EXHIBIT NO. 1

RUBIN, BEDNAREK & ASSOCIATES, INC.
CONSULTING TELECOMMUNICATIONS ENGINEERS
1667 K STREET, NW SUITE 360
WASHINGTON, DC 20006

PHILIP A. RUBIN
ROBERT A. BEDNAREK

WILLIAM T. HAGGERTY
ABDOLMAJID KHALILZADEH
VU NGUYEN

TELEPHONE (202) 296-9380
FAX (202) 296-9383

ENGINEERING STATEMENT

I, Robert A. Bednarek hereby certify; that I am a telecommunications consultant and a principal in the firm of Rubin, Bednarek & Associates with offices at 1667 K Street, NW, Washington, DC. I hold a Bachelor of Science degree in Electrical Engineering from the University of Florida and am a certified Engineer-in-Training; my registration as a Professional Engineer in pending in the State of Florida. I have provided consulting services in the area of telecommunications since 1978. My qualifications in that regard are a matter of record with the Federal Communications Commission.

The firm of Rubin, Bednarek & Associates, Inc. has been retained by ATE, Inc. to assist in the identification of frequencies in the FM broadcast band which can be used in conjunction with testing of ATE's proprietary FM subcarrier paging receiver. Several frequencies within the commercial FM band have been identified which could support the proposed ATE test transmissions without interference to any existing or authorized commercial broadcast station.

PROPOSED OPERATION

As explained more fully elsewhere in this application, ATE has developed a specialized, tunable subcarrier receiver which operates in the FM broadcast band and receives digitally coded information transmitted on the sub-carriers of FM stations. Considerable laboratory testing of the receiver has been conducted through the use of signal generators and similar measurement equipment. However, critical to the evaluation of the overall performance of the receiver are measurements involving the antenna which is integrated into the receiver. In order to conduct overall sensitivity, selectivity and other performance tests on the unit as a whole, "over-the-air" test broadcasts are required.

For the purposes of conducting such tests, ATE proposes to construct and operate several (up to four) low-power FM transmission facilities within its laboratory building located near Portland, Oregon. A block diagram of the proposed transmission system is depicted in the attached Exhibit A. The test set-up is designed to simulate the transmission format of a typical commercial FM broadcast facility including the transmission of stereo audio signals along with the subcarriers under test.

The proposed transmitter(s) is a Continental 802A FM exciter unit which is type accepted by the FCC (ID# BQQ82H802A) and generates a power output of 1 watt. The antenna to be employed during the test is a standard, reference half-wave dipole having a unity gain. Accordingly, the maximum effective radiated power of the proposed

configuration would be 1 watt.

Since the antenna will remain within the ATE laboratory facilities at all times, significant signal attenuation would occur at locations outside the building during transmitter operation. Using the free space path loss equation and conservatively estimating a building penetration loss of 10dB, the maximum expected field strength from the ATE building at a distance of 1 mile is calculated as follows:

$$\mathcal{E} = \sqrt{Z_o \ \text{antilog} \left[\frac{ERP - \alpha - \beta}{10} \right]}$$

where $\mathcal{E}$ is the field strength in volts/meter
Z_o is the impedence of free space
ERP is the effective radiated power in dBw
β is the building loss
α is the free space path loss

$$= \sqrt{377 \ \text{antilog} \ \frac{(0 - 10 - 75)}{10}}$$

$$= 1.09 \times 10^{-3} \text{ v/m} = 1.1 \text{ millivolts/meter}$$

PROPOSED FREQUENCIES

Four frequencies have been identified on which the ATE test transmissions could be conducted without harmful interference to any existing, operating FM broadcast station. The frequencies are:

Frequency	Channel Number
94.5MHz	233
96.3MHz	242
104.1MHz	281
105.9MHz	290

Exhibits B through E show the results of frequency searches conducted on each channel in order to identify all nearby operating stations. Exhibits F through I depict the 1mV/m (60dBu) service contour of all operating stations identified in the frequency searches. As clearly demonstrated in Exhibits F through I, the ATE facilities are located well outside the service area of any existing station. Due to the low power of the proposed operation and the fact that no co-channel or adjacent channel FM station is providing service to the vicinity surrounding the ATE laboratory, no harmful interference will be generated by the proposed test transmissions.

This Engineering Statement, the accompanying exhibits and the technical portions of this application were prepared by me personally, or under my direction. All of the facts herein are true except where stated to be on information or belief, and to those facts I believe them to be true.

Robert A. Bednarek
December 21, 1988

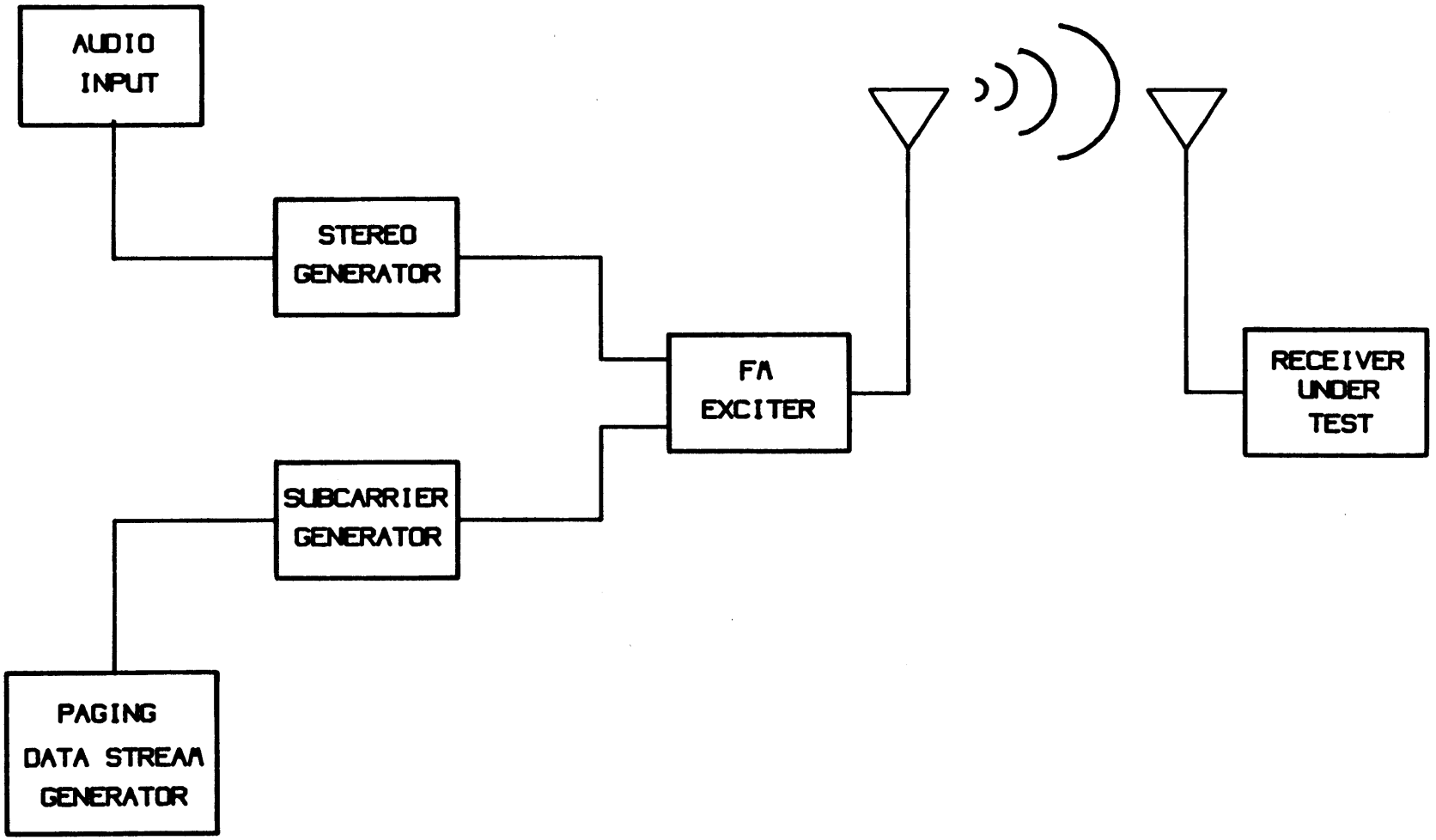

EXHIBIT A: PROPOSED TEST SET-UP

RUBIN, BEDNAREK & ASSOCIATES, INC.
CONSULTING TELECOMMUNICATIONS ENGINEERS
WASHINGTON, D.C.

Rubin, Bednarek & Associates Exhibit B

FREQUENCY SEARCH

CHANNEL 233A

PORTLAND, OREGON

ATE Laboratory Site: 45° 26′ 35" N. Latitude
122° 46′ 56" W. Longitude

Call	City	State	File - number	Channel	Bearing	Distance
KMGE	Eugene	OR	BLH-820322AG	233C1	189.4	100.88
KMGE	Eugene	OR	BPH-861009ID	233C	189.4	100.87
	Kelso	WA	Allotment	233A	348.5	50.37
NEW	Camas	WA	BPH-880310NN	234A	75.4	15.9
NEW	Camas	WA	BPH-880309MC	234A	61.1	22.46
NEW	Camas	WA	BPH-880310NB	234A	58.3	15.47
NEW	Camas	WA	BPH-880310MB	234A	61.2	22.40
New	Camas	WA	BPH-880310NC	234A	66.9	25.86
D80-90	Camas	WA	Allotment	234A	50.4	18.04

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Exhibit C

FREQUENCY SEARCH

CHANNEL 242A

PORTLAND, OREGON

ATE Laboratory Site: 45° 26′ 35" N. Latitude
122° 46′ 56" W. Longitude

Call	City	State	File - number	Channel	Bearing	Distance
KZELFM	Eugene	OR	BPH-860703IB	241C	189.4	100.89
KXXO	Olympia	WA	BMPH870331JX	241C	10.3	83.73
KWSI	Warm Springs	OR	BLH-860127KG	243C	118.3	86.45
K296BE	Beaverton	OR	BPFT870324TI	296D	1.7	8.00

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Exhibit D

FREQUENCY SEARCH

CHANNEL 281A

PORTLAND, OREGON

ATE Laboratory Site: 45° 26′ 35" N. Latitude
122° 46′ 56" W. Longitude

Call	City	State	File - number	Channel	Bearing	Distance
K280AC	Vancouver	WA	BLFT780724IL	280D	357.8	9.00
KTILFM	Tillamock	OR	BLH-860516KB	281C2	271.4	53.21

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Exhibit E

FREQUENCY SEARCH

CHANNEL 290A

PORTLAND, OREGON

ATE Laboratory Site: 45° 26′ 35" N. Latitude
122° 46′ 56" W. Longitude

Call	City	State	File - number	Channel	Bearing	Distance
PEND.	Vancouver	WA	RM-6027	290C2	23.3	13.69
KFAT	Corvallis	OR	BLH-810511AL	291C	203.6	60.01

EXHIBIT F : SERVICE AREAS OF NEARBY STATIONS
OPERATING WITHIN ± 600 KHz OF
CHANNEL 233A

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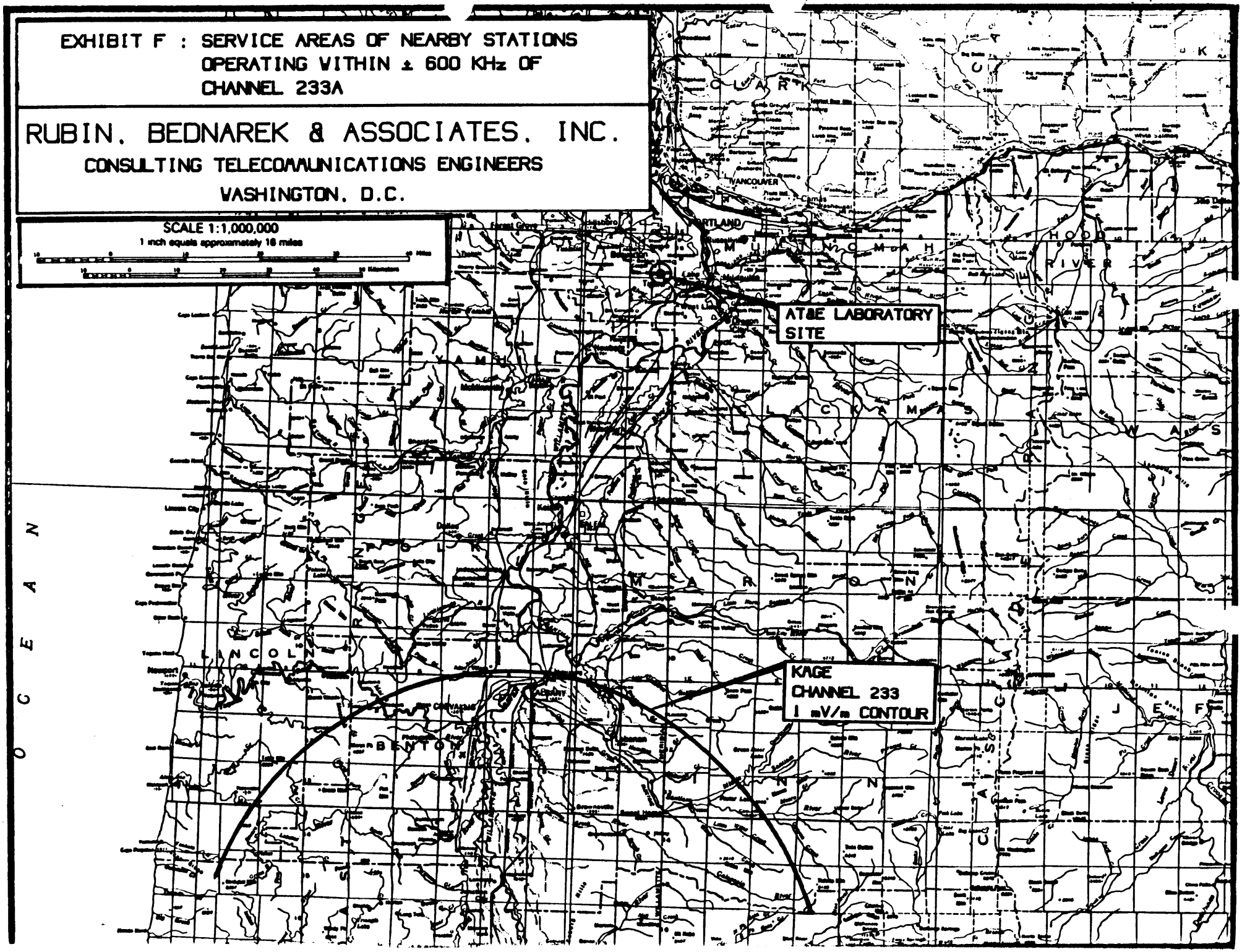

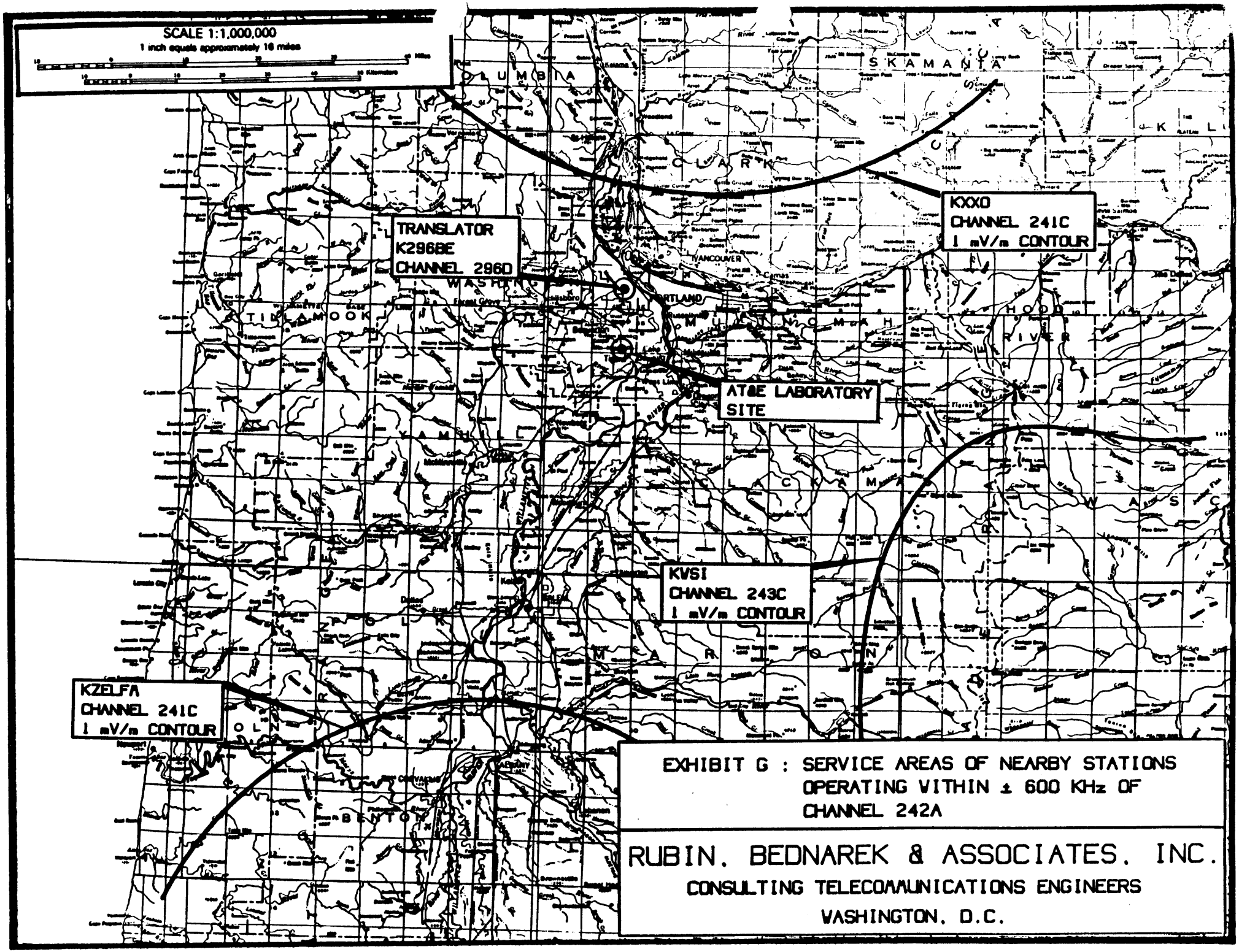
SCALE 1:1,000,000
1 inch equals approximately 16 miles
TRANSLATOR
K296BE
CHANNEL 296D
KXXO
CHANNEL 241C
1 mV/m CONTOUR
AT&E LABORATORY
SITE
KVSI
CHANNEL 243C
1 mV/m CONTOUR
KZELFA
CHANNEL 241C
1 mV/m CONTOUR
EXHIBIT G : SERVICE AREAS OF NEARBY STATIONS
OPERATING WITHIN ± 600 KHz OF
CHANNEL 242A
RUBIN, BEDNAREK & ASSOCIATES, INC.
CONSULTING TELECOMMUNICATIONS ENGINEERS
WASHINGTON, D.C.

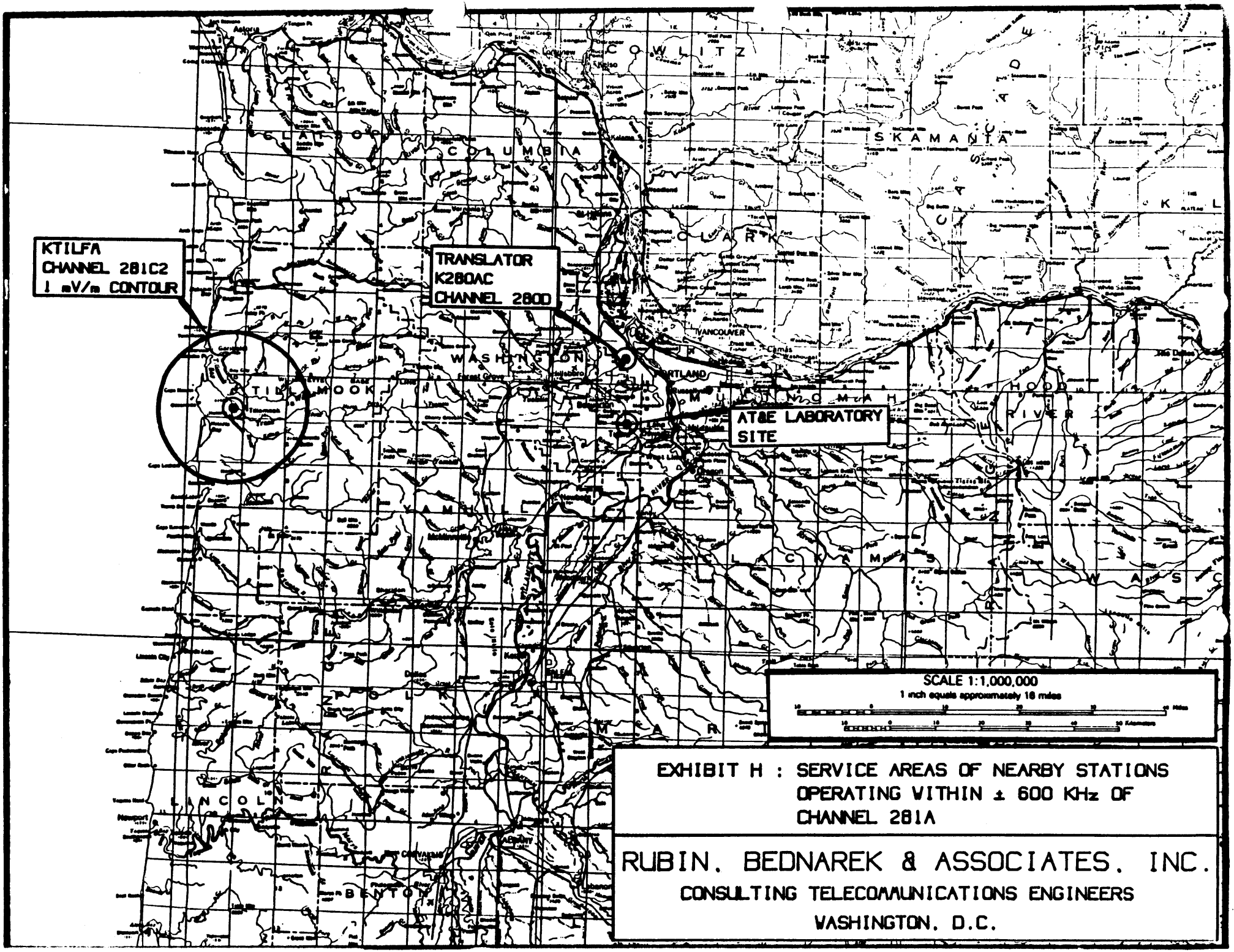

EXHIBIT H : SERVICE AREAS OF NEARBY STATIONS OPERATING WITHIN ± 600 KHz OF CHANNEL 281A

RUBIN, BEDNAREK & ASSOCIATES, INC.

CONSULTING TELECOMMUNICATIONS ENGINEERS

WASHINGTON, D.C.

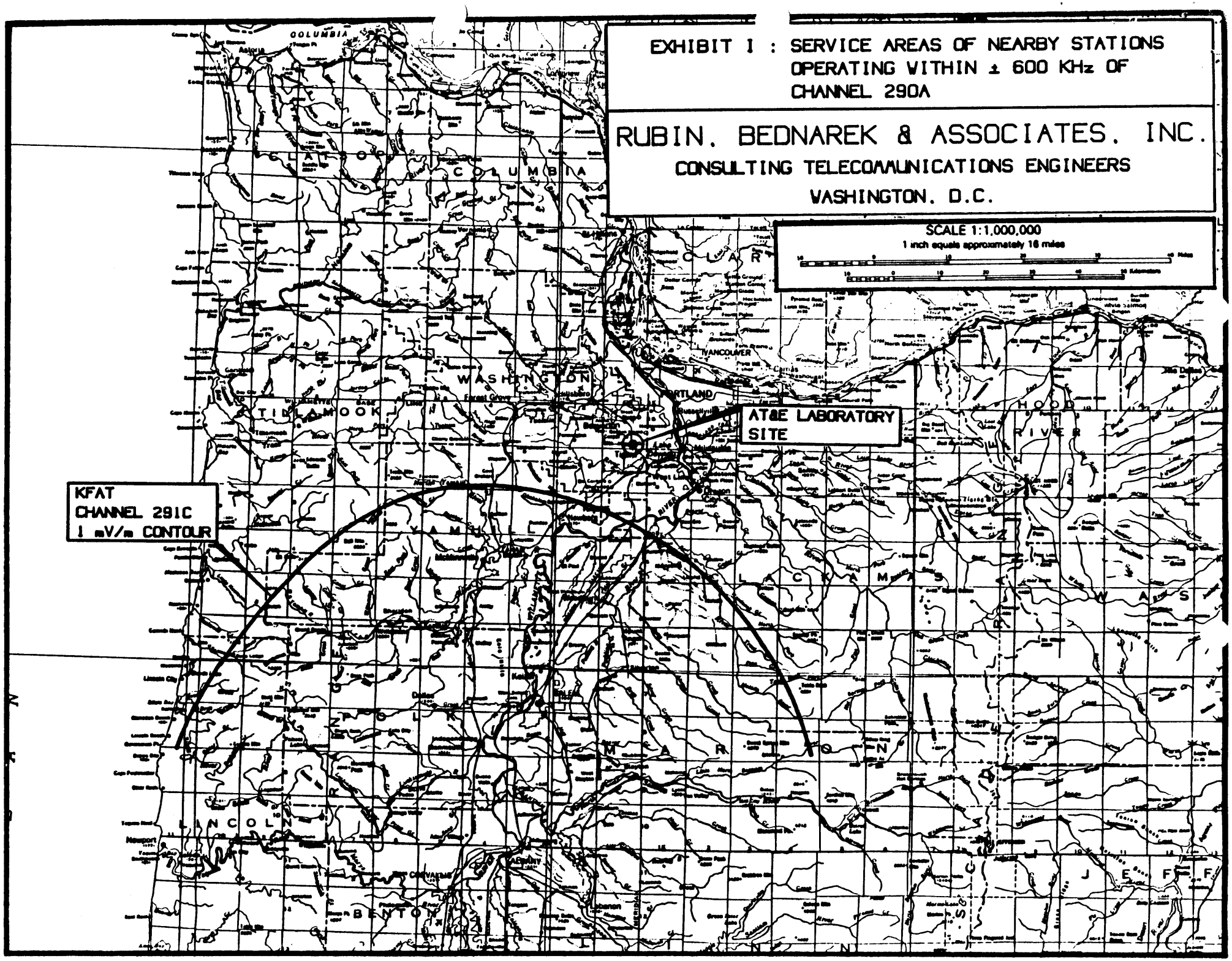
EXHIBIT I : SERVICE AREAS OF NEARBY STATIONS OPERATING WITHIN ± 600 KHz OF CHANNEL 290A
RUBIN, BEDNAREK & ASSOCIATES, INC.
CONSULTING TELECOMMUNICATIONS ENGINEERS
WASHINGTON, D.C.
SCALE 1:1,000,000
1 inch equals approximately 16 miles
AT&E LABORATORY SITE
KFAT
CHANNEL 291C
1 mV/m CONTOUR
COLUMBIA
CLARK
WASHINGTON
TILLAMOOK
YAMHILL
POLK
MARION
LINCOLN
BENTON
LINN
CLACKAMAS
HOOD RIVER
WASCO
JEFFERSON
PORTLAND
VANCOUVER