FCC Form 302
March 1977

Approved By GAO
B-180227 (RO 176)

Section I

United States of America
Federal Communications Commission

APPLICATION FOR NEW BROADCAST STATION LICENSE

(For Commission Use Only)
File No.

Name and post office address of applicant (Include ZIP Code)
(See Instruction D)

Sun World Corporation
C/O KSET
P.O. Box 20,000
El Paso, Texas 79998

INSTRUCTIONS

A. This form is to be used in all cases when applying for a Broadcast Station License. It consists of this part, Section I, and the following sections:

Section II - A, License Application Engineering Data Standard Broadcast

Section II - B, License Application Engineering Data FM Broadcast

Section II - C, License Application Engineering Data Television Broadcast

B. Prepare and file three copies of this form and all exhibits with Federal Communications Commission, Washington, D.C. 20554.
C. Number exhibits serially in the space provided in the body of the form and list each exhibit in the space provided on page 2 of this Section. Date each exhibit and each antenna pattern.
D. The name of the applicant must be stated exactly as it appears on the construction permit which is being covered.
E. Information called for by this application which is already on file with the Commission need not be refiled in this application provided (1) the information is now on file in another application or FCC form filed by or on behalf of this applicant; (2) the information is identified fully by reference to the file number (if any), the FCC form number, and the filing date of the application or other form containing the information and the page or paragraph referred to, and (3) after making the reference, the applicant states: "No change since date of filing." Any such reference will be considered to incorporate into this application all information, confidential or otherwise, contained in the application or other form referred to. The incorporated application or other form will thereafter, in its entirety, be open to the public.
F. This application shall be personally signed by the applicant, if the applicant is an individual; by one of the partners, if the applicant is a partnership; by an officer, if the applicant is a corporation; by a member who is an officer, if the applicant is an unincorporated association; by such duly elected or appointed officials as may be competent to do so under the laws of the applicable jurisdiction, if the applicant is an eligible government entity; or by the applicant's attorney in case of the applicant's physical disability or of his absence from the United States. The attorney shall, in the event he signs for the applicant, separately set forth the reason why the application is not signed by the applicant. In addition, if any matter is stated on the basis of the attorney's belief only (rather than his knowledge), he shall separately set forth his reasons for believing that such statements are true.
G. BE SURE ALL NECESSARY INFORMATION IS FURNISHED AND ALL PARAGRAPHS ARE FULLY ANSWERED. IF ANY PORTIONS OF THE APPLICATION ARE NOT APPLICABLE, SPECIFICALLY SO STATE. DEFECTIVE OR INCOMPLETE APPLICATIONS MAY BE RETURNED WITHOUT CONSIDERATION.
H. See back of last page for Privacy Act Notice.

Notices and communications with respect to this application are to be addressed to the following - named persons at the address indicated (Include ZIP Code)

Ed Hopper
KSET
P.O. Box 20,000
El Paso, Texas 79998

1. Facilities authorized by construction permit

Frequency	Channel No.	Power in kilowatts	
		Night	Day
1340 kHz		0.25	1.0

Hours of operation	Call letters
unlimited	KSET

2. Construction permit covered by this application

File number	Date
DNA	
Construction begun	**Construction completed**

Is the station now in satisfactory operating condition and ready for regular operation? Yes [X] No [ ]
If not, explain

PROGRAM DATA

3. Has applicant any contract, arrangement, or understanding, expressed or implied, with a network organization for the broadcasting of network programs? Yes [X] No [ ]

Does applicant, in the event this application is granted, propose to broadcast network programs? Yes [X] No [ ] If network programs are to be broadcast, state as Exhibit No. on file arrangements under which they are to be obtained and attach copies of any contractual arrangement which may have been made. If the arrangement is based on an oral understanding, a written statement of the arrangement should be submitted.

FINANCIAL DATA

4. Give actual costs of making installation for which construction was authorized

Transmitter proper including tubes	Antenna system, including antenna-ground system, coupling equipment, transmission line	Frequency and modulation monitors	Studio technical equipment, microphones, transcription equipment, etc.
$	$	$	$
Acquiring land	**Acquiring or constructing buildings**	**Other items, state nature**	**Total**
$	$	$ Labor 1700	$ 1700

All previous edition of this form are canceled.

FINANCIAL DATA (Continued)

5. (a) Attach a detailed balance sheet, as at the completion date of the authorized construction, showing applicant's financial position as Exhibit No. (b) If the actual cost of construction materially exceeds the original estimated cost of construction, attach as Exhibit No. a detailed statement showing the plan used to finance such construction. (If applicant is licensee of a broadcast station having on file with the Commission an Annual Financial Report (FCC Form 324) showing its financial position within the past 12 months and the request in this application is for a change in existing facilities, these exhibits need not be supplied provided that no substantial reduction in financial position has occurred.)

6. State changes, if any, in capitalization, and report any contracts affecting ownership not shown in the application for construction permit. (If none, so state)

Application for transfer to Broadcast Associates of Texas pending with Commission.

7. Apart from the apparatus constructed, have all the terms, conditions, and obligations set forth in the above-described application for construction permit been fully met? Yes ☐ No ☐
If "No", state exceptions.

N/A (NO CP)

8. Is a request for authority to conduct program tests a part of this application? Yes ☒ No ☐

THE APPLICANT hereby waives any claim to the use of any particular frequency or of the ether as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. (See Section 304 of the Communications Act of 1934).

THE APPLICANT represents that this application is not filed for the purpose of impeding, obstructing, or delaying determination on any other application with which it may be in conflict.

THE APPLICANT acknowledges that all the statements made in this application and attached exhibits are considered material representations, and that all the exhibits are a material part hereof and are incorporated herein as if set out in full in the application.

CERTIFICATION

I certify that the statements in this application are true, complete, and correct to the best of my knowledge and belief, and are made in good faith.

Signed and dated this 31 day of March 1978

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND IMPRISONMENT. U. S. CODE, TITLE 18, SECTION 1001.

Sun World Corporation
(NAME OF APPLICANT)

By _____
(SIGNATURE)

Title Station Manager

EXHIBITS furnished as required by this form:

Exhibit No.	Section and Para. No. of Form	Name of officer or employee (1) by whom or (2) under whose direction exhibit was prepared (show which)	Official title
E-1A	II A	Gary O. Keener	Chief Operator
E-1B	II A	Vir James	Consulting Engineer
E-2A	"	" "	" "
E4,1A	"	" "	" "
E-4.2	"	" "	" "
E-8.07A	"	" "	" "
E-8.10 A	"	" "	" "
E-10.01	"	" "	" "

ENGINEERING EXHIBIT

REQUEST FOR MODIFICATION OF INSTRUMENT OF AUTHORIZATION TO REFLECT CHANGED ANTENNA IMPEDANCE

K S E T

Sun World Corporation

1340 kH_z 1000 Watts-D 250 Watts-N, Nondirectional

El Paso, Texas

March 22, 1978

March 22, 1978

K S E T
Sun World Corporation
1340 kHz 1000 Watts day, 250 Watts night
El Paso, Texas

Request for modification of Instrument of Authorization to Reflect Changed Antenna Impedance

Contents

Exhibit	Title
E-1A	FCC Form 302, Section II-A
E-1B	Engineering Statement from Consulting Engineer
E-1B-1	Affidavit
E-1B-2	System of Measurements
E-2A	Impedance Measurements
E-4.1A	Antenna Impedance - Frequency Characteristics - Data
E-4.2	Base Current Ammeter Calibration - Data
E-8.07A	Nondirectional Antenna Impedance Characteristics - Curve
E-8.10A	Ammeter Calibration Curve
E-10.01	Schematic Showing Antenna Impedance Measuring Point "Z"

. . . . . .

Amendment 1
Note: All entries in the report of the Consulting Engineer wherein the licensee is named as Rio Grande Broadcasting Company are hereby ammended to read Sun World Corporation. The current instrument of authorization does reflect this change of corporate name of the licensee to Sun World Corporation. Said new instrument of authorization was issued as a normal renewal August 18, 1977.

Amendment 2
In exhibit 10.01, "Schematic Showing Antenna Impedance Measuring Point "Z" ", the night antenna current is shown to be 0.863A. Subsequent checking with the Consulting Engineer confirms that this is a typographical error, and that the night current figure should in fact be 0.836A. Elsewhere in the Consulting Engineer's report this figure is rounded off to 0.84A. This exhibit has been hand-corrected on each copy by the station chief operator.

Broadcast Application — FEDERAL COMMUNICATIONS COMMISSION — Section II-A

LICENSE APPLICATION ENGINEERING DATA
STANDARD BROADCAST

Name of applicant: Sun World Corporation

Purpose of authorization applied for: (Check one)

	Answer paragraphs
☐ Station license	1-13
☒ Direct measurement of power	2,6,7,8,9,14

1. Facilities authorized in construction permit

Call Sign	File No. of construction permit
KSET	- -

Frequency	Hours of operation	Power in kilowatts	
		Night	Day
1340 kHz	U	1.0	0.25

2. Station location

State	City or town
Texas	El Paso

3. Transmitter location

State	County
Texas	El Paso

City or Town	Street Address (or other identification)
El Paso	4530 Delta Street

4. Main studio location

State	County
Texas	El Paso

City or Town	Street and number
El Paso	904 Magoffin Ave.

5. Remote control point location (only if authorized)

State	City or town
Texas	El Paso

Street Address (or other identification): 904 Magoffin Avenue

6. Transmitter Installed

Make	Type No.	Rated Power
CCA	AM-1000D	1.0/0.25 kW

Last radio stage

	Total unmodulated plate current	Plate voltage
Night	.280A	1550V
Day	.580A	3000V

Manufacturer's recommended operating efficiency for the last radio frequency amplifier stage in percent: On File

Is inverse feedback utilized? Yes ☐ No ☐
If "Yes", to what value of feedback power is transmitter adjusted (in db): On File

Efficiency of the last radio frequency amplifier stage as now adjusted (use formula $\frac{I_a^2 \; R_a \; (100)\%}{E_p \quad I_p}$)

Day - 57.6%
Night - 57.5%

7. Operating constants: (If directional system, give current at point of resistance measurement.)

RF common point or antenna current without modulation for night power in amperes	RF common point or antenna current without modulation for day power in amperes
0.84A	1.67A

Actual measured antenna or common point resistance (in ohms) at operating frequency	Actual measured antenna or common point reactance (in ohms) at operating frequency
Night 358Ω Day 358Ω	Night +j272Ω Day +j272Ω

Currents, and phases for directional operation: DNA

Tower	Phase reading in degrees		Antenna base current		Remote indication of antenna current	
	Night	Day	Night	Day	Night	Day

Manufacturer and type of antenna monitor: DNA

Describe equipment used for remote indication of antenna currents (antenna monitor or other method): Gates Remote Diode Unit

8. 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: One uniform cross-section, guyed, vertical tower. (SE tower of KELP array.

Height in feet of complete radiator above base insulator, or above base if grounded: 76.2m (250 ft.)

Overall height in feet above ground. (without obstruction lighting): 77.7m (255ft)

If antenna is either top loaded or sectionalized, describe fully as EXHIBIT ____: DNA

Excitation: Series ☒ Shunt. ☐

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

North latitude	West longitude
31 ° 45 ' 40 "	106 ° 26 ' 11 "

If not fully describe above, give further details and dimensions including any other antennas mounted on tower and associated isolation circuits as EXHIBIT ____: E-10.01

Details and dimensions of ground system: (Attach sketch as EXHIBIT ____ if necessary for complete description).

On file

Broadcast Application — STANDARD BROADCAST ENGINEERING DATA — Section II-A, Page 2

9. Antenna resistance measurement

Attach as Exhibit No. the following: See Engineering Statement, E-1B through E-10.01

a. Qualifications of persons taking measurements.

b. Schematic diagram showing clearly all components of coupling circuits, point of resistance measurement, location of antenna ammeter, connection to and characteristics of all tower lighting isolation circuits, static drains, and any other fixtures, lines etc. connected to or supported by the antenna, including other antennas and associated circuits.

c. Full description of method used to make measurements.

d. Manufacturer's name of each calibrated instrument used and manufacturer's rated accuracy.

e. Date, accuracy, and by whom each instrument was last calibrated.

f. Table of complete data taken.

g. The graph drawn of 10 to 12 readings in a band 50 to 60 kilohertz wide with the operating frequency near the center.

10. Modulation monitor

Make	Type No.
TFT	753, sn 435

11. Frequency measurements

Give the following data on the checks of the frequency

	Date and Time	Frequency measured by such agency or method
1.	3/3/78 1:50 pm MST	1340.001 kHz
2.	2/3/78 2:00 pm MST	1339.998 kHz
3.		

Name of checking agency or method used: carrier output fed to a Heath-Schlumberger Model SM-104 Counter, sn 1251

12. Give method of varying power to compensate for variation of line voltage.

Screen grid voltage adjustment in the final radio stage by means of a motorized variable resistance

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

DNA

14. Give reason for the change in antenna or common point resistance.

At least 10% of the ground system has been destroyed by vandalism.

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.

Date 22 March 78

Signature Gary S. Keen

(check appropriate box below)

- ☐ Technical Director
- ☐ Registered Professional Engineer
- ☐ Consultant
- ☒ Chief Operator

Telephone 915-532-4979 (include Area Code)

ENGINEERING EXHIBIT

ANTENNA IMPEDANCE

MEASUREMENT

* * * * *

STATION: K S E T

LOCATION: El Paso, Texas

FREQUENCY: 1340 kHz

POWER: 1000 Watts-D 250 Watts-N

OPERATION: Fulltime

APPLICANT: Rio Grande Broadcasting Company*

DATE: 12 December 1977

* * * * *

*See Amendment 1, Contents page.

VIR JAMES P. C.
CONSULTING RADIO ENGINEERS
345 COLORADO BLVD. · DENVER, CO · 80206
phone (303) 333-5562

DECEMBER 1977

K S E T
RIO GRANDE BROADCASTING COMPANY
1340 kHz 1000 WATTS-D 250 WATTS-N
EL PASO, TEXAS

ENGINEERING STATEMENT

Rio Grande Broadcasting Company is the licensee of radio station KSET, El Paso, Texas, which operates on 1340 kHz fulltime with a power of 1000 watts day and 250 watts night, using the 76.2 m (250') southeast (#3) guyed tower of the 3-tower directional array of KELP, operating on 920 kHz.

Repeated vandalism to the KELP directional antenna ground system has occurred over the past few years. KELP has made an effort to replace portions of the ground system critical to KELP and KSET operation. Therefore a remeasurement of the KSET nondirectional impedance was required for optimizing day and nighttime operation.

A calibration curve for the base current meter is supplied in this report. A copy of this curve is posted at the location of the base current meter to enable the KSET staff to accurately read the base current.

The antenna resistance was found to be 358 ohms giving an antenna current of 1.67 amperes for daytime operation and 0.84 amperes for nighttime operation. Measurements reported herein were made on 10 December 1977. KSET requests that their present instrument of authorization be amended to specify the operating parameters specified in the included Section 2 of the FCC Form 302.

Respectfully submitted,

Vir James P.E.
12 December 1977

STATE OF COLORADO)
) ss:
CITY AND COUNTY OF DENVER)

EXHIBIT E-1B-1

Vir N. James, being duly sworn, states:

That he is a Consulting Radio Engineer with offices located at 345 Colorado Boulevard, Denver, Colorado 80206.

That he has been employed as a Radio or Television Engineer in research, design, development and consulting since 1932. That he was a member of the staff of the Columbia Broadcasting System, Inc., in New York City in engineering reserach and development pertaining to broadcasting for over 8 years. That while employed in the CBS Engineering Department, he designed directional antennas and other radio and television equipment for broadcasting. That in addition, he developed measuring equipment and measuring techniques to improve and facilitate proof of performance measurements.

That he was first employed for work involving the proving of directional antenna systems in 1937. That since 1937 he has designed many directional antennas, performed the calculations and/or measurements to obtain coverage and interference contours, as well as radio broadcast allocation engineering. That he specializes in directional antenna work. That he has prepared many radio broadcast applications which have been filed with and granted by the Federal Communications Commission.

That he received a degree of Bachelor of Electrical Engineering, specializing in Radio, from the University of Minnesota in 1932, and that he took graduate work at the University of Minnesota, Columbia University and Stevens Institute of Technology. That he taught Radio Engineering and other allied courses at Southern Methodist University.

That he is a Registered Professional Engineer (No.2677) in the State of Colorado. That he is a member of the Association of Federal Communications Consulting Engineers. That he is a member of the National Society of Professional Engineers. That he is a Senior Member of the Institute of Electrical and Electronics Engineers. That he is a member of Broadcast Pioneers, with recognized service in broadcasting since 1927. That he is a qualified and experienced Radio and Television Engineer whose qualifications are a matter of record with the Federal Communications Commission.

That the calculations and/or measurements and exhibits in the accompanying report were made by him personally or under his direction, and that all facts contained herein are true of his own personal knowledge or belief; and on such statements made on belief, they are believed to be true.

Vir N. James
Affiant

Subscribed and sworn to before me this 12th day of December 1977.

Notary Public

Date of Commission Expiration: January 14, 1981

770115

SYSTEM OF MEASUREMENT

All measurements in this report are in the metric system. Legislation for conversion has been advocated by the U.S. Secretary of Commerce, and passed by the U.S. Congress. Increased use of the metric system in the U.S. is inevitable, and such a metric system will become the dominant system of weights and measures in the United States. Colorado and other states have recently adopted resolutions to convert to the metric system as quickly as possible. The metric system is being used voluntarily by an increasing number of U.S. industries, in anticipation of the impending U.S. metrication. The factors required to convert data in this report to the old British measurement system are:

a) Multiply millimeters by 0.03937 to obtain inches
b) Multiply meters by 3.2808 to obtain feet
c) Multiply kilometers by 0.6214 to obtain miles
d) Multiply square kilometers by 0.3861 to obtain square miles.

Effective January 1, 1976, Vir James Consulting Radio Engineers culminated its four year planned conversion to the metric system. On that date, in response to the Colorado State Legislature and in cooperation with the Colorado centennial-bicentennial celebration, the termination of the old British equivalents (presented in these reports) was planned. This firm's metric conversion program is now completed. Regretfully, the scheduled date for elimination of the British equivalents from these reports is being delayed in order to permit governmental agencies to implement metric conversion.

Experience with metric conversion in other countries shows that no advantage is to be gained by continuing to give old equivalent values. Total metric conversion with the deletion of all British equivalents creates only momentary concern. In the case of countries now using metric measurements exclusively, the conclusion is that metrication could and should have been completed earlier. It is this firm's intent to eliminate the old British values in these reports in the very near future.

Vir James

Vir James, P.E.

IMPEDANCE MEASUREMENTS

Procedures

The Common Point and/or tower antenna impedance was measured at the operating frequency and at 5 kHz intervals over a band of frequencies extending to 30 kHz above and below the assigned frequency, in accordance with the FCC Standard Broadcast Technical Standards. The circuit diagram showing the point of measurement "Z" on the antenna side of the ammeter, together with other pertinent details, either is presented herein, or is in the Station's FCC file.

The frequency accuracy of the signal generator was checked at all frequencies by means of the secondary frequency standard, ensuring an accuracy of closer than 2 Hz at all measurement frequencies or was determined by a quartz crystal stabilized frequency synthesizer.

The accuracy of the R-F bridge was verified by making check measurements using standard resistors @ 1% and by periodically checking one bridge against the others.

EQUIPMENT LIST

Pertinent measurement instruments were utilized from the following list:

Bridge: General Radio Type 916AL - calib. 10/57
General Radio Type 1606A - calib, 7.63
Delta OIB-1 (Extended Range), Serial No. 149 - calib. 10/73
Delta OIB-1 (Extended Range), Serial No. 583 - calib, 7/70

Sec. Freq. Std.: International Crystal Spec., Model 1120 with 5 kHz output
Composite Secondary Frequency Standard

Electronic Counter: HP-5245L with 52538 converter
Systron Donner - 1037 with 1202 converter and high stability precision time base.

Generator: Delta RG-1
Delta SD-31 S/N 117
Delta SD-31 S/N 199
Electronic Engineering Co. Model G1
Electronic Engineering Co. Model G2
Electronic Engineering Co. Model G3

Detector: Delta RG-1
Delta RX-21 S/N 117
Electronic Engineering Co. Model D1
Electronic Engineering Co. Model D2

Thermocouple ammeter calibrator: Electronic Engineering Co. Model 50A, Accuracy 0.25%
Electronic Engineering Co. Model 20A, Accuracy 0.25%

Test VOM: Triplet M-800 - calib. December 1966

K S E T
RIO GRANDE BROADCASTING COMPANY
1340 kHz 1000 WATTS-D 250 WATTS-N
EL PASO, TEXAS

ANTENNA IMPEDANCE - FREQUENCY CHARACTERISTICS - Data

Tabulation of Data

Frequency		Resistance		Reactance
1310 kHz		197.6 ohms		+j 269.5 ohms
1315		219.5		+j 271.5
1320		242.0		+j 279.2
1325		267.0		+j 281.6
1330		292.0		+j 282.6
1335		325.5		+j 279.9
1340	OPERATING	358.0	FREQUENCY	+j 272.0
1345		392.6		+j 263.1
1350		431.7		+j 229.5
1355		467.0		+j 204.6
1360		499.7		+j 171.4
1365		530.3		+j 116.0
1370		548.0		+j 72.6

* * * * * * *

K S E T
RIO GRANDE BROADCASTING COMPANY
1340 kHz 1000 WATTS-D 250 WATTS-N
EL PASO, TEXAS

AMMETER CALIBRATION DATA

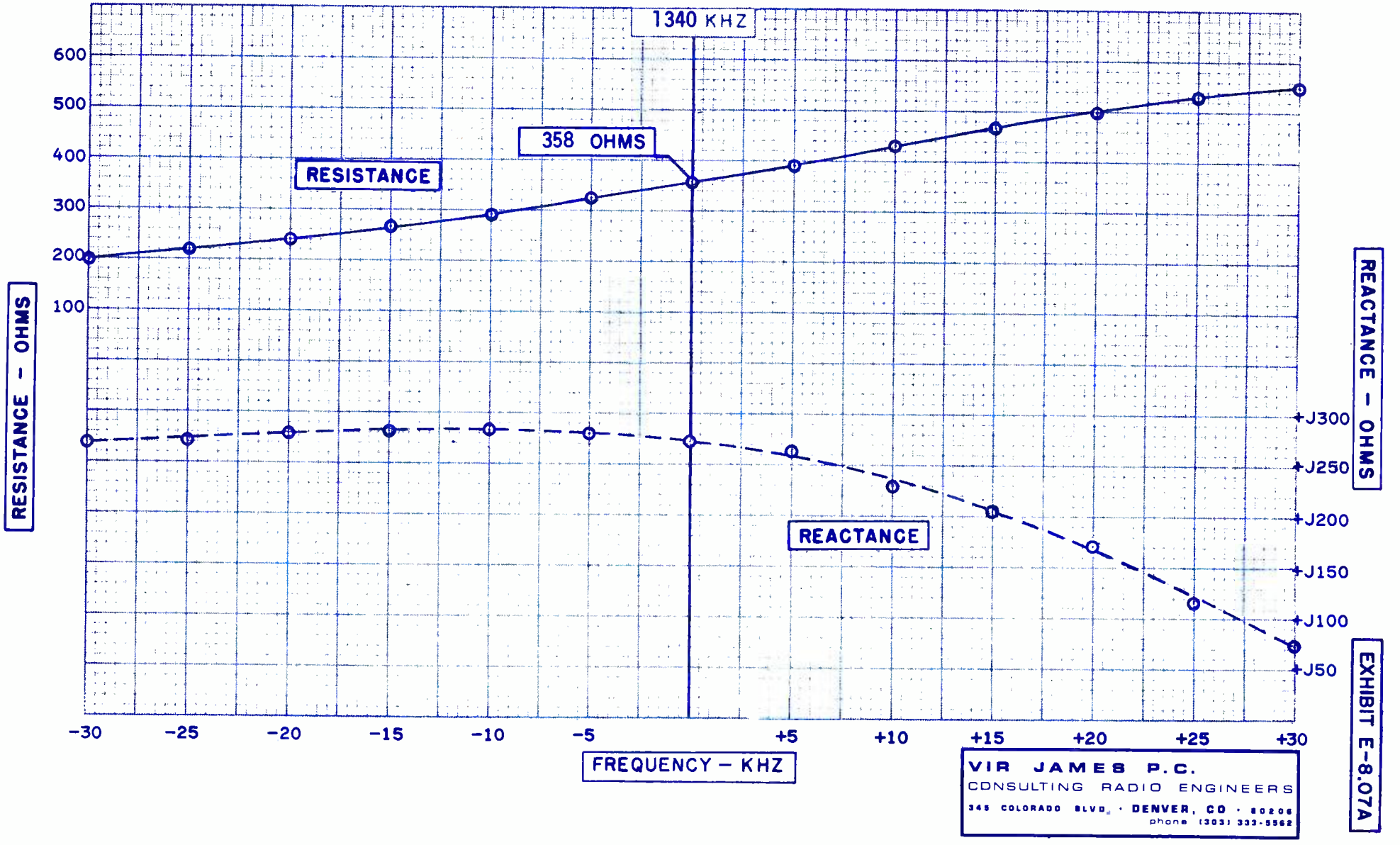
Base Current Meter

Indicated	Actual
0.5	0.498 Amps
0.7	0.690
0.9	0.880
1.1	1.066
1.3	1.257
1.5	1.450
1.7	1.630
1.9	1.820
2.0	1.935

* * * * * * *

K S E T
RIO GRANDE BROADCASTING COMPANY
1340 kHz 1000 WATTS-D 250 WATTS-N
EL PASO, TEXAS
DECEMBER 1977

NON-DIRECTIONAL
ANTENNA IMPEDANCE CHARACTERISTICS



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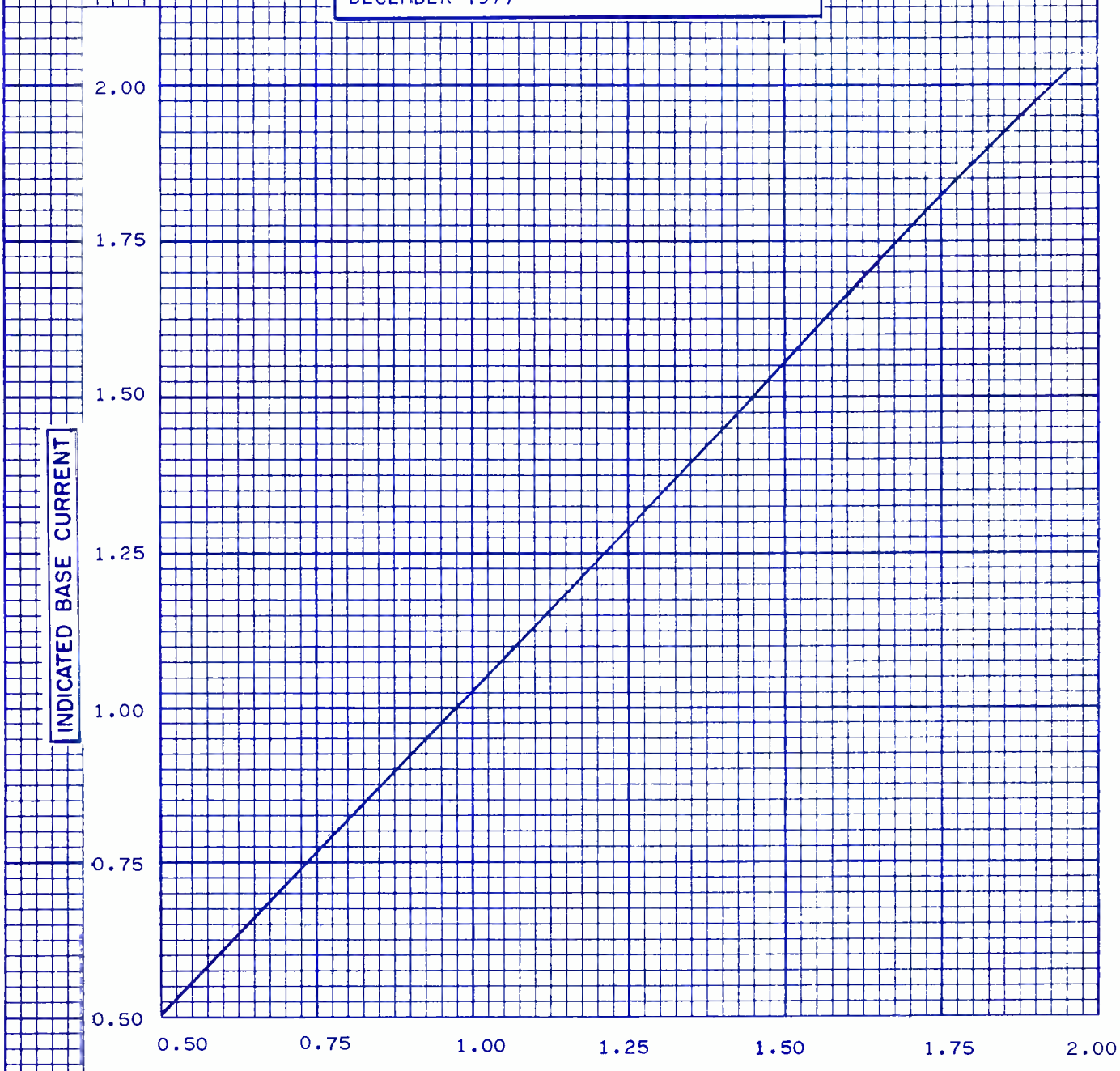
phone (303) 333-5562

EXHIBIT E-8.07A

EXHIBIT E-8.10 A

AMMETER CALIBRATION CURVE

K S E T
RIO GRANDE BROADCASTING COMPANY
1340 kHz 1000 WATTS-D 250 WATTS-N
EL PASO, TEXAS
DECEMBER 1977



ACTUAL CURRENT DETERMINED BY CALIBRATION METER ACCURATE TO 0.25%

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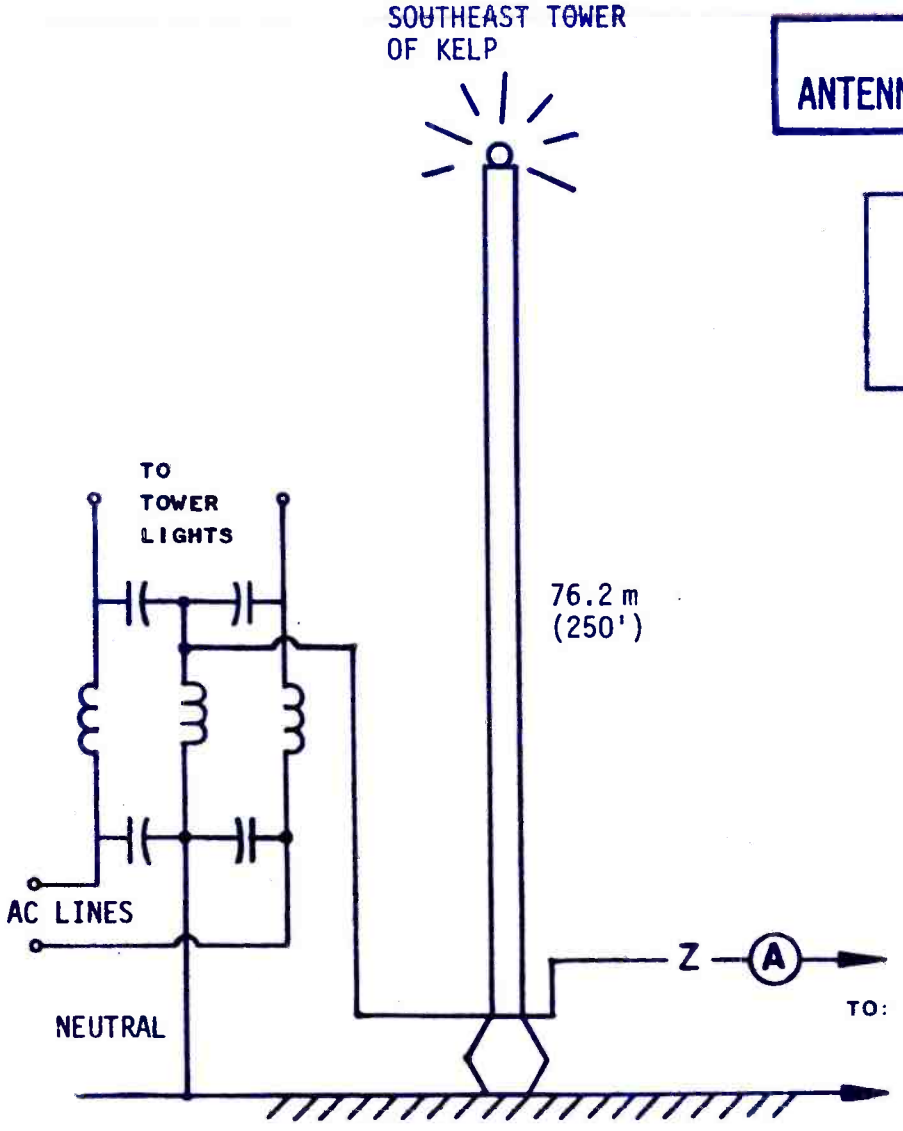
SCHEMATIC SHOWING ANTENNA IMPEDANCE MEASURING POINT "Z"

K S E T
RIO GRANDE BROADCASTING COMPANY
1340 kHz 1000 WATTS-D 250 WATTS-N
EL PASO, TEXAS
DECEMBER 1977



Z = 358 + J 272
1000 Watts I_A = 1.67A (Day)
250 Watts I_A = ~~0.863A~~ 0.836A (Night)

3/21/78

See Amendment 2 contents page.

TO: REMOTE ANTENNA METERING EQUIPMENT
ANTENNA TUNING UNIT &
LINE TO TRANSMITTER

VIR JAMES P.C.
CONSULTING RADIO ENGINEERS
345 COLORADO BLVD · DENVER, CO · 80206
phone (303) 333-5562

EXHIBIT E-10.01