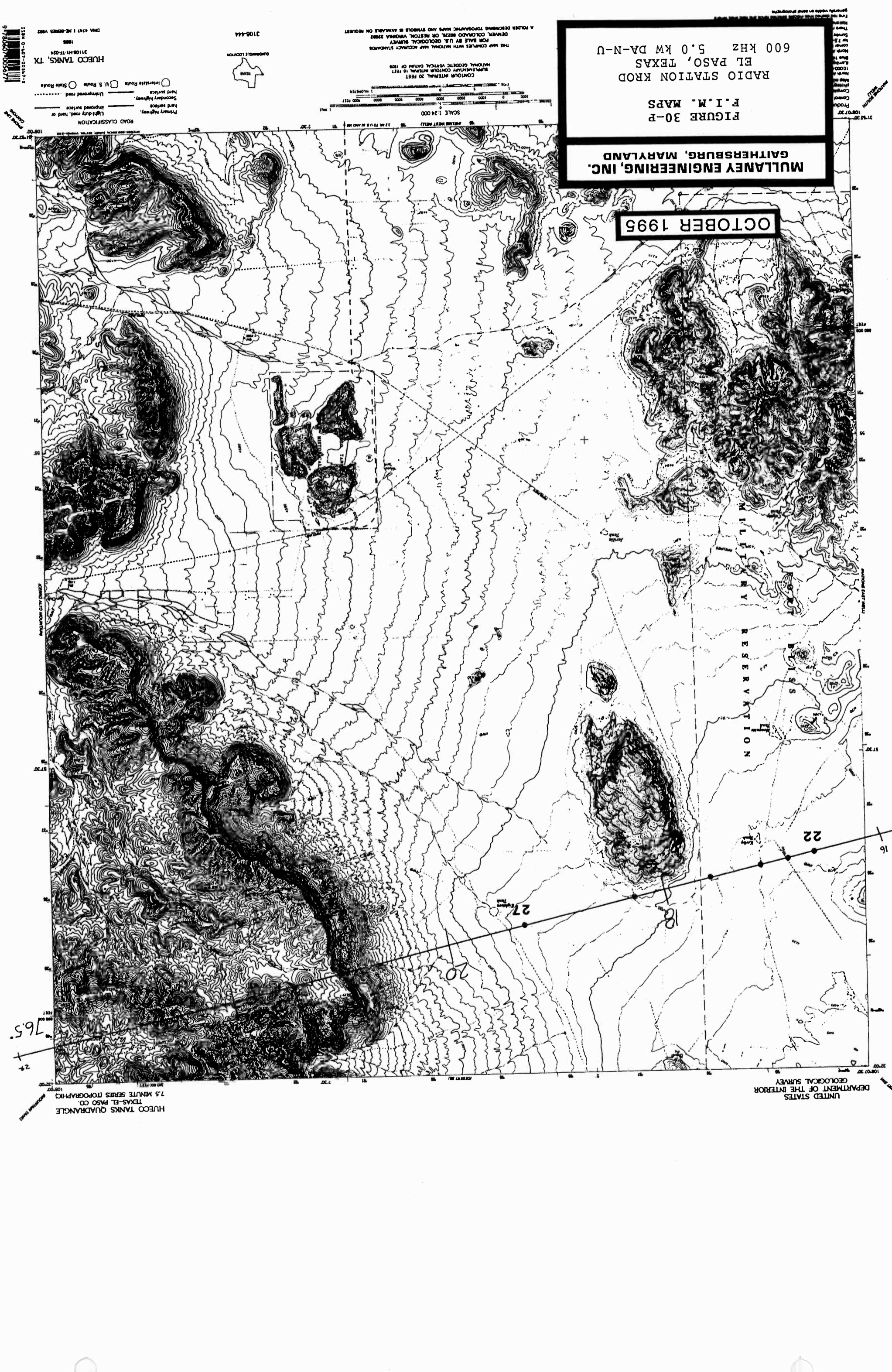
UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

NATIONS EAST WELL QUADRANGLE  
TEXAS-EL PASO CO.  
7.5 MINUTE SERIES (TOPOGRAPHIC)  
106°07.30'

RADIO STATION KROD  
EL PASO, TEXAS  
5.0 KM DA-N-U  
600 KHZ

MULLANEY ENGINEERING, INC.  
GAITHERSBURG, MARYLAND

OCTOBER 1995



ROAD CLASSIFICATION  
Primary highway, hard surface  
Light-duty road, hard or improved surface  
Secondary highway, hard surface  
Unimproved road  
Interstate Route  
U.S. Route  
State Route

HUECO TANKS, TX  
31108-11-11-024  
1988  
DMA 4747 1 NE-02825 1982

3106-444  
QUADSWATH LOCATION

THIS MAP COMPARES WITH NATIONAL MAP ACCURACY STANDARDS  
FOR SALE BY U.S. GEOLOGICAL SURVEY  
DENVER, COLORADO 80225, ON RESTON, VIRGINIA 20192  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

CONTOUR INTERVAL, 20 FEET  
SUPPLEMENTARY CONTOUR INTERVAL, 10 FEET  
NATIONAL GEODESIC VERTICAL DATUM OF 1929

SCALE 1:24,000

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

HUECO TANKS QUADRANGLE  
TEXAS-EL PASO CO  
7.5 MINUTE SERIES TOPOGRAPHIC

76.5

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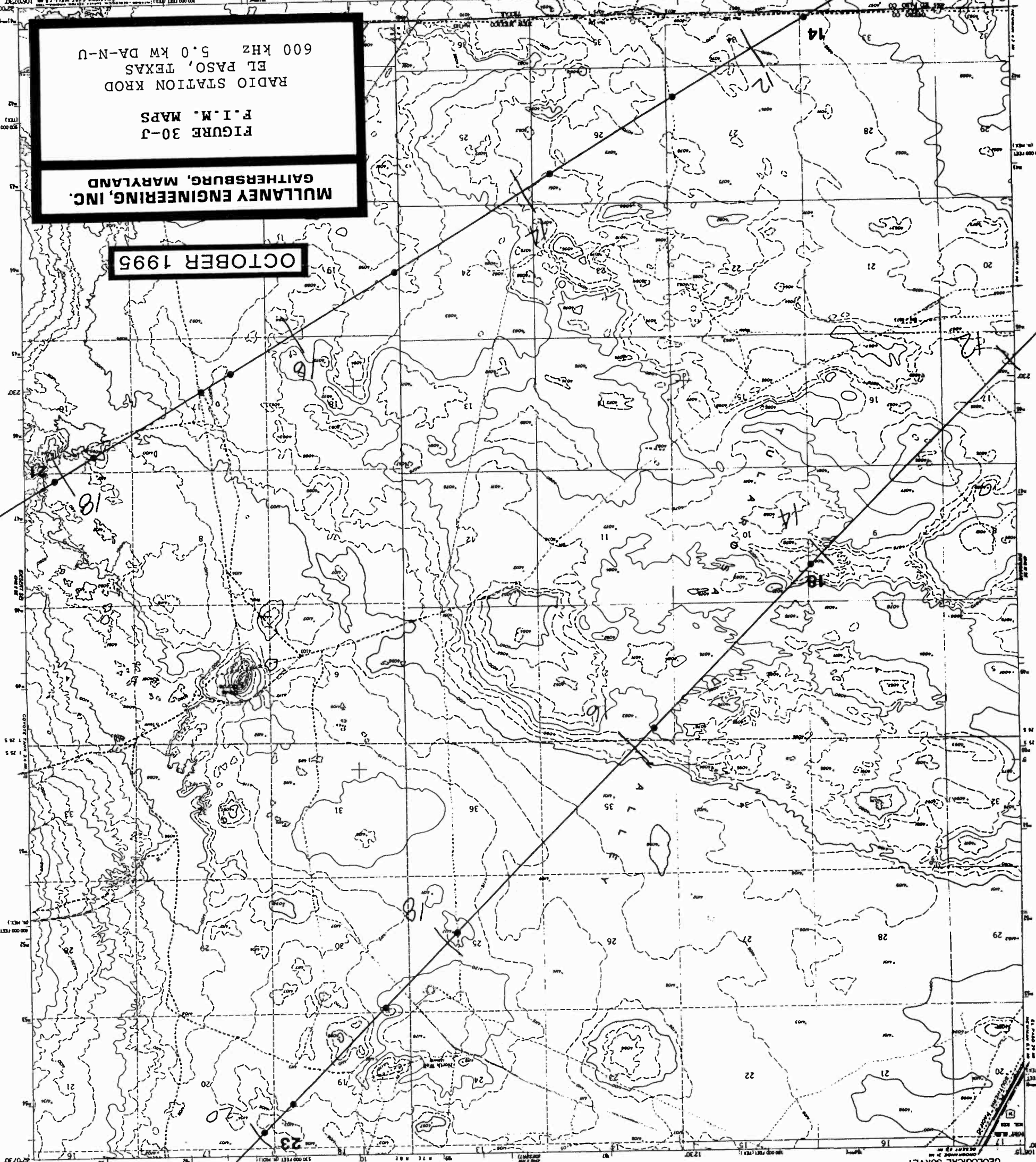
108-00

108-00

DMA 4148 B SW-GENESIS 1961  
1995  
32195-A2-17-024  
DESERT SW, N. MEX. TEX.  
ROAD CLASSIFICATION  
Light duty  
Medium duty  
Unimproved dirt  
U.S. Route  
NEW MEXICO  
THIS MAP COMPARES WITH NATIONAL MAP ACCOUNT STANDARDS  
FOR SALE BY U.S. GEOLOGICAL SURVEY, DOWNS DATA, ON RESERVATION, VINCINNA 12022  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST  
The map shows a portion of the boundary  
There may be private landholdings within the boundaries  
of the National or State reservations shown on this map  
The map and its contents are under copyright  
© 1995, Department of the Interior  
1:24,000  
SCALE 1:24,000  
CONTOUR INTERVAL, 20 FEET  
DATUM, NATIONAL ADJUSTED VERTICAL DATUM OF 1929  
This map was prepared by the Geological Survey  
Mapped by the Army Map Service  
Checked by USGS, USACE, and USFS  
Topography from aerial photography, photogrammetric methods  
1955  
Photographic source, 1957  
Horizontal datum, North American Datum  
10,000 foot grid based on New Mexico coordinate system, Central  
Zone and International System, Mercator and GCS  
1983  
Dashed lines indicate approximate locations  
of data on the projected North American Datum 1983  
The projection has a scale of 1:24,000  
90 meters east as shown by dashed corner ticks

MULLANEY ENGINEERING, INC.,  
GAITHERSBURG, MARYLAND  
FIGURE 30-J  
F. I. M. MAPS  
RADIO STATION KROD  
EL PASO, TEXAS  
600 KHZ 5.0 KW DA-N-U

OCTOBER 1995



DESERT SW QUADRANGLE  
NEW MEXICO-TEXAS  
7.5 MINUTE SERIES (TOPOGRAPHIC)  
445

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

229.5

Map of the Army Map Service  
 Prepared by the Army Map Service  
 1:50,000 Scale  
 1957 Edition  
 1:50,000 Scale  
 1957 Edition  
 1:50,000 Scale  
 1957 Edition

THIS MAP COMPLETES WITH NATIONAL MAP ACQUISITION STANDARDS  
 FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 20192  
 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

CONTOUR INTERVAL 20 FEET  
 NATIONAL GEODETIC VERTICAL DATUM OF 1929  
 SCALE 1:24,000

SMELTERTOWN, TEX.-N. MEX.  
 1953  
 PHOTOGRAPHED 1947 AND 1973  
 AIR 1047 1 RE-SERIES 1982

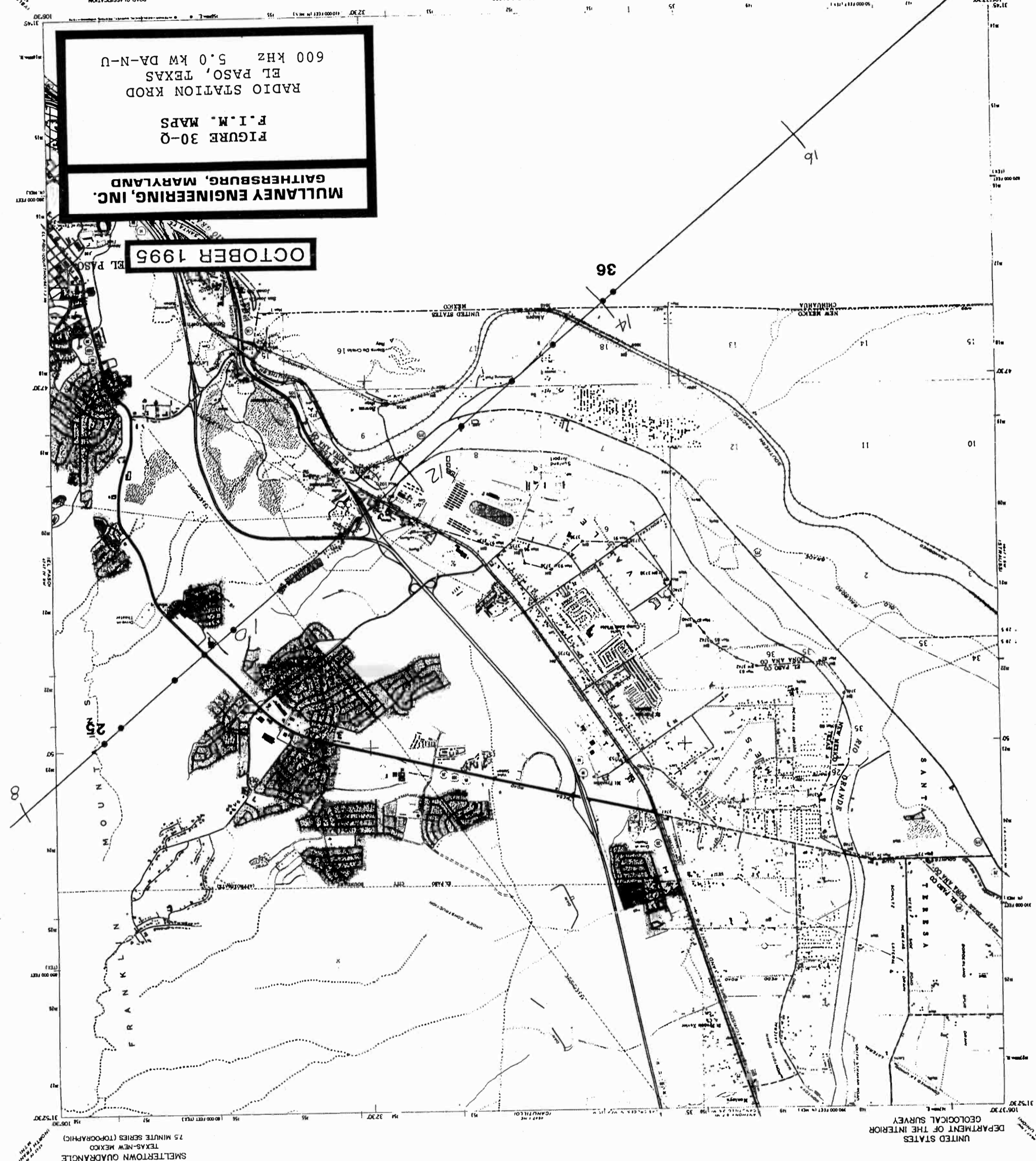
ROAD CLASSIFICATION  
 Heavy duty  
 Medium duty  
 Unimproved dirt  
 U.S. Route  
 State Route

**MULLANEY ENGINEERING, INC.**  
**GAITHERSBURG, MARYLAND**

**FIGURE 30-0**  
**F.I.M. MAPS**

**RADIO STATION KROD**  
**EL PASO, TEXAS**  
**600 KHZ 5.0 KW DA-N-U**

**OCTOBER 1995**



SMELTERTOWN QUADRANGLE  
 TEXAS-NEW MEXICO  
 7.5 MINUTE SERIES (TOPOGRAPHIC)

UNITED STATES  
 DEPARTMENT OF THE INTERIOR  
 GEOLOGICAL SURVEY

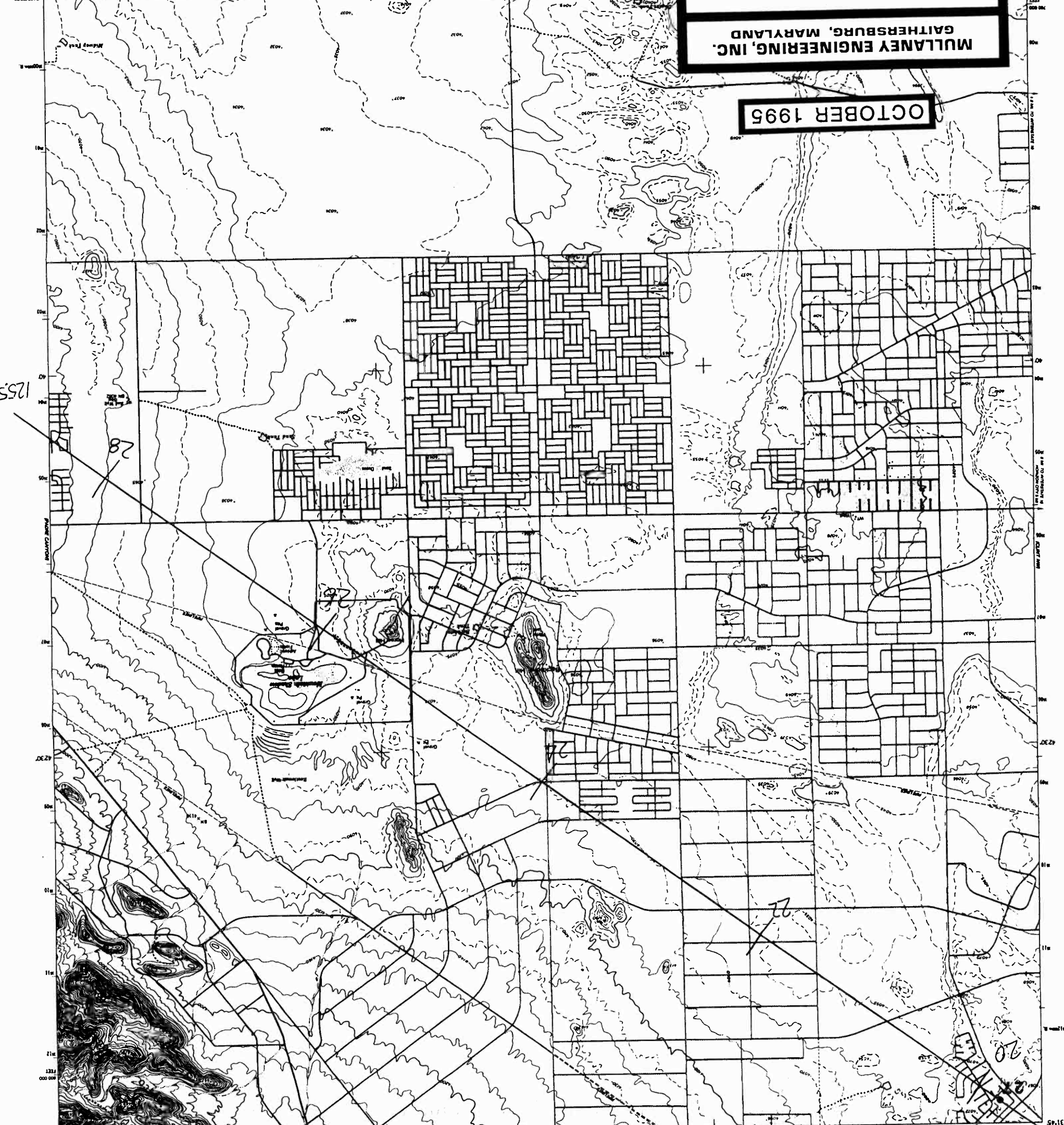


RADIO STATION KROD  
EL PASO, TEXAS  
600 KHZ 5.0 KW DA-N-U

MULLANEY ENGINEERING, INC.  
GAITHERSBURG, MARYLAND

OCTOBER 1995

CLINT NE, TX  
31106-F1-024  
1988  
DWA 4787 1 IN-2000S 9882



1255

22

20

CLINT NE QUADRANGLE  
TEXAS-EL PASO CO.  
7.5 MINUTE SERIES TOPOGRAPHIC  
10000  
31145

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

SCALE 1:24 000  
CANTON INTERNAL 20 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1988  
SUBLINKED BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80228, OR RESTON, VIRGINIA 20192  
THIS MAP COMPLETES WITH NATIONAL MAP ACCURACY STANDARDS  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



3117300  
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3115000  
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RADIO STATION KROD  
EL PASO, TEXAS  
600 KHZ 5.0 KM DA-N-U

FIGURE 30-X  
F.I.M. MAPS

MULLANEY ENGINEERING, INC.  
GAITHERSBURG, MARYLAND

OCTOBER 1995

THIS MAP COMPARES WITH NATIONAL MAP ACCURACY STANDARDS FOR SALE BY U.S. GEOLOGICAL SURVEY DENVER, COLORADO 80225 ON RESTON, VIRGINIA 22092 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

SCALE 1:24,000  
CARTOGRAPHIC SCALE: 1" = 2000 FEET  
METERS: 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000  
CONTOUR INTERVAL: 20 FEET  
DASHED LINES REPRESENT A 10-FOOT CONTOUR  
NATIONAL GEODETIC VERTICAL DATUM OF 1985

3108-413  
UNKNOWN LOCATION

CLINT NW, TX  
31106-2-11-024  
1988  
DMA 4747 & NW-SERIES 1982

ROAD CLASSIFICATION  
Primary highway, hard surface  
Light-duty road, hard or improved surface  
Secondary highway, hard surface  
Unimproved road  
Interstate Route  
U.S. Route  
State Route

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

CLINT NW QUADRANGLE  
TEXAS-EL PASO CO.  
7.5 MINUTE SERIES TOPOGRAPHIC  
1987-30

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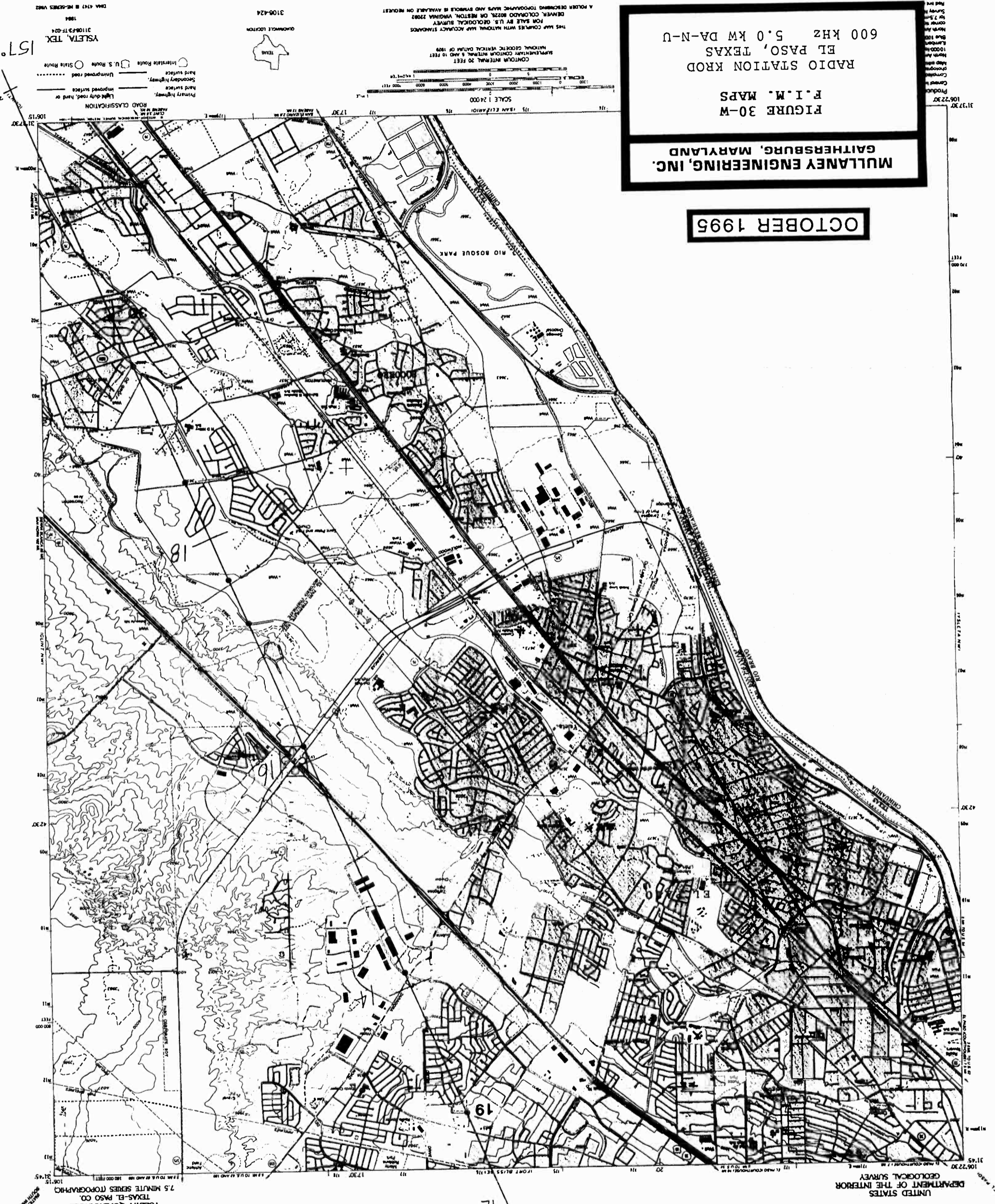
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600 KHZ  
EL PASO, TEXAS  
RADIO STATION KROD

FIGURE 30-W  
F. I. M. MAPS

MULLANEY ENGINEERING, INC.  
GAITHERSBURG, MARYLAND

OCTOBER 1995



Ysleta, TEX.  
3110843-17-024  
157°

ROAD CLASSIFICATION  
Light duty road, hard or  
improved surface  
Improved road  
Unimproved road  
U.S. Route  
State Route  
Interstate Route

3106-424  
QUADRANGLE LOCATION

THIS MAP COMPARES WITH NATIONAL MAP ACCURACY STANDARDS  
FOR SALE BY U.S. GEOLOGICAL SURVEY  
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A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST  
NATIONAL GEODETIC VERTICAL DATUM OF 1989  
CONTOUR INTERVAL 20 FEET  
ELECTRIC  
SCALE 1:24000

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Ysleta QUADRANGLE  
TEXAS-EL PASO CO.  
7.5 MINUTE SERIES TOPOGRAPHIC

12

**MULLANEY ENGINEERING, INC.**  
**GAITHERSBURG, MARYLAND**

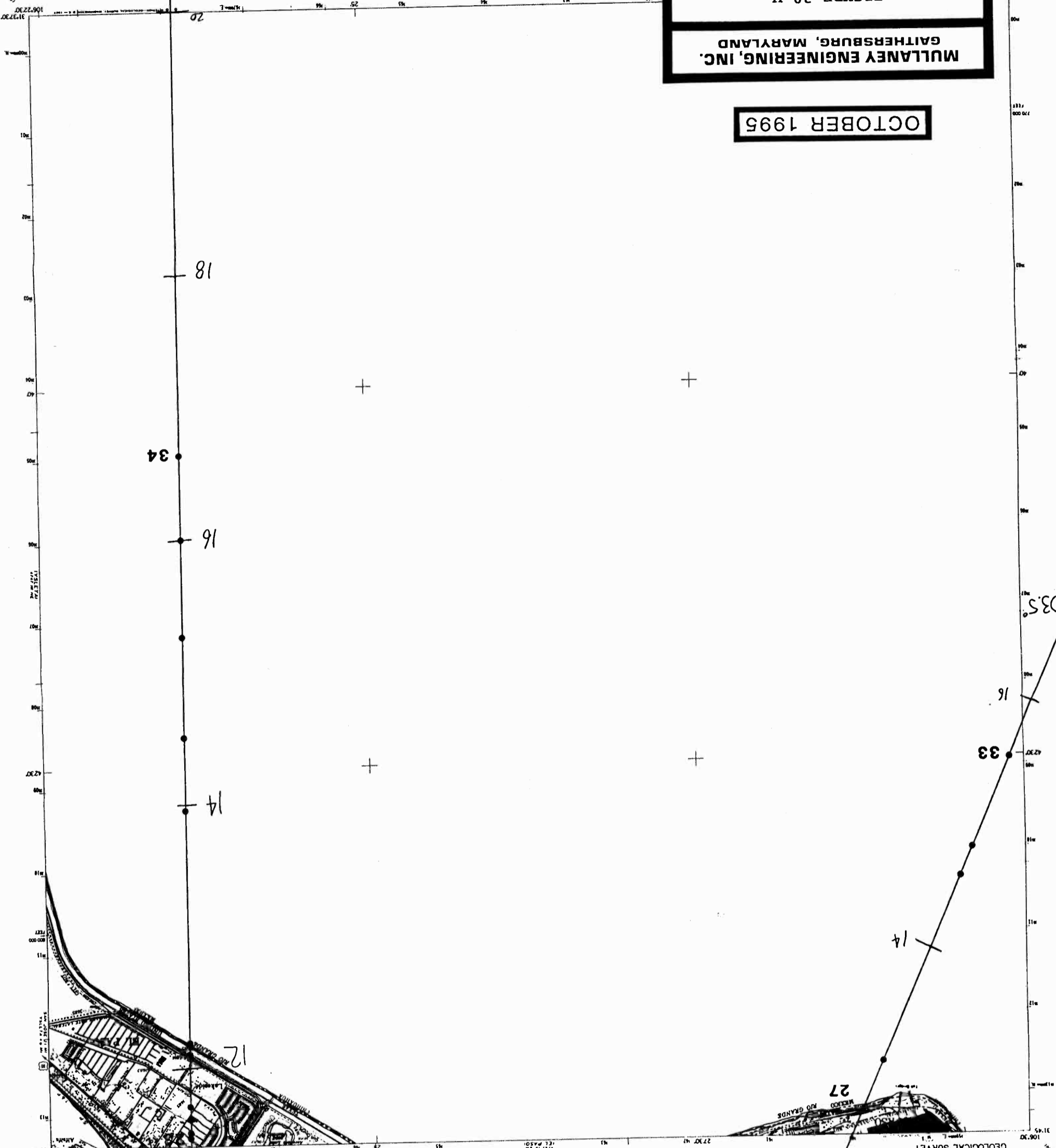
**FIGURE 30-V**  
**F.I.M. MAPS**

**RADIO STATION KROD**  
**EL PASO, TEXAS**  
**600 KHZ 5.0 KW DA-N-U**

**OCTOBER 1995**

SCALE 1:24,000  
 CONTOUR INTERVAL 20 FEET  
 SHADINGS REPRESENT 5 AND 10 FOOT CONTOURS  
 DRAIN 5 METERS SEA LEVEL  
 THIS MAP COMPLETES WITH NATIONAL MAP ACCURACY STANDARDS  
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 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

COMMONWEALTH LOCATION  
 TEXAS  
 YSLETA NW, TEX.  
 NW 1/4 QUADRANGLE  
 N137 S-W10622 5/7 5  
 1995  
 PHOTOGRAPHED 1967  
 AMN 4747 III NW-SERIES 982



UNITED STATES  
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UNITED STATES  
 DEPARTMENT OF THE ARMY  
 CORPS OF ENGINEERS

YSLETA NW QUADRANGLE  
 TEXAS-EL PASO CO.  
 7.5 MINUTE SERIES (TOPOGRAPHIC)  
 NW 1/4 QUADRANGLE  
 N137 S-W10622 5/7 5

YSLETA NW, TEX.  
 NW 1/4 QUADRANGLE  
 N137 S-W10622 5/7 5  
 1995  
 PHOTOGRAPHED 1967  
 AMN 4747 III NW-SERIES 982

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Copyright © 1955, U.S. Geological Survey  
Topography from the 1954 photographic survey  
Aerial photography taken 1954  
Photographic projection  
1927 North American datum  
10,000 foot grid based on Texas coordinate system  
1000 meter Universal Transverse Mercator grid  
Zone 13, shown in blue  
Unchecked elevations are shown in brown  
ECLIPSE, 1955

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A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST  
U.S. MAP CONTROLS WITH NATIONAL MAP AGENCY STANDARDS

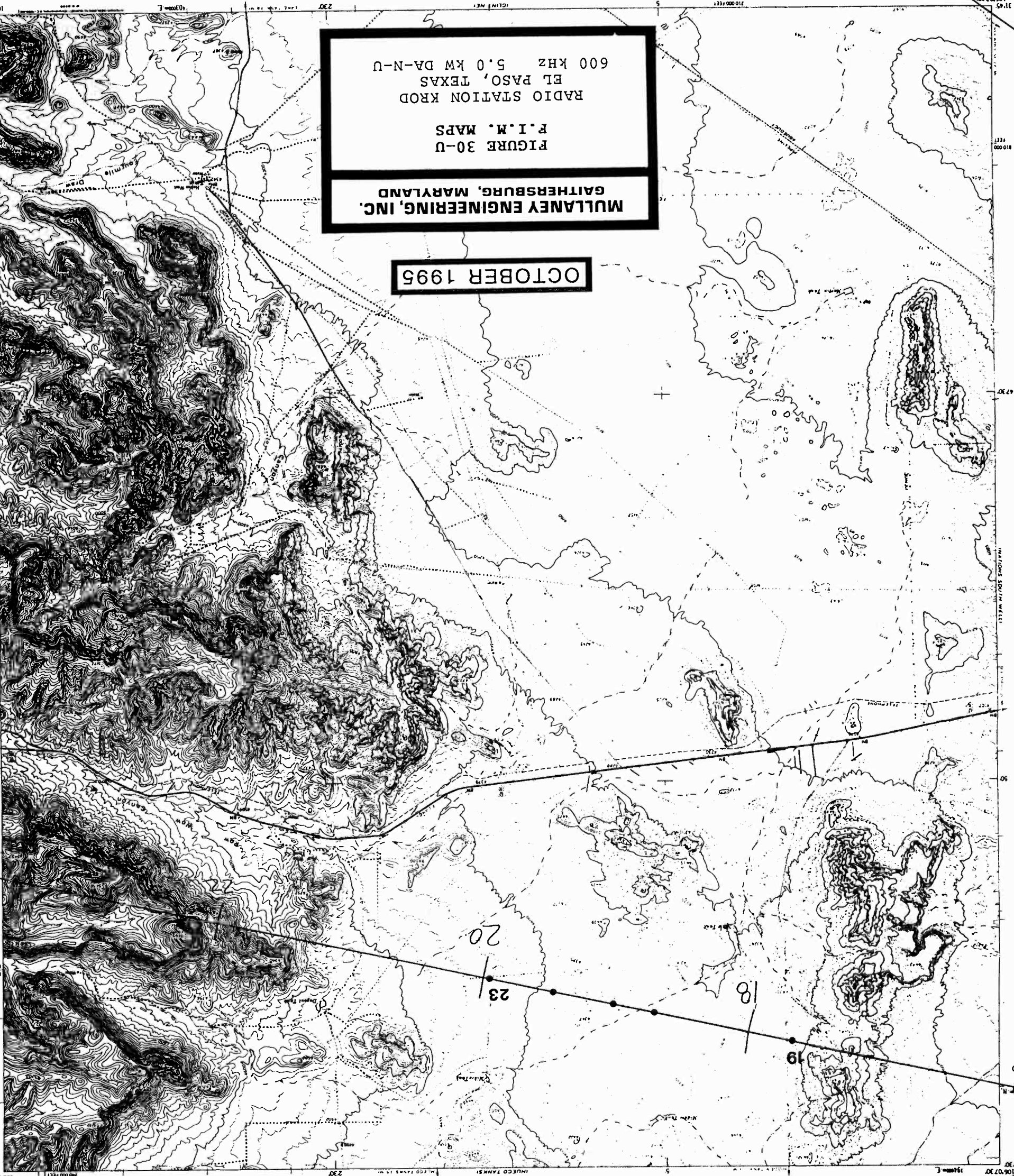
HELMES WEST WELL, TEX.  
824 HURCO TANKS 19 QUADRANGLE  
15145-110600/7.5  
1955

ROAD CLASSIFICATION  
U.S. Route  
Light duty  
Medium duty  
Heavy duty

SCALE 1:24,000  
CLINE MET.  
CONTOUR INTERVAL 20 FEET  
DASHED LINES INDICATE 5 AND 10 FOOT CONTOURS  
DITTO IS MEAN SEA LEVEL

**MULLANEY ENGINEERING, INC.**  
**GAITHERSBURG, MARYLAND**  
**FIGURE 30-U**  
**F.I.M. MAPS**  
**RADIO STATION KROD**  
**EL PASO, TEXAS**  
**600 KHZ 5.0 KM DA-N-U**

**OCTOBER 1995**



HELMES WEST WELL QUADRANGLE  
TEXAS-EL PASO CO  
7.5 MINUTE SERIES (TOPOGRAPHIC)  
824 HURCO TANKS 19 QUADRANGLE  
15145-110600/7.5  
1955

UNITED STATES  
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UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

102

20

23

18

19

16

125.5

142

14

12

17

10

102

18

14

16

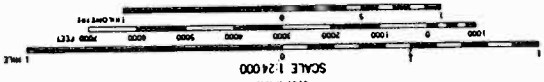
NATIONS SOUTH WEST, TEX.  
SW 1/4 HUNCO TANKS 19 QUADRANGLE  
NE 1/4 5/73  
1955

THIS MAP COMPLETES WITH NATIONAL MAP ACCURACY STANDARDS  
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NATIONAL GEODETIC VERTICAL DATUM OF 1929  
CONTOUR INTERVAL, 20 FEET  
HORIZONTALS REFERENT TO 1929 DATUM

UNPUBLISHED REVISIONS AND SHOWN IN BROWN  
1:50,000 (UNIVERSITY MICROFILMS) 1:50,000  
1:250,000 (UNIVERSITY MICROFILMS) 1:250,000  
1:500,000 (UNIVERSITY MICROFILMS) 1:500,000  
1:1,000,000 (UNIVERSITY MICROFILMS) 1:1,000,000  
1:2,000,000 (UNIVERSITY MICROFILMS) 1:2,000,000  
1:5,000,000 (UNIVERSITY MICROFILMS) 1:5,000,000  
1:10,000,000 (UNIVERSITY MICROFILMS) 1:10,000,000  
1:25,000,000 (UNIVERSITY MICROFILMS) 1:25,000,000  
1:50,000,000 (UNIVERSITY MICROFILMS) 1:50,000,000  
1:100,000,000 (UNIVERSITY MICROFILMS) 1:100,000,000  
1:200,000,000 (UNIVERSITY MICROFILMS) 1:200,000,000  
1:500,000,000 (UNIVERSITY MICROFILMS) 1:500,000,000  
1:1,000,000,000 (UNIVERSITY MICROFILMS) 1:1,000,000,000

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Topographic maps and photogrammetric methods  
used in preparing this map were approved in 1955  
10,000 feet and based on Texas coordinate system  
1927 North American datum  
1:50,000 (UNIVERSITY MICROFILMS) 1:50,000  
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1:5,000,000 (UNIVERSITY MICROFILMS) 1:5,000,000  
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1:500,000,000 (UNIVERSITY MICROFILMS) 1:500,000,000  
1:1,000,000,000 (UNIVERSITY MICROFILMS) 1:1,000,000,000

ROAD CLASSIFICATION  
Heavy duty  
Medium duty  
Light duty  
Unimproved dirt  
U.S. Route



**MULLANEY ENGINEERING, INC.**  
GAITHERSBURG, MARYLAND  
FIGURE 30-T  
F.I.M. MAPS  
RADIO STATION KROD  
EL PASO, TEXAS  
600 KHZ 5.0 KM DA-N-U

**OCTOBER 1995**

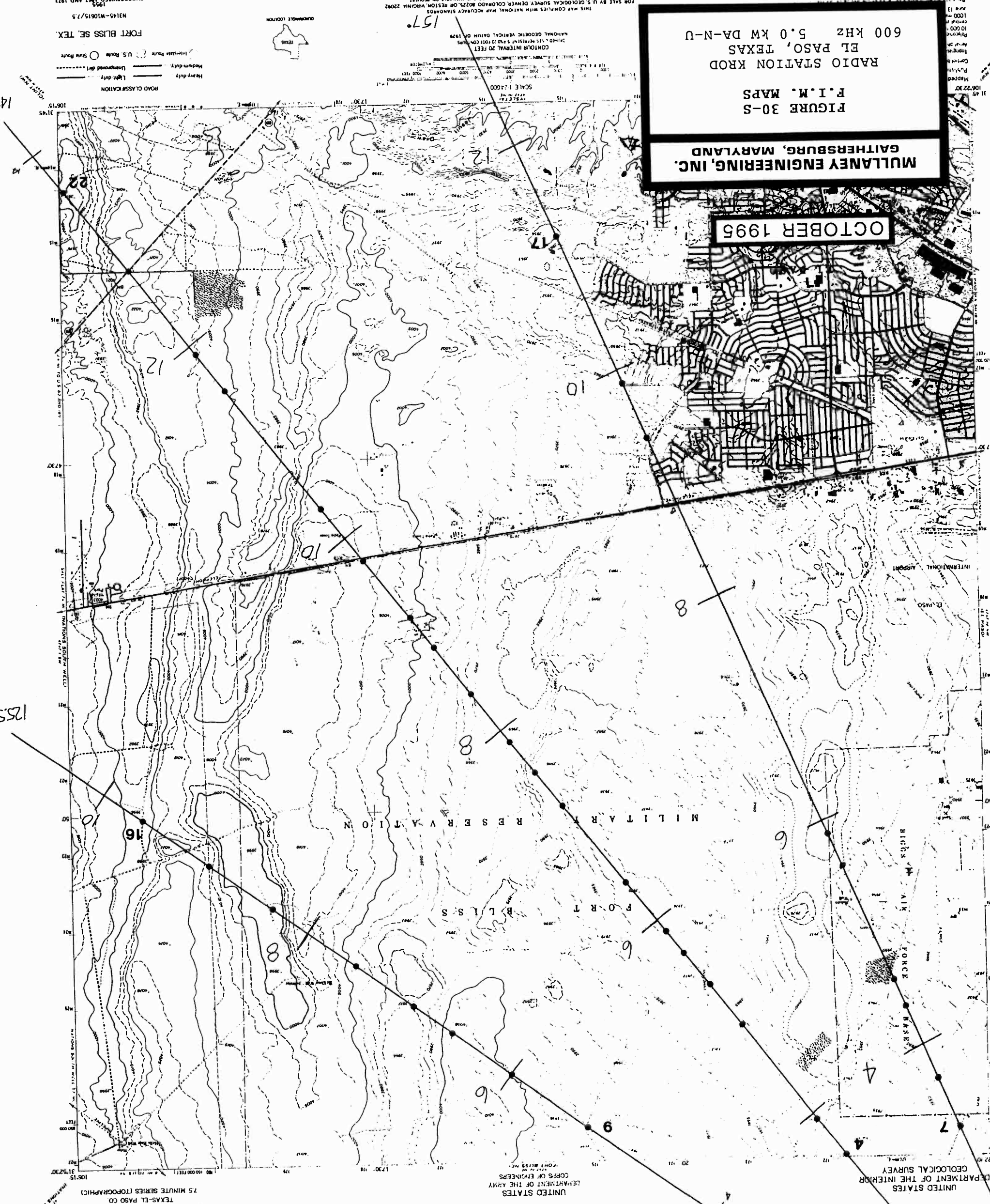
NATIONS SOUTH WEST QUADRANGLE  
TEXAS-EL PASO CO  
75 MINUTE SERIES (TOPOGRAPHIC)  
SW 1/4 HUNCO TANKS 19 QUADRANGLE  
106°07'30" W  
31°52'30" N

UNITED STATES  
DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS  
NATIONS EAST WELLS  
106°07'30" W  
31°52'30" N

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY  
106°07'30" W  
31°52'30" N

MULLANEY ENGINEERING, INC.  
GAITHERSBURG, MARYLAND  
FIGURE 30-S  
F.I.M. MAPS  
RADIO STATION KROD  
EL PASO, TEXAS  
600 KHZ 5.0 KM DA-N-U

OCTOBER 1995



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

FORT BLISS SE QUADRANGLE  
TEXAS-EL PASO CD  
75 MINUTE SERIES (TOPOGRAPHIC)

UNITED STATES  
DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS  
FORT BLISS NE

ROAD CLASSIFICATION  
Heavy-duty  
Medium-duty  
Light-duty  
Unimproved dirt

Interstate Route  
U.S. Route  
State Route

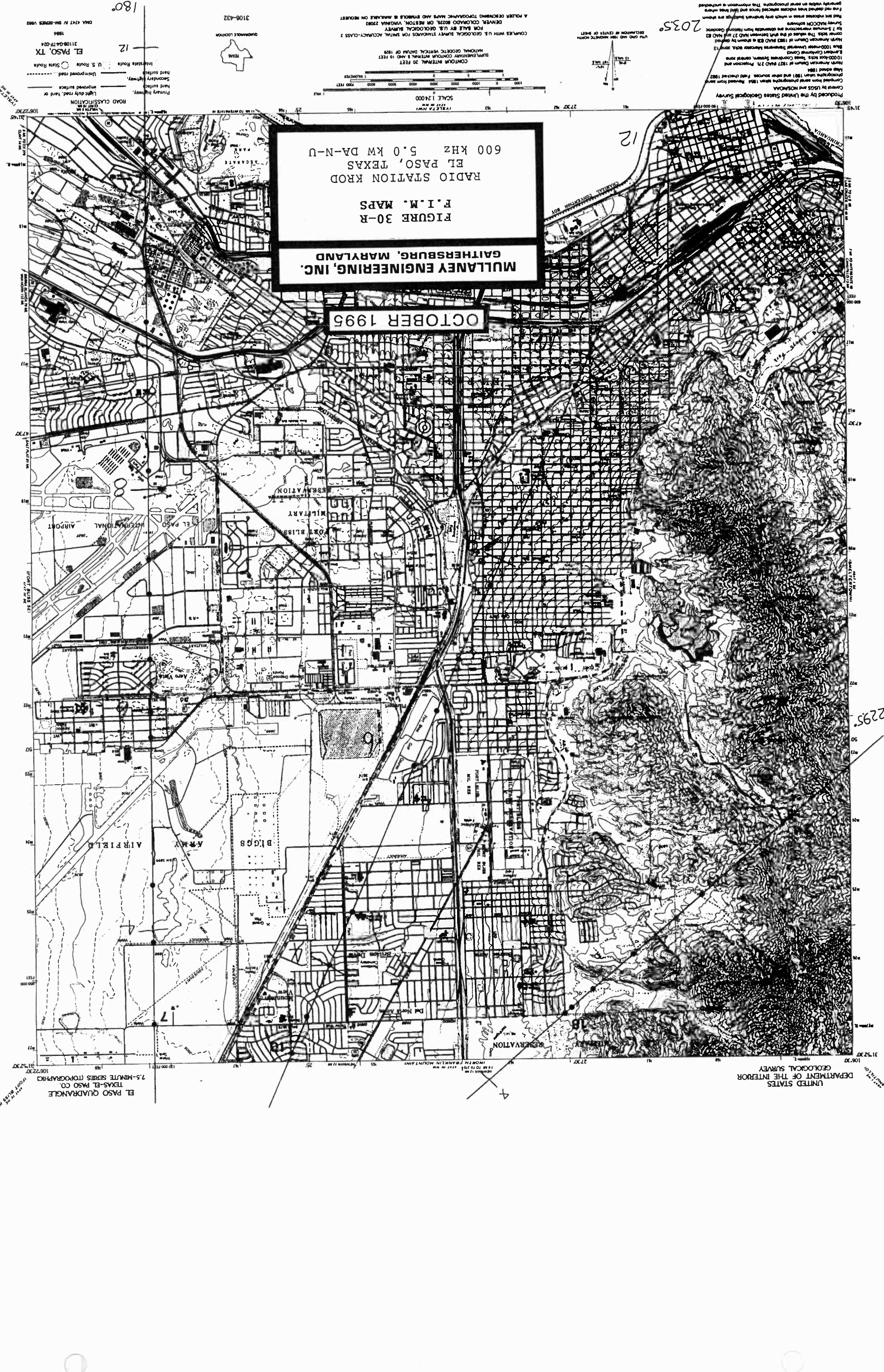
FORT BLISS SE, TEX.  
N1415-W10615/75  
PHOTOREPRODUCED FROM 1967 AND 1973  
AMS 4471 19 SE-BENIEB 7882

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NATIONAL GEOGRAPHIC VERTICAL DATUM OF 1929

157°

142°

1255



MULLANEY ENGINEERING, INC.  
 GAITHERSBURG, MARYLAND  
 FIGURE 30-R  
 F.I.M. MAPS  
 RADIO STATION KROD  
 EL PASO, TEXAS  
 5.0 KW DA-N-U  
 600 KHZ

OCTOBER 1995

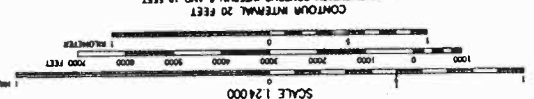
UNITED STATES  
 DEPARTMENT OF THE INTERIOR  
 GEOLOGICAL SURVEY

EL PASO QUADRANGLE  
 TEXAS-EL PASO CO.  
 7.5-MINUTE SERIES (TOPOGRAPHIC)

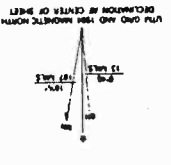
1:25,000 SCALE  
 1:50,000 SCALE  
 1:100,000 SCALE  
 1:200,000 SCALE  
 1:500,000 SCALE  
 1:1,000,000 SCALE

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 Compiled from aerial photographs taken 1984. Revised from  
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 North American Datum of 1983 (NAD 83) is shown by default.  
 1:50,000 Scale (Universal Transverse Mercator Spheroid, Zone 13  
 North American Datum of 1983 (NAD 83) is shown by default.  
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EL PASO, TX  
 31108-04-7E-02A  
 180°



2035

2295