

ERICSSON REGULATORY GROUP  
1 MOUNTAIN VIEW RD.  
LYNCHBURG, VA. 24502

1028

Mar 23 1995

68-25228  
510

Pay to the  
Order of

FEDERAL COMMUNICATIONS COMMISSION

\$ 425.00

Four hundred twenty five & 00/100 - Dollars

Central  
Fidelity

Central Fidelity  
National Bank  
Lynchburg, Virginia 24504

For T.R. for AKAIR-307-PR

Signed

*[Signature]*

⑆051000253⑆ 7911700241⑆ 1028

April 6, 1995

Federal Communications Commission  
Authorization & Evaluation Division  
7435 Oakland Mills Road  
Columbia, Maryland 21046

Attention: Frank Coperich

Subject: Revised cover letter for type acceptance for FCC ID: AXATR-307-D2

Dear Frank,

Per our telephone conversation this date, I am attaching a corrected cover letter to the above type acceptance request.

I apologize for any inconvenience that this may have caused.

Sincerely,



John P. Rothgeb  
Specialist Regulatory Programs  
Telephone: (804) 528-7476  
FAX No. (804) 948-6510



March 22, 1995

Federal Communications Commission  
Authorization & Evaluation Division  
7435 Oakland Mills Road  
Columbia, Maryland 21046

Attention: Equipment Authorization Branch

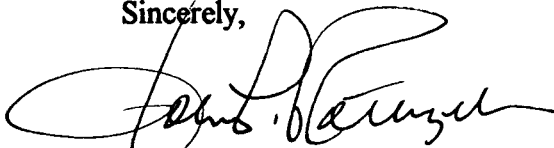
SUBJECT: Type Acceptance for FCC ID: AXATR-307-D2

Gentlemen:

Ericsson Inc. requests Type Acceptance for the following Base Station transceiver. This transceiver will operate in the 492-512 MHz range, and it is capable of operating in either conventional or trunked mode. This base station is the high split of previously Type Accepted FCC ID: AXATR-307-A2.

Since the transmitter and receiver utilize common printed circuit boards, a single identifier is used for both.

Sincerely,



John P. Rothgeb  
Specialist Regulatory Programs  
Telephone: (804) 528-7476  
FAX No. (804) 948-6510

/fmc



March 22, 1995

Federal Communications Commission  
Equipment Approval Services  
PO Box 358315  
Pittsburgh, Pennsylvania 15251-5315

SUBJECT: Enclosed check for Type Acceptance follows:

<u>FCC ID</u>	<u>FEE</u>
AXATR-307-D2	\$425

John P. Rothgeb  
Specialist Regulatory Programs  
Room 2669  
Tel. (804) 528-7476  
FAX No. (804) 948-6510

/fmc

Enclosures: Check  
Filing for Equipment Approval Branch



March 22, 1995

Federal Communications Commission  
Authorization & Evaluation Division  
7435 Oakland Mills Road  
Columbia, Maryland 21046

Attention: Equipment Authorization Branch

SUBJECT: Type Acceptance for FCC ID: AXATR-307-D2

Gentlemen:

Ericsson Inc. requests Type Acceptance for the following Base Station transceiver. This transceiver will operate in the 470-494 MHz range, and it is capable of operating in either conventional or trunked mode. This base station is the high split of previously Type Accepted FCC ID: AXATR-307-A2.

Since the transmitter and receiver utilize common printed circuit boards, a single identifier is used for both.

Sincerely,

John P. Rothgeb  
Specialist Regulatory Programs  
Telephone: (804) 528-7476  
FAX No. (804) 948-6510

/fmc



**NOTICE TO INDIVIDUALS REQUIRED BY THE PRIVACY ACT OF 1974 AND THE PAPERWORK  
REDUCTION ACT**

Section 9 of the Communications Act authorizes the FCC to request the information on this form. The information requested is required to recover costs incurred in carrying out its enforcement activities, policy and rulemaking activities, user information services, and international activities. The form will be used primarily to capture paper information in order to speed the refund process and maintain required accounts receivable information. It will also be used to collect fines and debts due the Commission.

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden to the Federal Communications Commission, Records Management Division, AMD-PIRS, Washington, DC 20554, and to the Office of Management and Budget, Office of Information and Regulatory Affairs, Paperwork Reduction Project (3060-0589), Washington, DC 20503.



13.(a) Testing facility, if different from applicant or contact person:

(b) Mailing address  
number, street  
city,  
state  
and ZIP code(c) Telephone No. (Area code and number):  
(USA ONLY)(d) FAX No. (Area code and number):  
(USA ONLY)

**WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).**

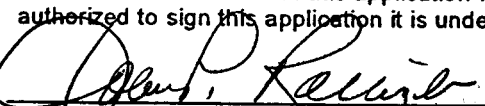
## 14. APPLICANT ANTI-DRUG ABUSE CERTIFICATION:

By checking yes, the applicant certifies that, in the case of an individual applicant, he or she is not subject to a denial of federal benefits, that includes FCC benefits, pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 853(a), or, in the case of a non-individual applicant (e.g. corporation, partnership or other unincorporated association), no party to the application is subject to a denial of federal benefits, that includes FCC benefits, pursuant to that section. For the definition of a "party" for these purposes, see 47 CFR 1.2002(b).

☒ Yes ☐ No

## 15. APPLICANT CERTIFICATION:

I certify that I am authorized to sign for the applicant and that all the statements in this application and in the exhibits attached hereto are true and correct to the best of my knowledge and belief. If the applicant is not the actual manufacturer of the equipment listed herein, appropriate arrangements have been made with the manufacturer to ensure that production units of this equipment bearing the FCC IDENTIFIER listed in this application will continue to comply with the Commission's requirements. If an agent has been authorized to sign this application it is understood that the applicant remains responsible for all statements herein.

  
 ▲ Written signature of authorized signer

 3-23-95  
 ▲ Date (Month, Day, Year)

John P. Rothgeb

▲ Typed/printed name of authorized signer

Specialist, Regulatory Programs

▲ Title of authorized signer

## 16.(a) AGENT CERTIFICATION:

I certify that I am authorized to sign this application on behalf of the applicant. A copy of the authorization will be submitted upon request by the FCC. It is understood that the FCC reserves the right to contact the applicant at any time.

▲ Written signature of authorized agent

▲ Date (Month, Day, Year)

▲ Typed/printed name and title of authorized agent

▲ Business name of authorized agent

(b) Agent address  
number, street  
city,  
state  
and ZIP code(c) Telephone No. (Area code and number):  
(USA ONLY)(d) FAX No. (Area code and number):  
(USA ONLY)

## NOTICE TO INDIVIDUALS REQUIRED BY THE PRIVACY ACT OF 1974 AND THE PAPERWORK REDUCTION ACT OF 1980

The solicitation of personal information requested in this form is authorized by the Communications Act of 1934, as amended. The Commission will use the information provided in this form to evaluate the equipment, to maintain a computer database of authorized equipment, and to determine whether grant of this application is in the public interest. In reaching that determination, or for law enforcement purposes, it may become necessary to refer personal information contained in this form to another government agency. All information provided in this form will be available for public inspection, unless otherwise determined pursuant to 47 CFR, Section 0.459; 5 U.S.C. Section 552. If information requested in this form is not provided, processing of the application may be delayed or the application may be returned without action pursuant to the Commission's Rules. Your response is required to obtain the requested equipment authorization. THE FOREGOING NOTICE IS REQUIRED BY THE PRIVACY ACT OF 1974, P.L. 93-579, DECEMBER 31, 1974, 5 U.S.C. 552a(e)(3), AND THE PAPERWORK REDUCTION ACT OF 1980, P.L. 96-511, DECEMBER 11, 1980, 44 U.S.C. 3507.

Public reporting burden for this collection of information is estimated to vary from 18 hours to 30 hours per response, with an average of 24 hours per response, including time for reviewing instructions, searching existing data sources, gathering information and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any aspect of this collection of information, including suggestions for reducing this burden, to Federal Communications Commission, AMD-PIRS, Records Management Division, Washington, DC 20554, and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Paperwork Reduction Project (3060-0057), Washington, DC 20503.



FEDERAL COMMUNICATIONS COMMISSION  
**FCC REMITTANCE ADVICE**

Approved by OMB  
3060-0589  
Expires 2/28/97

PAGE NO. 1 OF 1

(RESERVED)

SPECIAL USE

FCC USE ONLY

(Read instructions carefully BEFORE proceeding.)

**PAYOR INFORMATION**

(1) FCC ACCOUNT NUMBER  
8 0 4 5 2 8 7 4 7 6  
Did you have a number prior to this? Enter it.  
(2) TOTAL AMOUNT PAID (dollars and cents)  
\$ 425 . 00  
(3) PAYOR NAME (If paying by credit card, enter name exactly as it appears on your card)

Ericsson Inc

(4) STREET ADDRESS LINE NO. 1

Mountain View Road

(5) STREET ADDRESS LINE NO. 2

(6) CITY

Lynchburg

(7) STATE

Va

(8) ZIP CODE

24502

(9) DAYTIME TELEPHONE NUMBER (Include area code)

(804) 528-7476

(10) COUNTRY CODE (if not U.S.A.)

**ITEM #1 INFORMATION**

(11A) NAME OF APPLICANT, LICENSEE, REGULATEE, OR DEBTOR  
FCC USE ONLY  
(12A) FCC CALL SIGN/OTHER ID  
AXATR-307-D2  
(13A) ZIP CODE  
(14A) PAYMENT TYPE CODE  
E F T  
(15A) QUANTITY  
1  
(16A) FEE DUE FOR PAYMENT TYPE CODE IN BLOCK 14  
\$ 425.00  
(17A) FCC CODE 1  
(18A) FCC CODE 2  
(19A) ADDRESS LINE NO. 1  
(20A) ADDRESS LINE NO. 2  
(21A) CITY/STATE OR COUNTRY CODE

**ITEM #2 INFORMATION**

(11B) NAME OF APPLICANT, LICENSEE, REGULATEE, OR DEBTOR  
FCC USE ONLY  
(12B) FCC CALL SIGN/OTHER ID  
(13B) ZIP CODE  
(14B) PAYMENT TYPE CODE  
(15B) QUANTITY  
(16B) FEE DUE FOR PAYMENT TYPE CODE IN BLOCK 14  
\$  
(17B) FCC CODE 1  
(18B) FCC CODE 2  
(19B) ADDRESS LINE NO. 1  
(20B) ADDRESS LINE NO. 2  
(21B) CITY/STATE OR COUNTRY CODE

**CREDIT CARD PAYMENT INFORMATION**

(22) MASTERCARD/VISA ACCOUNT NUMBER:

☐ Mastercard

EXPIRATION DATE:

☐ Visa

Month Year

(23) I hereby authorize the FCC to charge my VISA or Mastercard for the service(s)/authorization(s) herein describe.

AUTHORIZED SIGNATURE

DATE

ES

3-23-90

**SECTION III**

Bureau Use Only

1.(a) INSTEAD OF APPLICANT, FCC IS AUTHORIZED TO MAIL ORIGINAL GRANT TO (See instructions):

 Firm name,  
number, street,  
city,  
state,  
and ZIP Code

NA

LI

DN

DM

RG

Code

Reviewer

(b) NAME AND TITLE OF PERSON AT ABOVE ADDRESS TO RECEIVE GRANT:

2. INFORMATION CONTACT, IF DIFFERENT FROM ITEM 5, PAGE 1 (See instructions):

 Firm name,  
contact person,  
number, street,  
city,  
state,  
and ZIP Code

NA

3.(a) TELEPHONE NUMBER (include area code and extension - USA ONLY):

(804) 528-7476

3.(b) FAX NUMBER (include area code and extension - USA ONLY):

(804) 948-6510

4. Does this application include a request for confidentiality for any portion(s) of the data contained in this application pursuant to 47 CFR 0.459 of the Commission's Rules? (See instructions)

☐ Yes

☒ No

5. Does the applicant desire the Commission to defer grant of this application pursuant to 47 CFR 0.457(d)(1)(ii)? (See instructions)

☐ Yes

☒ No

6. Kind of equipment authorization requested (check ONE box only):

☐ Certification

☒ Type Acceptance

☐ Type Approval

☐ Notification

7.(a) Kind of equipment:

BASE STATION TRANSCEIVER

(b) Equipment will be operated under FCC Rule Part(s):

22, 90

8. Application is for (Check ONE box only):

☒ 1 Original equipment

☐ 2 Change in identification of presently authorized equipment \*

☐ 3 Class II permissive change or modification of presently authorized equipment

9.(a) FCC ID before change in identification:

NA

(b) Grant date of FCC ID in 9(a) above:

NA

\* If box 2 is checked, complete items 9(a) and (b).

10. EQUIPMENT SPECIFICATIONS:

(a) Frequency range in MHz

492-512 MHz

(b) Rated RF power output in watts

45-90 Watts

(c) Frequency tolerance %, Hz, ppm

+1 ppm

(d) Emission designator

 16K0F3E  
15K0F2D  
15K0F2B  
16K0F1D  
16K0F1E

(e) Microprocessor model number

NA

11. Type of equipment tested:

☐ Production

☒ Pre-Production

☐ Prototype

12.(a) Is the equipment, or section(s) thereof, subject to more than one equipment authorization?

If YES, complete items 12(b), (c), (d), or (e) as appropriate.

☐ Yes

☒ No

(b) Additional equipment authorization(s) required for equipment:

☐ Certification

☐ Type Acceptance

☐ Type Approval

☐ Notification

(c) Granted FCC ID or FCC ID listed on RX or RX section application:

NA

(d) Granted FCC ID or FCC ID listed on TX or TX section application:

NA

(e) Granted FCC ID or FCC ID listed on other device application:

NA

Complete and sign Page 3 (reverse side)

APPLICANT:  
ERICSSON INC

FCC ID NO.  
AXATR-307-D2

EXHIBIT LIST

<u>EXHIBIT</u>	<u>PARA. REF.</u>	<u>DESCRIPTION</u>
1	2.909 (d)	Certification of Data
2	2.983 (c) (d, 1-5)	Technical Description of Equipment
3A-D	2.983 (d) (6)	Function of Active Circuit Devices
4	2.983 (d) (7)	Circuit Diagrams
5	2.983 (d) (8)	Instruction Book (Draft)
6	2.983 (d) (9)	Alignment Procedure
7A-B	2.983 (d) (10-12)	Circuit and Device Descriptions
8	2.985 (a)	RF Power Output
9A-E	2.987 (a, b, d)	Modulation Characteristics
10A-E	2.989 (c, d, i) (h)	Occupied Bandwidth
11A-I	2.991, 2.993	Spurious Emissions
12A-C	2.995 (a, b, d)	Frequency Stability
13	2.983 (f)	Identification Plate
14A	2.983 (g)	Front View of Station mounted showing top to bottom identification of assemblies: power amplifier, transceiver shelf and AC power supply.
14B	2.983 (g)	Side view of station showing location of FCC nameplate.
14C	2.983 (g)	Rear view of station rack configuration.
14D	2.983 (g)	Power amplifier assembly with cover open to show components and solid casting construction for RF shielding.
14E	2.983 (g)	Typical mounting for power amplifier accessories (if used), Top: antenna relay, Center: harmonic filter, Bottom: circulator.
14F	2.983 (g)	Exciter/Synthesizer with cover removed to show component board.
14G	2.983 (g)	System control module with cover removed to show components and solid casting for RF shielding.
14H	2.983 (g)	Switch mode supply module with cover removed to show components and solid casting for RF shielding.

APPLICANT:  
ERICSSON INC

FCC ID NO.  
AXATR-307-D2

EXHIBIT LIST

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<u>EXHIBIT</u>	<u>PARA. REF.</u>	<u>DESCRIPTION</u>
14I	2.983 (g)	Receiver front end module with cover to show solid casting for RF shielding.
14J	2.983 (g)	Receiver front end module with cover removed to show component board.
14K	2.983 (g)	Receiver IF module with cover removed to show components and solid casting for RF shielding.
14L	2.983 (g)	Receiver synthesizer module with cover removed to show component board.
14M	2.983 (g)	Typical nameplate location when mounted in cabinet.

EXHIBIT 1

APPLICANT:  
ERICSSON INC

FCC ID NO.  
AXATR-307-D2

CERTIFICATION OF DATA

---

The technical data contained in this application has been taken under my supervision and is certified true and correct.

NAME

  
Jim McIntyre

POSITION:

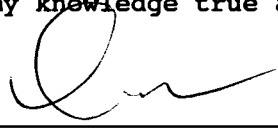
Sr. Technical Leader - Base Stations

DATE

3-24-95

I certify that this application was made at my direction. The data and statements made herein are to the best of my knowledge true and accurate.

NAME:

  
Hamlet Sarokhanian

POSITION:

Manager - DLMR Base Station Transceiver

DATE:

March 24, 1995

APPLICANT:  
ERICSSON INC

FCC ID NO.  
AXATR-307-D2

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DESCRIPTION

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- 2.983 (c) The transceiver is being prepared for quantity production.
- 2.983 (d) This MASTR III Station Transmitter is a synthesizer controlled, direct FM modulated transmitter designed to operate in the 492 MHz to 512 MHz frequency band. The transmitter consists of a solid-state synthesizer-exciter and power amplifier. The RF power output is adjustable from 45-90 Watts.

Options available as follows:

- A. Type 90/99 Tone Encoder
- B. DTMF Encoder
- C. Remote Alarm
- D. GE\*STAR
- E. 9600 Baud Data
- F. Channel Guard
- G. Digital Channel Guard

- (1) Type of Emission: 16KOF3E, 15KOF2D, 15KOF2B, 16KOF1D, 16KOF1E
- (2) Frequency Range and Frequency Stability: 492-512 MHz  $\pm$  1.0 ppm
- (3) Range of Operating Power: 45-90 Watts

The power amplifier consists of broadband, fixed-tuned power IC's and transistor stages.

The RF power output is regulated by sensing variations in the forward power that is fed to the antenna from the final RF power amplifier and adjusting the voltage on the earlier stage to hold the forward power constant.

- (4) Maximum Power Ratings: 90 Watt Tx

Input Maximum	400 Watts
Output Maximum	90 Watts

- (5) Final Amplifier Voltage and Current in normal operation:  
(Power rated is for two devices in the output stage.)

Collector Voltage	13.4 Volts DC
Collector Current	29 Amps DC

APPLICANT:  
ERICSSON INC

FCC ID NO.  
AXATR-307-D2

FUNCTION OF ACTIVE CIRCUIT DEVICES

<u>SCHEMATIC</u>			
<u>DESIGNATION</u>	<u>DEVICE</u>	<u>FUNCTION</u>	<u>GE DRAWING NO.</u>
<u>Power Amp 19D902797G10</u>			
Q2	Transistor	RF Final Amp	344A4134P1
Q3	Transistor	RF Final Amp	344A4134P1
Q1	Transistor	RF Driver	344A3948P1
U1	RF IC	RF Preamp	19A705457P2
U7	RF Module	RF Gain Block	344A3907P1
U100	IC	Voltage Regulator	19A705532P2
U3	IC	Linear Op-Amp	19A701789P4
Q4	Transistor	DC Switch	19A700076P2
Q5	Transistor	DC Amp	19A700076P2
Q203	Transistor	DC Amp	19A700055P1
Q7	Transistor	RF Pre-Amp	19A701940P1
<u>Tx Synthesizer Module 19D02780G10</u>			
U201	RF IC	RF Buffer	19A705927P1
U202	RF IC	RF Buffer	344A3907P1
U203	RF IC	RF Buffer	19A705927P1
Q1	FET	RF Oscillator	19A702524P2
Q101	Transistor	DC Switch	19A700076P2
Q102	Transistor	DC Switch	19A700076P2
Q301	Transistor	Linear Amp	19A134577P2
Q302	Transistor	Linear Amp	19A700059P2
Q401	Transistor	RF Amp	19A704708P2
Q501	Transistor	DC Switch	19A700076P2
Q701	Transistor	DC Switch	19A700076P2
Q702	Transistor	DC Switch	19A700076P2
Q703	Transistor	DC Switch	19A700076PD2
Q704	Transistor	DC Switch	19A700076PD2
U501	IC	Linear Amp	344A3070P1
U502	IC	Analog Gate	19A702705P4
U601	IC	Linear Amp	19A116297P7
U701	IC	Logic	19A703483P302
U702	IC	Logic	19A703471P120
U705	IC	Logic	19A703483P302
U301	IC	+ Voltage Regulator	19A704971P9
U302	IC	Linear Amp	19A116297P7
U303	IC	- Voltage Regulator	19A704491P7
U401	IC	PreScaler	19A149944P201
U402	IC	Synthesizer	19B800902P5
Q801	Transistor	RF Amp	19A704708P2
Q802	Transistor	RF Amp	19A704708P2
Q803	Transistor	Multiplier	19A704708P2
Q705	Transistor	DC Switch	19A700076P2
Q706	Transistor	DC Switch	19A700076P2

APPLICANT:  
ERICSSON INC

FCC ID NO.  
AXATR-307-D2

FUNCTION OF ACTIVE CIRCUIT DEVICES

SCHEMATIC DESIGNATION	DEVICE	FUNCTION	GE DRAWING NO.
<u>Rx Synthesizer Module 19D902781G10</u>			
Q1	FET	Oscillator	19A702524P2
Q2	Transistor	DC Switch	19A700076P2
Q3-6	Transistor	DC Switch	19A700076P2
Q7	Transistor	DC Switch	19A700076P2
Q8	Transistor	DC Switch	19A700059P2
Q9	Transistor	DC Switch	19A700076P2
Q10	Transistor	DC Switch	19A700076P2
Q11	Transistor	DC Switch	19A700076P2
Q12	Transistor	Linear Amp	19A700076P2
Q13	Transistor	Linear Amp	19A700076P2
Q14	Transistor	RF Amp	19A704708P2
Q15	Transistor	RF Amp	19A704708P2
Q16	Transistor	Multiplier	19A704708P2
U2	IC	RF Amp	19A705927P1
U3	IC	RF Amp	19A705927P1
U4	IC	RF Amp	19A705927P1
U5	IC	Prescaler	19A149944P201
U6	IC	Synthesizer	19B800902P5
U8	IC	Linear Amp	19A702293P3
U9	IC	Linear Amp	19A702293P3
U10	IC	Logic	19A703471P120
U12	IC	Logic	19A703483P302
U13	IC	Logic	19A703483P302
U14	IC	Analog Gate	19A702705P4
U15	IC	+ Voltage Regulator	19A704971P8
U16	IC	+ Voltage Regulator	19A704971P10
Y1	IC	TCXO Module	19B801351P12
<u>Rx Front End Module 19D902782G10</u>			
Q1	Transistor	RF Amp	344A3058P1
Q2	Transistor	Linear Amp	19A700059P2
Q3	Transistor	RF Amp	19A704708P3
Q4	Transistor	Linear Amp	19A700059P2
Q5	Transistor	DC Switch	19A700076P2
Q6	Transistor	DC Switch	19A700076P2
Q7	Transistor	Linear Amp	19A700059P2
Q8	Transistor	RF Amp	344A3058P1
U1	IC	Linear Amp	19A704125P1
<u>Rx IF Module 19D902783G7</u>			
U1	IC	RF Amp	19A705927P1
U2	IC	RF Amp	19A705927P1
U3	IC	IF Amp/DET	19A149980P2
U4	IC	Linear Amp	19A704125P1
U5	IC	Linear Amp	19A704125P1



APPLICANT:  
ERICSSON INC

FCC ID NO.  
AXATR-307-D2

FUNCTION OF ACTIVE CIRCUIT DEVICES

SCHEMATIC DESIGNATION	DEVICE	FUNCTION	GE DRAWING NO.
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Rx IF Module 19D902783G7 (Continued)

Q1	Transistor	RF Buffer	19A704708P2
Q2	Transistor	RF Buffer	19A704708P2
Q3	Transistor	DC Switch	19A700076P2
Q4-5	Transistor	DC Switch	19A700076P2
U6	IC	Linear Amp	19A701789P4
U7	IC	Linear Amp	19A701789P4
U8	IC	+ Voltage Regulator	19A704971P11

System Control Module 19D902590G3

Q2	Transistor	Switch	19A700076P2
Q3	FET	Gate	19A703795P1
Q5	Transistor	Switch	19A700059P2
Q7	Transistor	Switch	19A700059P2
Q8	Transistor	Switch	19A700059P2
Q9	Transistor	Switch	19A700076P2
Q10	Transistor	Switch	19A700076P2
Q11	Transistor	RF Amp	19A700059P2
Q12	Transistor	RF Amp	19A700059P2
U1	Microprocessor	System Control	10A705982P101
U2	Digital IC	Address Latch	19A703471P302
U3	Digital IC	Address Decoder	19A703471P120
U4	Digital IC	Read Only Memory	344A3307G1
U5	Digital IC	RAM	19A705603P5
U6	Digital IC	Address Latch	19A703952P102
U7	Digital IC	8 Bit Latch	19A704380P319
U8	Digital IC	Selector	19A702705P5
U9	Linear Amp	Buffer	19A704883P2
U10	Linear Amp	Filter	19A704883P2
U11	Linear Amp	Gain	19A116297P7
U12	Digital IC	Selector	19A702705P5
U13	Linear Amp	Gain	19A704883P2
U14	Digital IC	Multiplexer	19A702705P3
U15	Digital IC	Multiplexer	19A702705P3
U16	Linear Amp	Filter	19A704883P2
U17-A	Line Amp	DIF Amp	19A704883P2
U17-B	Line Amp	Buffer	19A704883P2
U17-C	Line Amp	Filter	19A704883P2
U17-D	Line Amp	Gain	19A704883P2
U18	Digital IC	D-F/F	19A704380P302

APPLICANT:  
ERICSSON INC

FCC ID NO.  
AXATR-307-D2

FUNCTION OF ACTIVE CIRCUIT DEVICES

SCHEMATIC DESIGNATION	DEVICE	FUNCTION	GE DRAWING NO.
--------------------------	--------	----------	----------------

System Control Module 19D902590G3 (Continued)

U19	Digital IC	Watch Dog	19A149895P1
U20	Digital IC	Inverter	19A716180P575
U21	Digital IC	Inverter	19A703483P104
U22	Digital IC	Inverter	344A3039P201
U24	Digital IC	D-F/F	19A705980P101
U25	Digital IC	8 Bit Latch	19A703471P116
U26	Digital IC	Inverter	19A116180P575
U27	A-D	A-D	19A705979P101
U28	Digital IC	D-F/F	19A704380P302
U29	Counter	Clock Generator	19A149466P301
U30	Linear Amp	Filter	19A704883P2
U31	Linear Amp	Gain	19A704384P4
U32	Digital IC	Multiplexer	19A702705P3
U33	Multiplexer	Selector	19A702705P3
U34	Digital IC	I/O Expansion	19A705991P101
U35	Digital IC	Level Control	344A3041P201
U36	Digital IC	Level Control	344A3041P201
U37	Linear Amp	Gain	19A704883P2
U37-C	Linear Amp	Filter	19A704883P2
U40	Digital Amp	Inverter	19A116180PP575
U41	Digital IC	Inverter	19A700176P101

Interface Board 19D902975G1

Q102	Transistor	Switch	19A705953P1
Q103, Q104	Transistor	Switch	19A700023P2
Q108	Transistor	Current Gain	19A700023P2
Q109	Transistor	Switch	19A700054P1
U101	Linear IC	Opto-Coupler	19A705952P1
U102	Linear IC	Opto-Coupler	19A705952P1
U103	Transistor	Switch	19A705953P1
U104	Linear IC	Audio PA	19A701630P1
U105	Digital IC	Shift Register	19A703987P21
U106	Digital IC	Shift Register	19A703987P24
U107	Digital IC	Decoder	19A704445P1
U108	Digital IC	Pot	19S705180P2
U109	Digital IC	Logic	19A703483P11
U110-1	Linear IC	Buffer	19A701789P1
U110-2	Linear IC	Gain	19A701789P1
Q110-3	Linear IC	Driver	19A701789P1
Q110-4	Linear IC	Comparator	19A701789P1

APPLICANT:  
ERICSSON INC

FCC ID NO.  
AXATR-307-D2

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CIRCUIT DIAGRAMS

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<u>DRAWING NUMBER</u>	<u>DESCRIPTION</u>
19D903635 (sh1-3)	Interconnection Block Diagram
19D903622 (sh1-2)	Power Amplifier Schematic Diagram
19D903363 (sh1-3)	Tx Synthesizer, Exciter Schematic Diagram
19D902907 (sh1-6)	System Board Schematic Diagram
19D904091 (sh1-3)	Rx Synthesizer, Ref Osc Schematic Diagram
188D5789	Receiver Front End Schematic Diagram
19D902504 (sh1,2)	Receiver IF Schematic Diagram
19D902977 (sh1,2)	Interface Board Schematic Diagram
Figure 2	Crystal Oscillator Outline Drawing
19B801351 (sh1-5)	Crystal Oscillator Purchase Part Drawing

EXHIBIT 5

APPLICANT:  
ERICSSON INC

FCC ID NO.  
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DRAFT INSTRUCTION BOOK

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2.983 (d) (8)      Instruction Book (Draft)

See attached draft instruction book.

APPLICANT:  
ERICSSON INC

FCC ID NO.  
AXATR-307-D2

## ALIGNMENT PROCEDURE

---

### RADIO TUNING PROCEDURE

#### 1.0 SCOPE

This document outlines the procedure for transmitter turn-on and frequency set.

#### 2.0 TEST EQUIPMENT

Audio Oscillator	HP201C
RF Power Meter	HP436A
Frequency Counter	HP5386A
Modulation Meter	HP8901A
Power Meter	Bird 6154
RS-232 Computer Terminal	IBM Compatible with "MDIA" software

#### 3.0 TURN-ON PROCEDURE

The system board loads the transmit and receive frequency code to the Tx and Rx synthesizer boards of the UHF station.

Upon power up or reset, the microcontroller loads the receive synthesizer with 32 bits of serial data that sets the local oscillator to the desired frequency. A fault indication is provided by the receive synthesizer and sampled by the microcontroller. If the synthesizer is not locked onto frequency (fault flag true) the microcontroller will initiate another load sequence until lock occurs.

Upon a PTT, the microcontroller loads the transmit synthesizer with 32 bits of serial data that sets the transmit carrier to the proper frequency. A fault indication is provided by the transmit synthesizer and sampled by the microcontroller. If the synthesizer is not locked onto frequency, the microcontroller will not key the RF power amplifier, and will initiate another load sequence until lock occurs. It should be noted that the power amplifier will not be keyed as long as the synthesizer is unlocked.

APPLICANT:  
ERICSSON INC

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AXATR-307-D2

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CIRCUIT & DEVICE DESCRIPTIONS

---

2.983 (d) (10-11)

(10) Oscillator and Other Frequency Stabilizing Circuit Descriptions:

Reference Oscillator

The reference oscillator is a self-contained high stability reference generator which supplies 12.8 MHz to transmitter and receiver synthesizers in the UHF system.

The oscillator module is located in the receive synthesizer. The module is a quartz crystal controlled oscillator with temperature compensation providing  $\pm 1.0$  ppm over a wide temperature range. Measured performance for temperature and supply voltage is shown in Exhibit 12. Reference for the transmitter is coupled from the receive synthesizer module by an external coax cable. The oscillator is supplied by an outside vendor (TOYCOM). The vendor catalogue and our purchase part drawing are shown in Exhibit 4.

The oscillator frequency is adjusted by a multi-turn piston trimmer capacitor for frequency setability of less than  $\pm 0.3$  ppm.

(11) Circuits or Devices Employed for Suppression of Spurious Radiation:

The transmit synthesizer board uses a casting on top and bottom side of the board. A lowpass filter is used to reject out-of-band spurious frequencies of the exciter output stage at J2. Tuned circuits are utilized in the input and output of the final amplifier along with a lowpass filter following the final amplifier output to suppress harmonics of the carrier frequency.

APPLICANT:  
ERICSSON INC

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#### CIRCUIT & DEVICE DESCRIPTIONS

---

The PA is totally encased in a casted housing with fingerstock shields. Power and control leads exit and enter through bulkhead feedthrough capacitors. RF enters and exits through bulkhead RF connectors.

##### Circuits or Devices Employed for Limiting Modulation:

The audio processing circuitry has three high gain integrated circuit audio amplifiers with appropriate feedback. The first stage (U1A) of the limiter and post limiter filters provides preemphasized gain and limiting. Amplitude limiting of the audio occurs when diodes conduct and produce 100% feedback, thereby amplitude limiting the input signal.

Active filters provide 18 dB per octave attenuation beginning at 2.8 kHz for post limiter filtering. Measured characteristics are shown in Exhibit 9.

##### 2.983 (d) (12) GETC Filters:

The filters on the GETC used to perform wave shaping on the digital and audio signals include the low speed data encode filter, the low speed data decode filter and high speed data filter.

The low speed data encode filter is used to smooth out the subaudible signalling generated by the GETC.

The low speed data decode filter is used to low pass the subaudible signalling and eliminate voice audio in order that the low speed data can be detected by the microcomputer. The characteristics of this filter are identical to the low speed data encode filter.

The high speed data filter is a GMSK filter used to filter the 9600 baud NRZ signalling used by the GETC.

APPLICANT:  
ERICSSON INC

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AXATR-307-D2

RF POWER OUTPUT

---

2.985 (a)            The RF power measured at the output terminals:

AXATR-307-D2

90 Watts

The measurement was made per EIA RS-152B using the following equipment:

Radio Frequency 50 ohm load attached to the output terminal through directional coupler P-910-20. The power is measured on a HP436A power meter.



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### MODULATION CHARACTERISTICS

---

Reference Paragraph 2.987 (a, b, d) the frequency and amplitude response to audio inputs measured per EIA RS-152B, Paragraph 7.3 are shown on the following sheets.

Exhibit 9B	Audio Frequency Response
Exhibit 9C	Post Limiter Frequency Response *
Exhibit 9D	Modulation Versus modulation Input Voltage
Exhibit 9E	Data Filter Response

Equipment used was:

Hewlett Packard Modulation Analyzer	HP8901A
Hewlett Packard Audio Analyzer	HP8903B
Hewlett Packard Power Meter	HP436A
Weinschel Power Attenuator	49-30-34

At those modulation frequencies at which the transmitter is not capable of producing 30% of system deviation, audio response is calculated from measurement of input voltage producing a lesser deviation.

\* Post Limiter Filter Response Measurement Procedure

1. Adjust transmitter deviation according to tune-up procedure.
2. Disconnect internal microphone and any input to the external microphone input.
3. Connect Hewlett Packard modulation analyzer to transmitter output through directional coupler.  
  
Connect HP audio analyzer to the microphone input.  
  
Connect HP audio analyzer to the audio output of modulation analyzer.
4. Apply 13.8 volts to the power input and key the transmitter.
5. Set the frequency of the HP audio analyzer to 1 kHz. Increase the output voltage until the transmitter is deviating 3 kHz.
6. Measure the audio output voltage. This is the reference voltage.
7. Keeping the HP audio analyzer output level constant, sweep the frequency from 10 kHz to over 50 kHz. Record the output voltage versus frequency.
8. Plot 20 log (audio output level/reference voltage) versus frequency normalized to a 6 dB per octave curve.

# TRANSMITTER AUDIO FREQUENCY RESPONSE

AXATR-307-D2

01/30/95

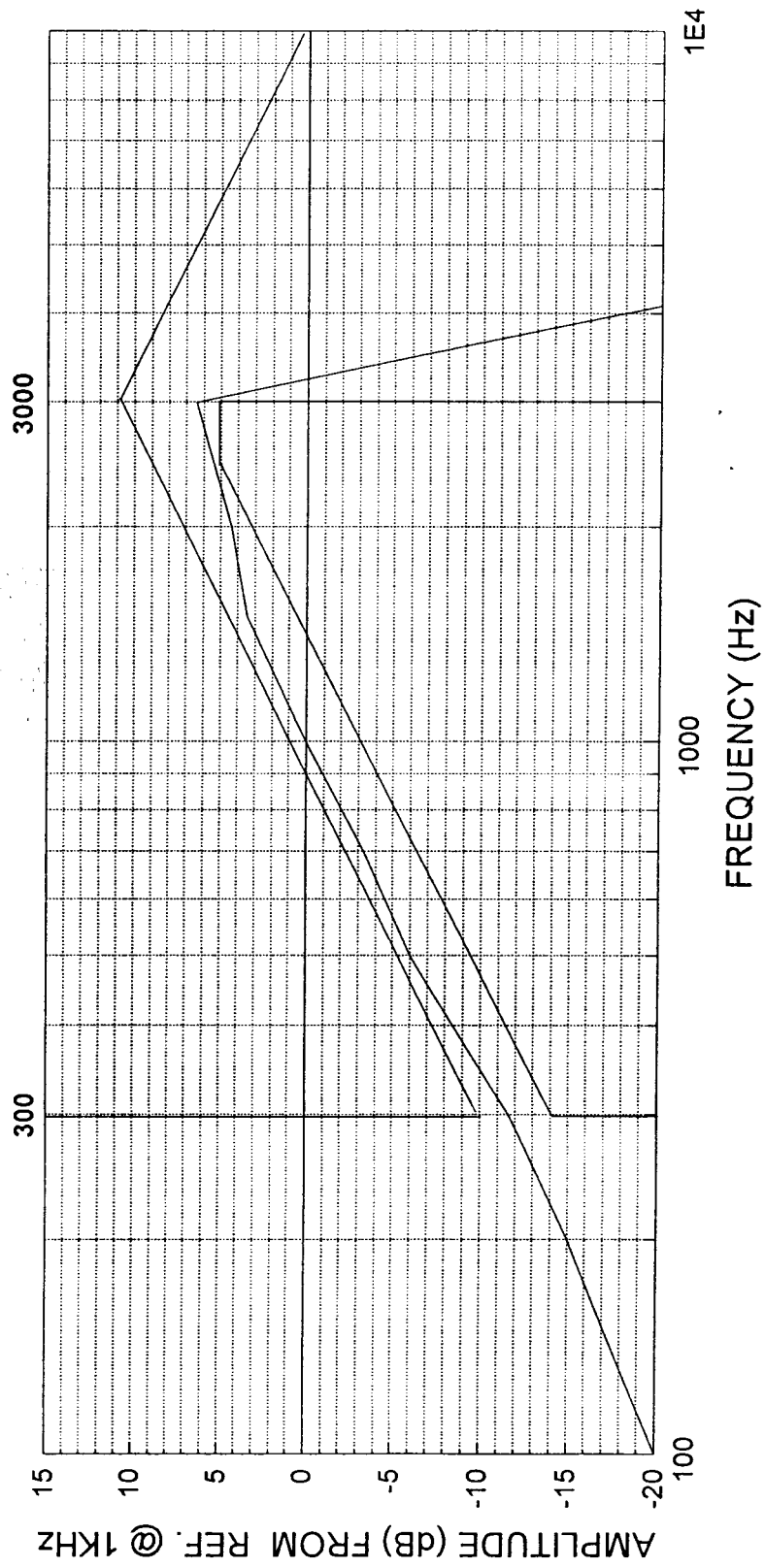


EXHIBIT # 9B

POST LIMITING FILTER  
AXATR-307-D2

02/06/95

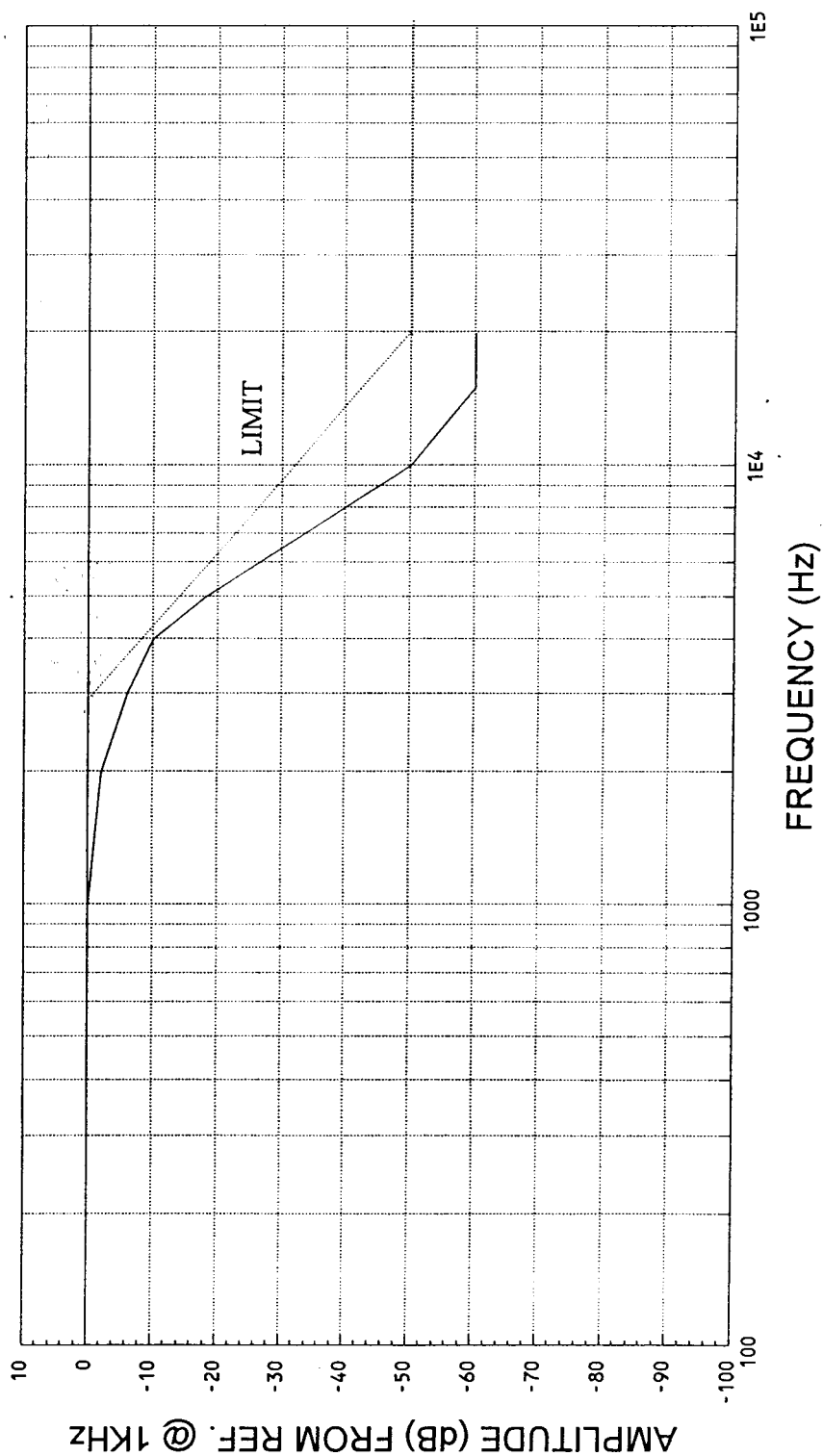


EXHIBIT # 9C

# Modulation Limiting

AXATR-307-D2

01/27/95

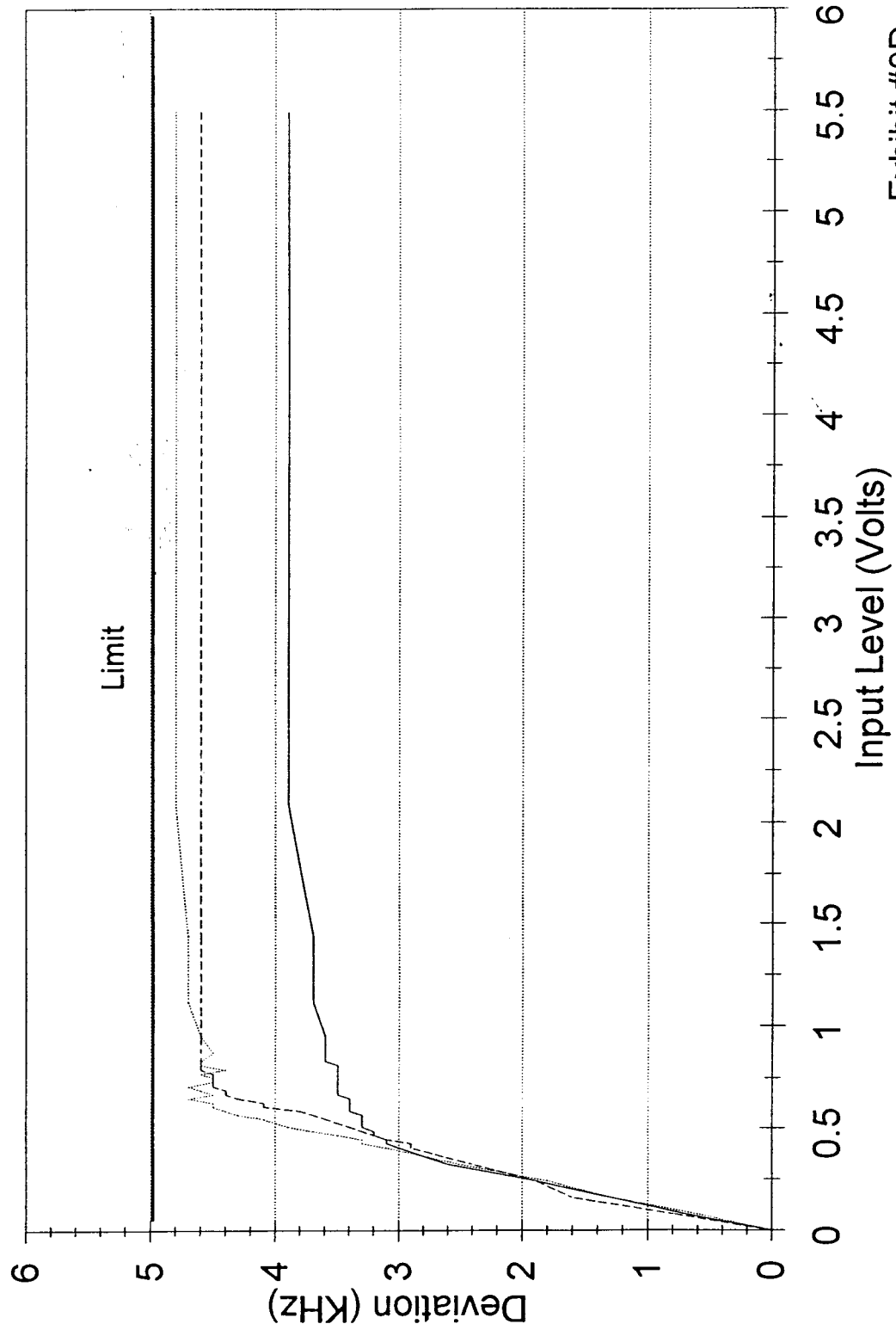


Exhibit #9D

..... 1000 Hz    ---- 300 Hz    — 3000 Hz

DATA FILTER RESPONSE  
9600 BAUD HIGH SPEED

AXATR-307-D2

01/30/95

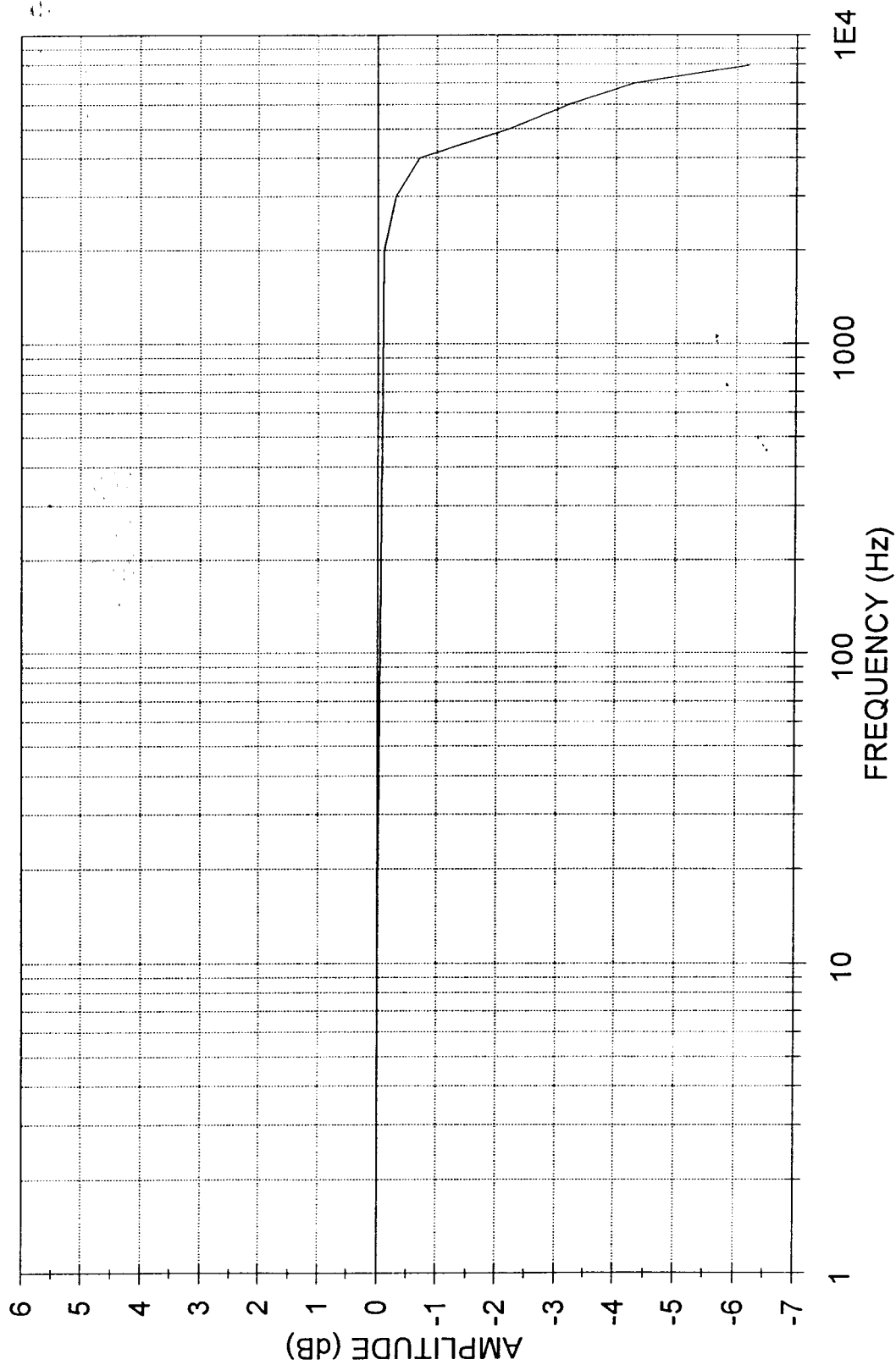


EXHIBIT # 9E

APPLICANT:  
ERICSSON INCFCC ID NO.  
AXATR-307-D2

---

**OCCUPIED BANDWIDTH**

---

Per 2.989 (c, 1) the measurements were made per EIA Rs-152B, Paragraph 17.3.1, were used to obtain the results in Exhibits 10B-10E modulated sideband spectrum.

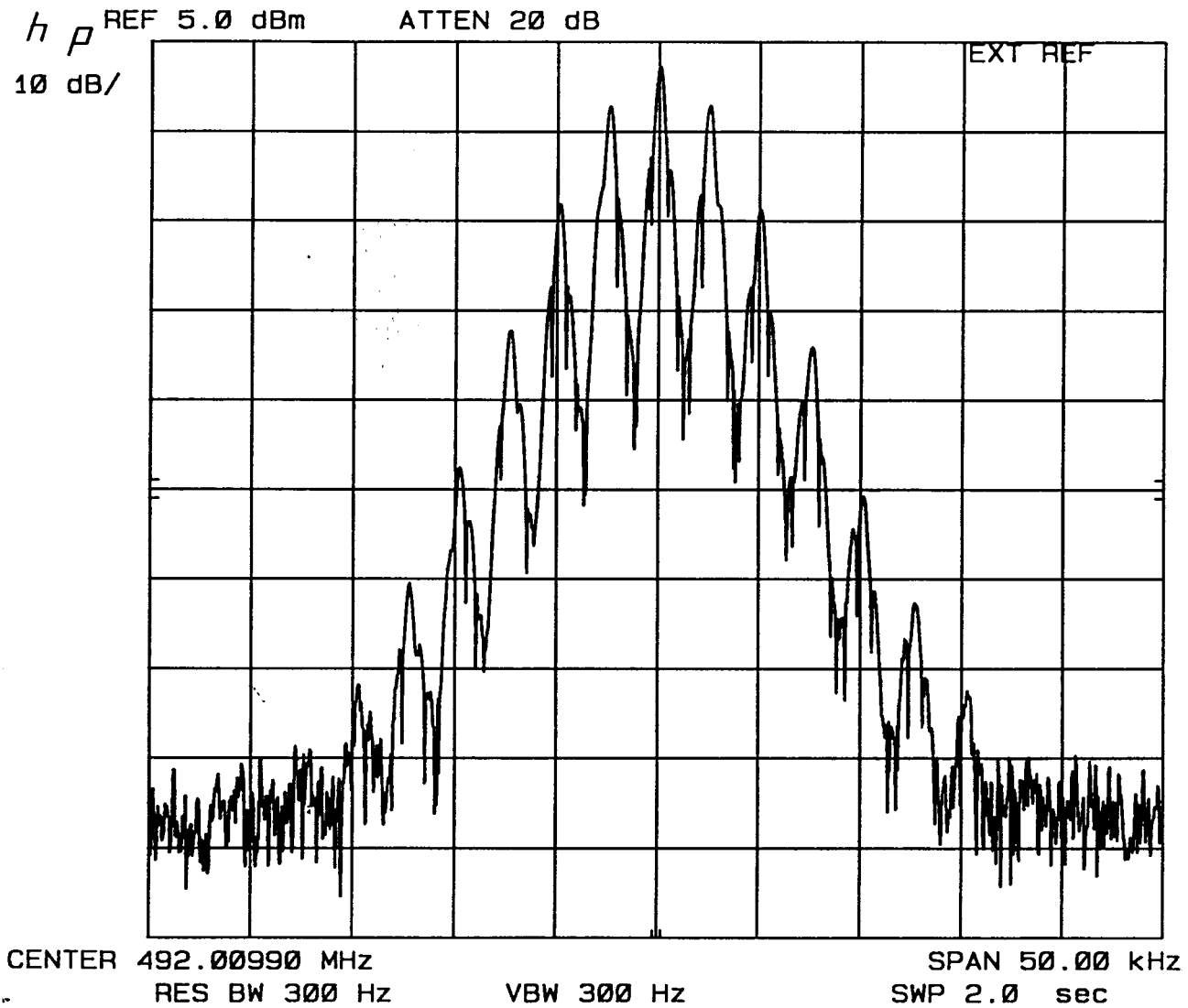
Exhibit 10B	Telephony	$B_n = 2M+2DK$	where $M = 3000$ Hz $D = 5000$ Hz $K = 1$ (assumed)
		$B_n = 16000$ Hz	
	Therefore,	Emission Designator = 16K0F3E	
Exhibit 10C	Telemetry	$B_n = 2M+2DK$	where $M = 2500$ Hz $D = 5000$ Hz $K = 1$ (assumed)
		$B_n = 15000$ Hz	
	Therefore,	Emission Designator = 15K0F2D	
Exhibit 10D	Telegraphy	$B_n = 2M+2DK$	where $M = 2500$ Hz $D = 5000$ Hz $K = 1$ (assumed)
		$B_n = 15000$ Hz	
	Therefore,	Emission Designator = 15K0F2B	
Exhibit 10E	Digital Data, Direct FM	$B_n = 2(B/2)+2DK$	where $B = 9600$ Bd $D = 3200$ Hz $K = 1$ (assumed)
		$B_n = 16000$ Hz	
	Therefore,	Emission Designators = 16K0F1D (Data Transmission) 16K0F1E (Digital Voice)	

APPLICANT: Ericsson Inc.

ID NO. AXATR-307-02

## OCCUPIED BANDWIDTH

Modulation Sideband Spectrum



Referenced to the Unmodulated Carrier  
Modulated with 2500 Hz @ 3kHz dEV.

Analyzer: Vertical = 10 dB/Div.

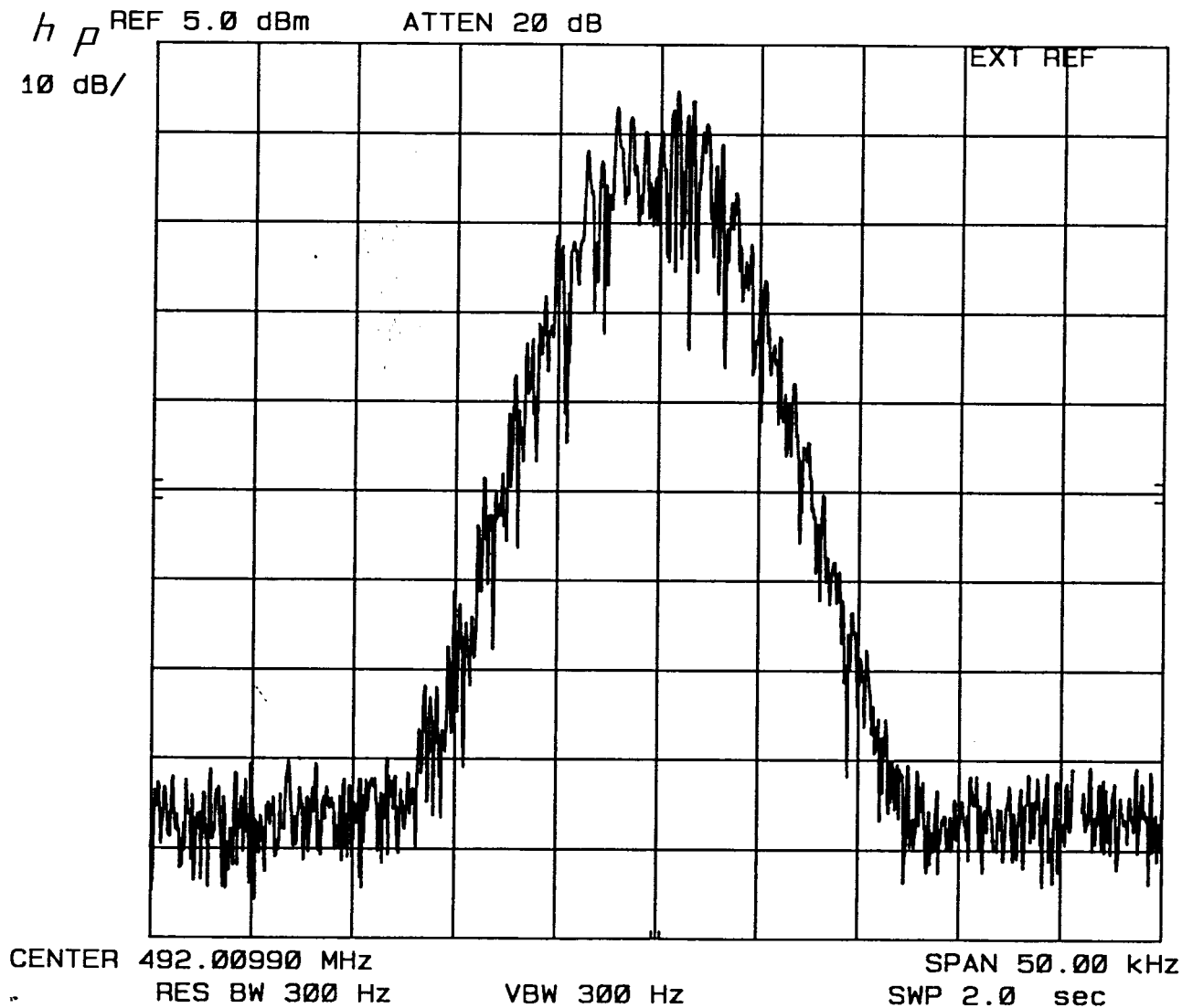
APPLICANT: Ericsson Inc.

EXHIBIT 10C

ID NO. AXATR-307-02

OCCUPIED BANDWIDTH

Modulation Sideband Spectrum



Referenced to the Unmodulated Carrier  
Modulated with DTMF Digital 3 @ 3KHz Dev.

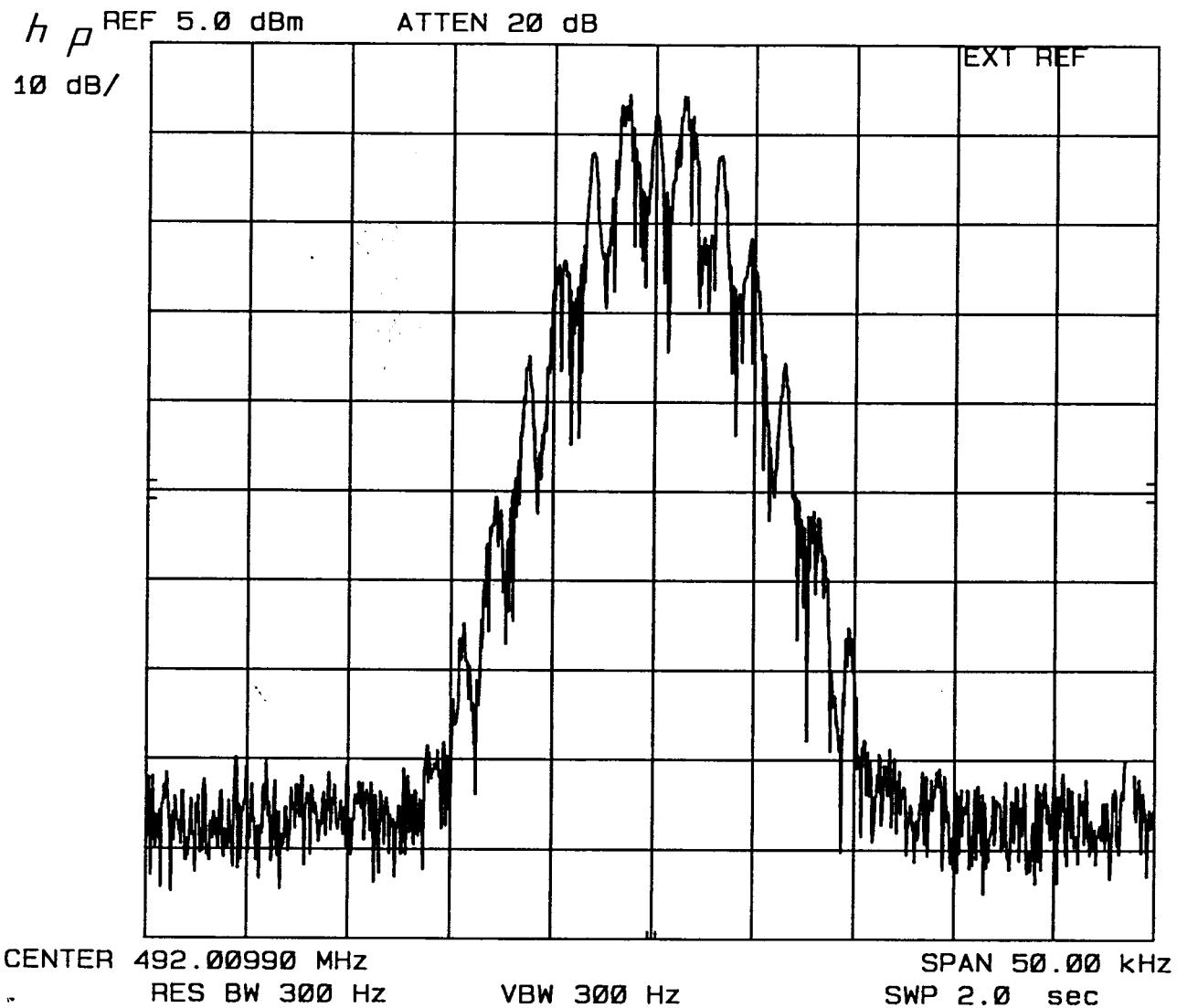
Analyzer: Vertical = 10 dB/Div.



APPLICANT: Ericsson Inc.

## OCCUPIED BANDWIDTH

Modulation Sideband Spectrum



Referenced to the Unmodulated Carrier

Modulated with GE STAR ID CODE #100

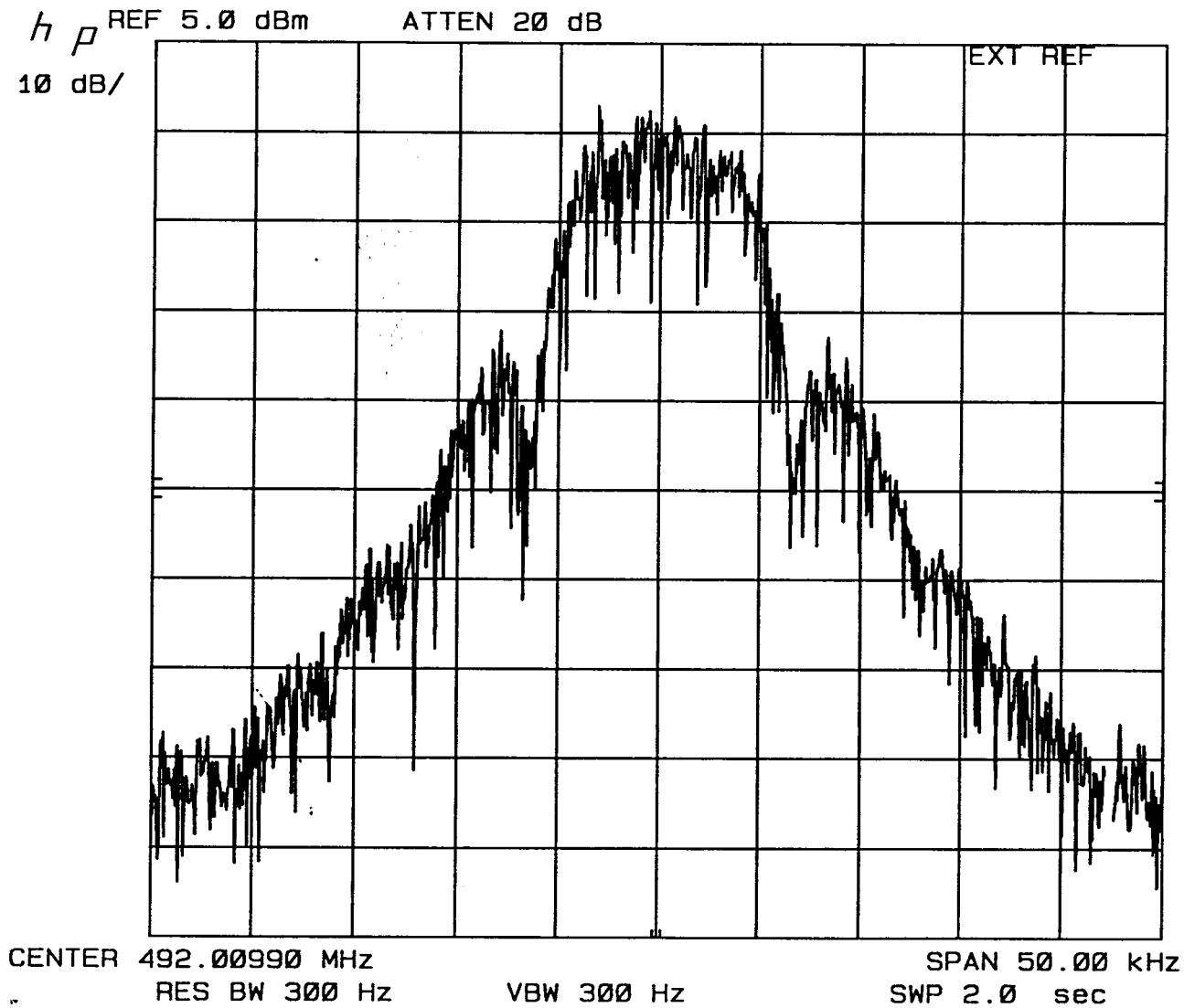
Analyzer: Vertical = 10 dB/Div.

APPLICANT: Ericsson Inc.

ID NO. AXATR-307-D2

## OCCUPIED BANDWIDTH

Modulation Sideband Spectrum



Referenced to the Unmodulated Carrier  
Modulated with Pseudorandom Data 9600 Baud

Analyzer: Vertical = 10 dB/Div.

APPLICANT:  
ERICSSON INC

FCC ID NO.  
AXATR-307-D2

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SPURIOUS EMISSIONS

---

Reference 2.991 spurious emissions at the antenna terminals (conducted) when properly loaded with an appropriate artificial antenna were measured per EIA RS-152B, Paragraph 4.3.

Results are as shown in the following Exhibits:

<u>Exhibit</u>		<u>Carrier Frequency</u>
11B	AXATR-307-D2	492 MHz, 45 Watts
11C	AXATR-307-D2	512 MHz, 45 Watts
11D	AXATR-307-D2	492 MHz, 90 Watts
11E	AXATR-307-D2	512 MHz, 90 Watts

Equipment used was:

Hewlett Packard Spectrum Analyzer 8566B.

Reference 2.993 field strength of spurious radiations was measured on our three meter range. The site and equipment are described in the site description and attenuation measurements for the Ericsson/GE three meter radiation site #2 filed with the FCC in Columbia, Maryland, in November of 1990. The measurement procedure is per EIA RS-152B, but done on a three meter test site. Results are shown on the following Exhibits:

<u>Exhibits</u>		<u>Carrier Frequency</u>
11F	AXATR-307-D2	512 MHz, 45 Watts
11G	AXATR-307-D2	512 MHz, 90 Watts
11H	AXATR-307-D2	492 MHz, 45 Watts
11I	AXATR-307-D2	492 MHz, 90 Watts

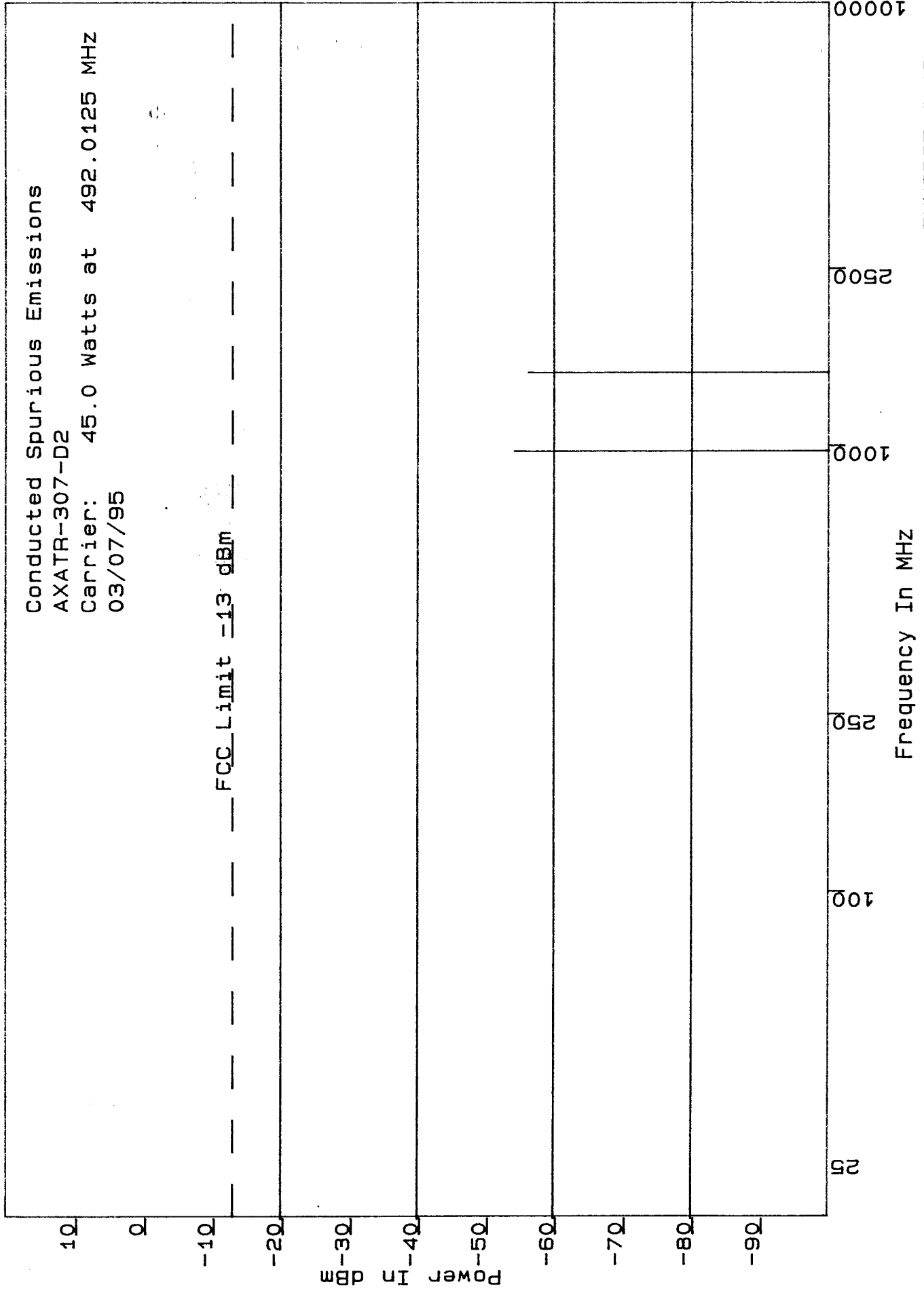
Conducted Spurious Emissions

AXATR-307-D2

Carrier: 45.0 Watts at 492.0125 MHz

03/07/95

FCC Limit -13 dBm



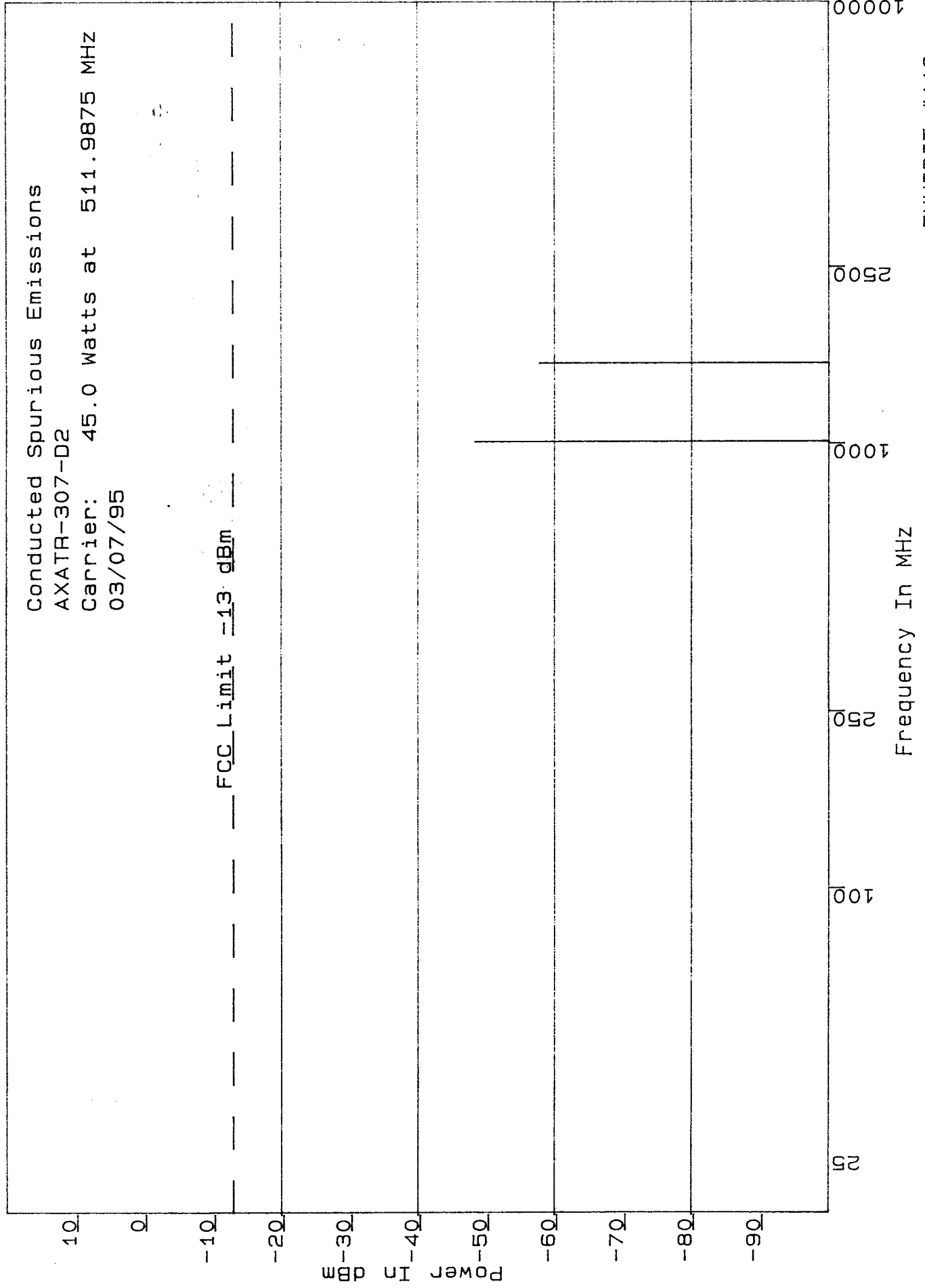
Conducted Spurious Emissions

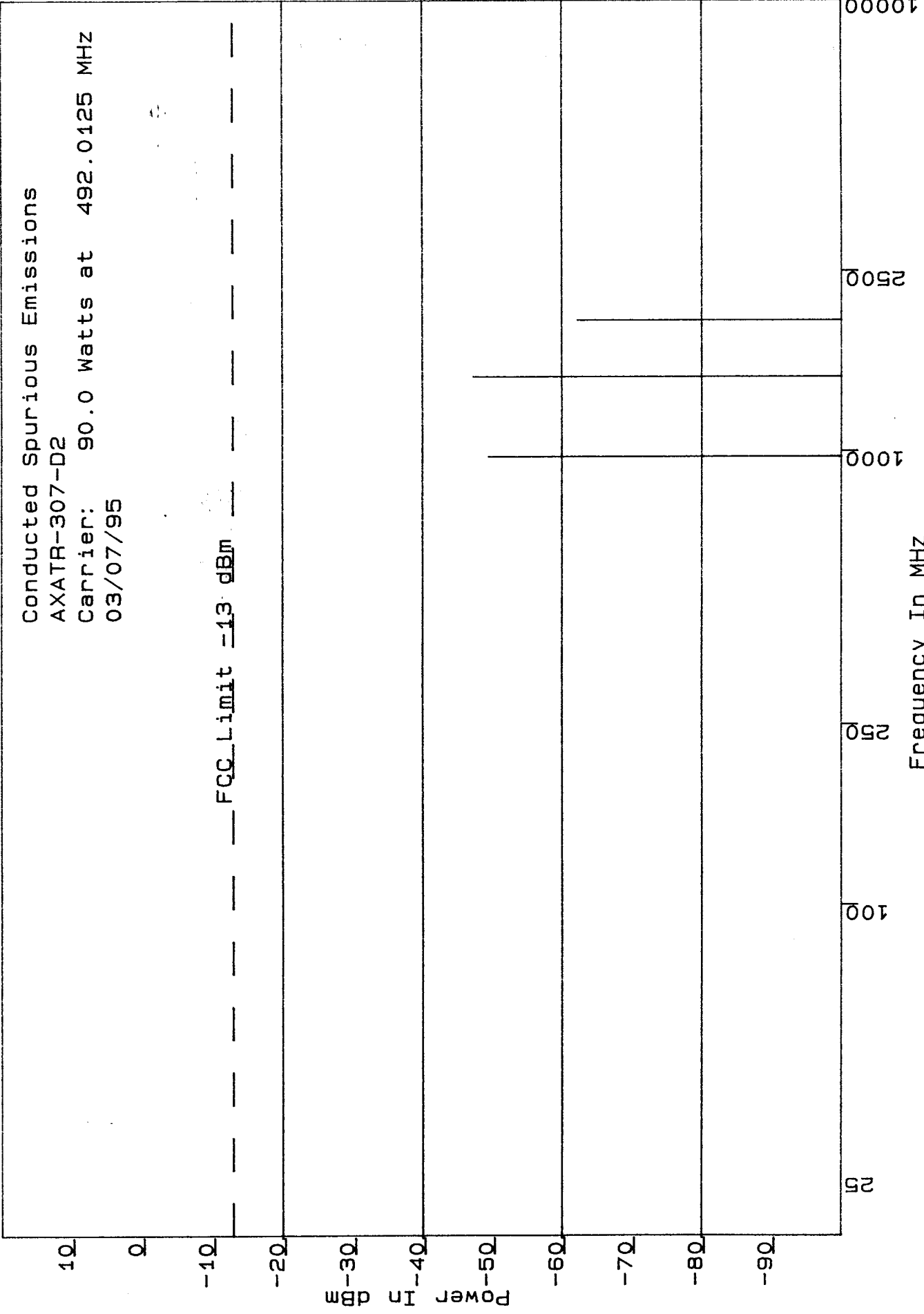
AXATR-307-D2

Carrier: 45.0 Watts at 511.9875 MHz

03/07/95

FCC Limit -13 dBm





Conducted Spurious Emissions

AXATR-307-D2

Carrier: 90.0 Watts at 511.9875 MHz

03/07/95

FCC Limit -13 dBm

Power In dBm

Frequency In MHz

EXHIBIT #11E

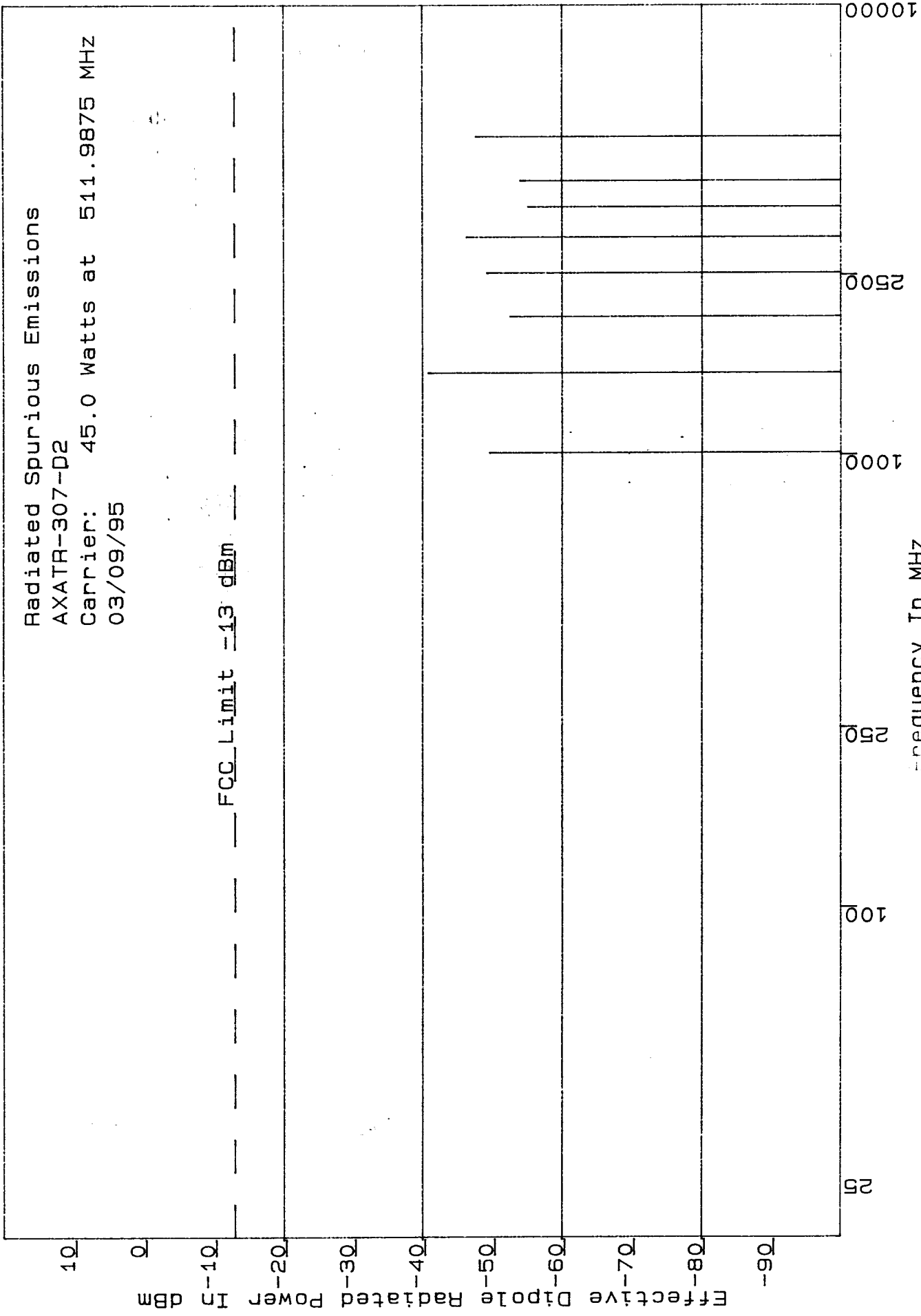
Radiated Spurious Emissions

AXATR-307-D2

Carrier: 45.0 Watts at 511.9875 MHz

03/09/95

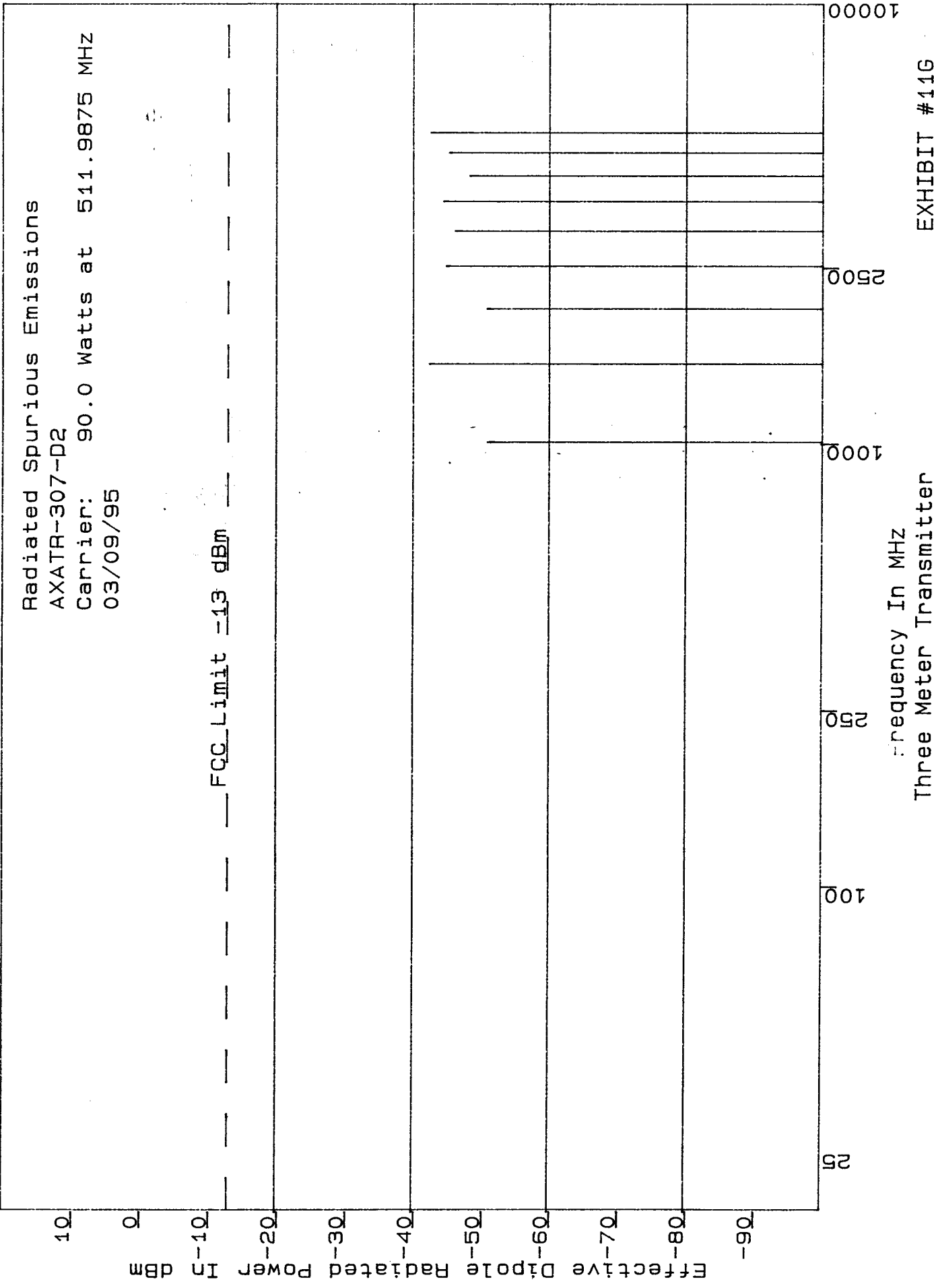
FCC Limit -13 dBm



Frequency In MHz  
Three Meter Transmitter

EXHIBIT #11F



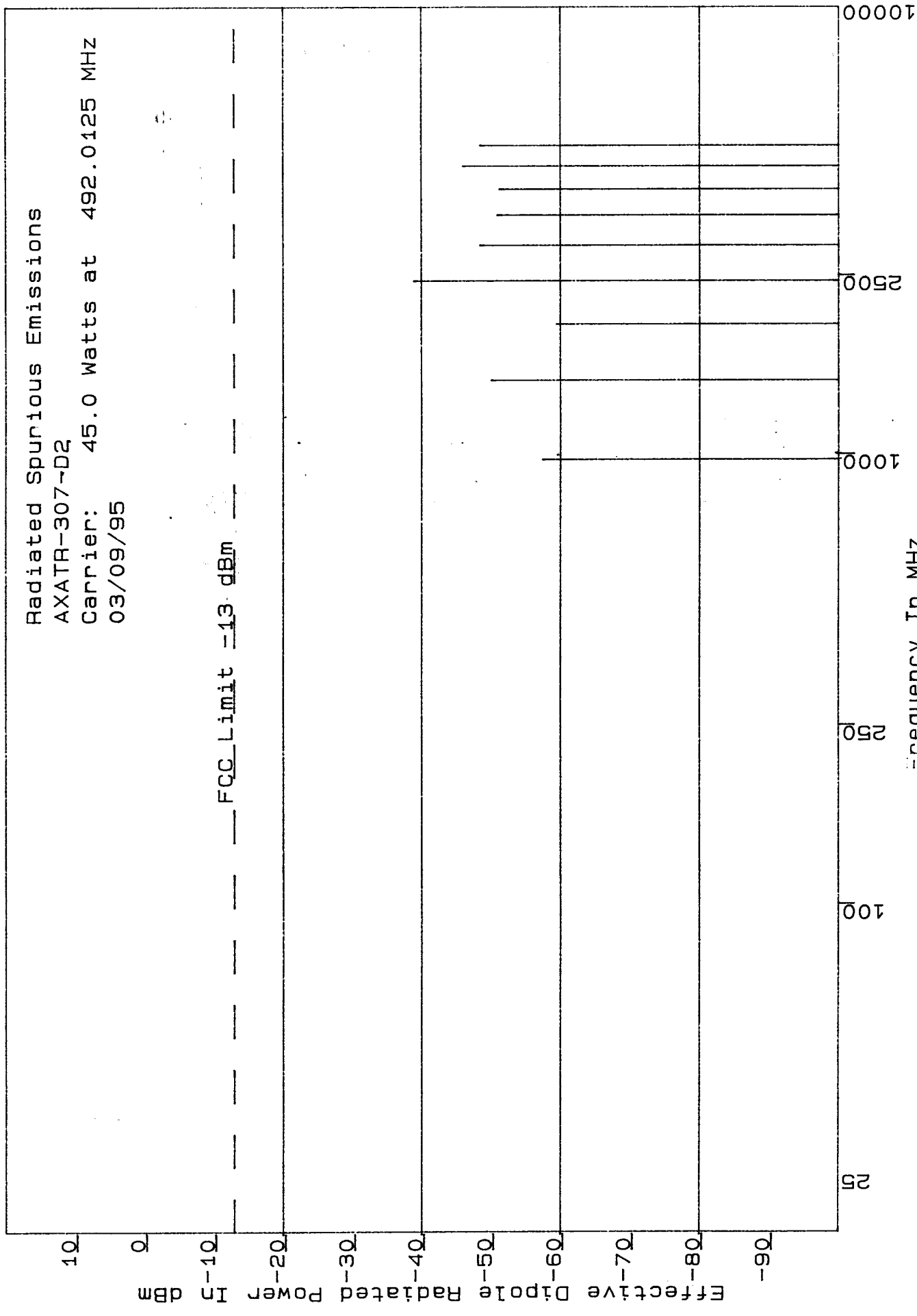


# Radiated Spurious Emissions

AXATR-307-D2

Carrier: 45.0 Watts at 492.0125 MHz  
03/09/95

FCC Limit -13 dBm



Frequency In MHz  
Three Meter Transmitter

EXHIBIT #11H

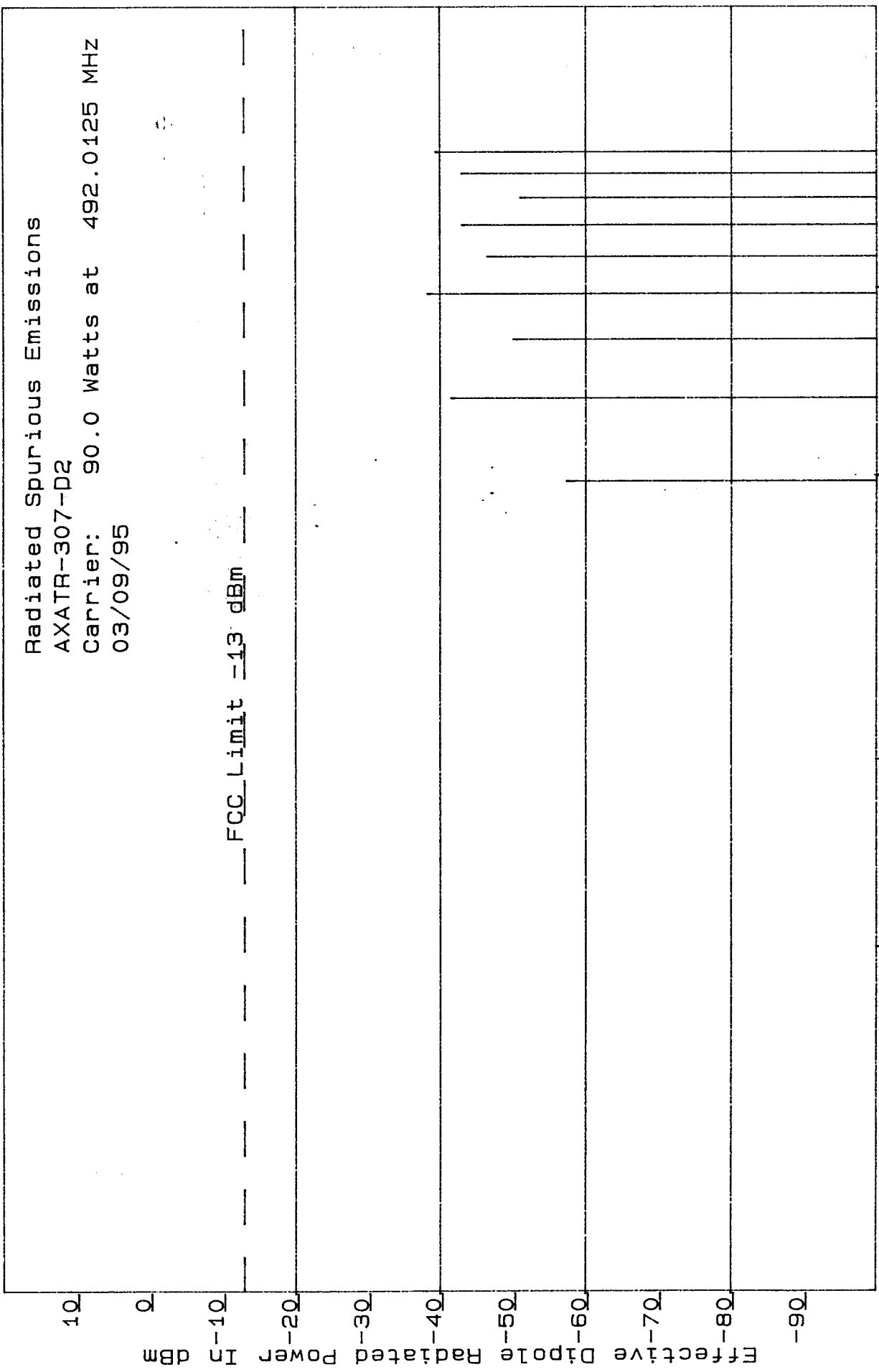
# Radiated Spurious Emissions

AXATR-307-D2

Carrier: 90.0 Watts at 492.0125 MHz

03/09/95

FCC Limit -13 dBm



Frequency In MHz

Three Meter Transmitter

EXHIBIT #11I

APPLICANT:  
ERICSSON INC

FCC ID NO.  
AXATR-307-D2

**FREQUENCY STABILITY**

---

Paragraph (a, 1) (b) (d, 1) variation of output frequency as a result of either temperature or voltage variation is reported in the graphs on the following sheets.

**Frequency Stability:**

Measurement Procedure: Please reference amended KT-140-A filing for Supplemental Report on Oscillator Measurements.

Exhibit 12B  
Exhibit 12C

Frequency Versus Temperature  
Frequency Versus Voltage

**Test Equipment Used:**

Hewlett Packard Counter	Model 5386A
Thermotron Temperature Chamber	Model 2800
Hewlett Packard Voltmeter	Model 3478A

# FREQUENCY Vs TEMPERATURE

AXATR-307-D2

09/13/94

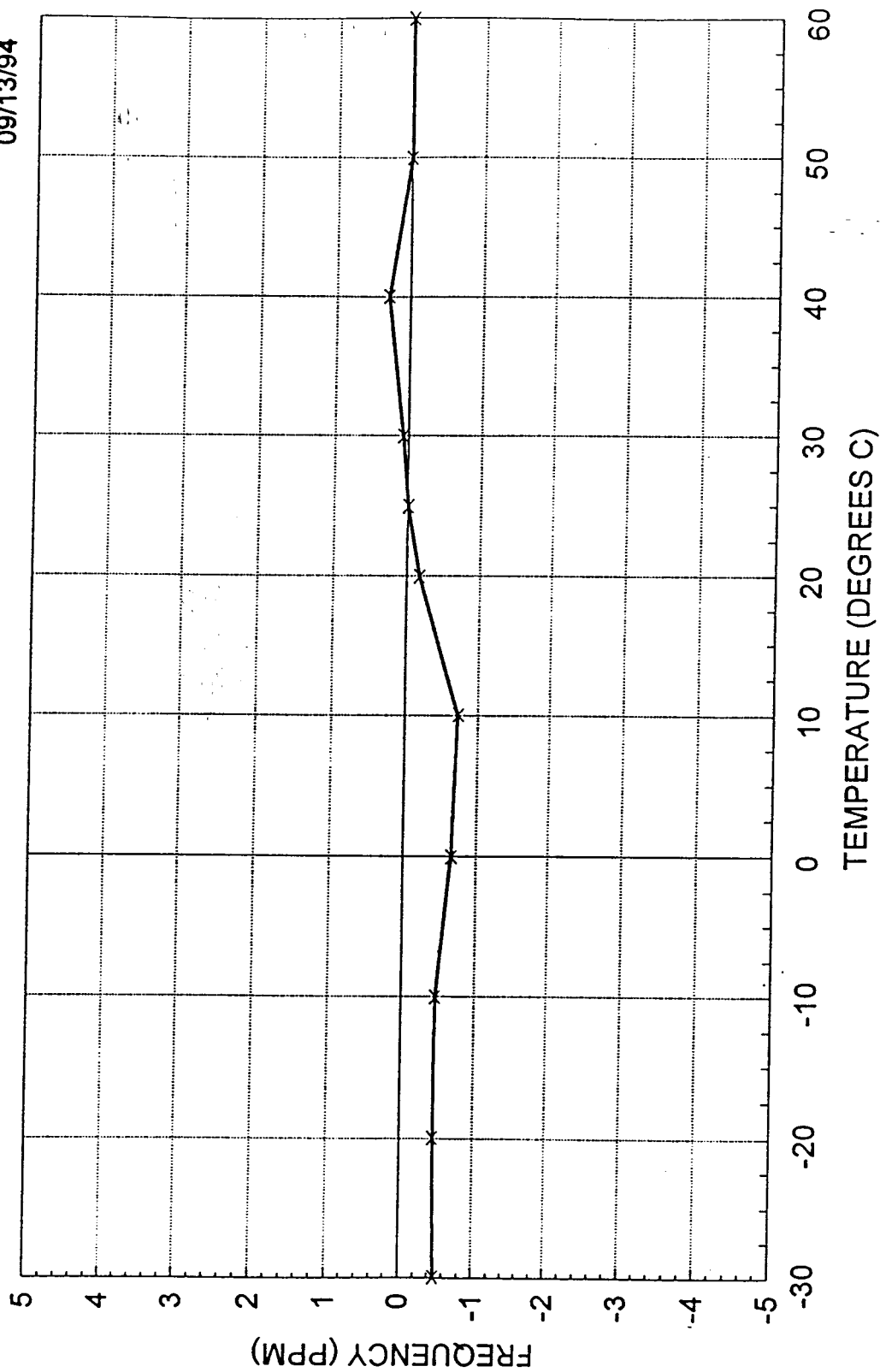


EXHIBIT # 12B

FREQUENCY Vs VOLTAGE  
AXATR-307-D2

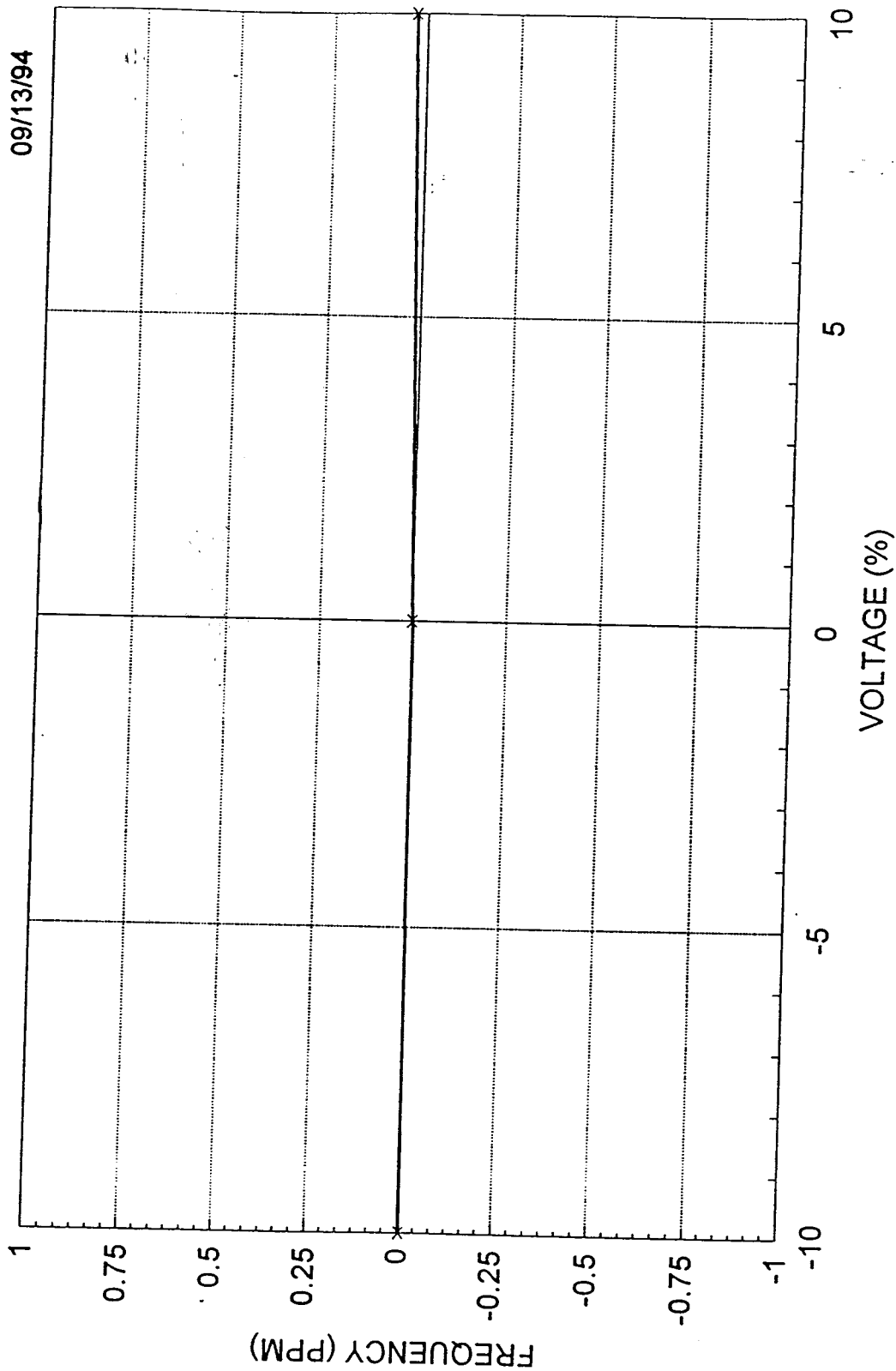


EXHIBIT # 12C

EXHIBIT 13

APPLICANT:  
ERICSSON INC

FCC ID NO.  
AXATR-307-D2

IDENTIFICATION NAMEPLATE

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ERICSSON GE

COMB:  
SER#: 7654321



FCC ID: AXATR-307-D2

CANADA: TR-307

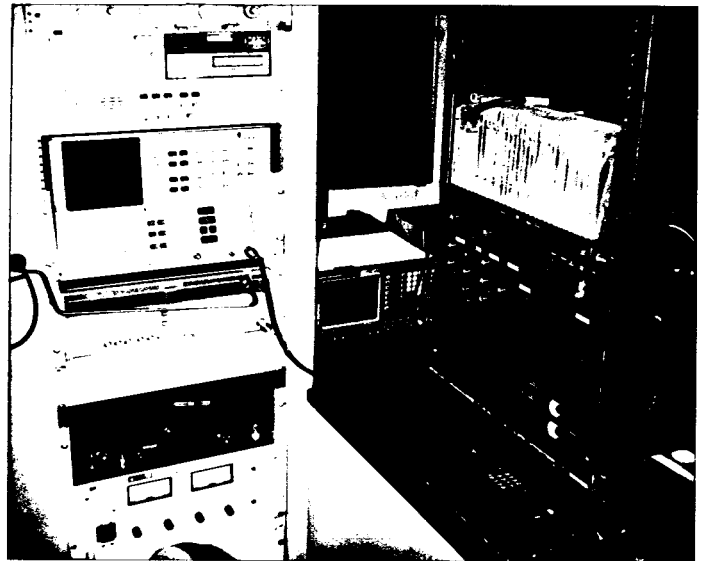
INPUT:  
120/240 VAC Single Phase 60 HZ  
9/5 A 1100 W

91432

MADE IN LYNCHBURG, VA. USA

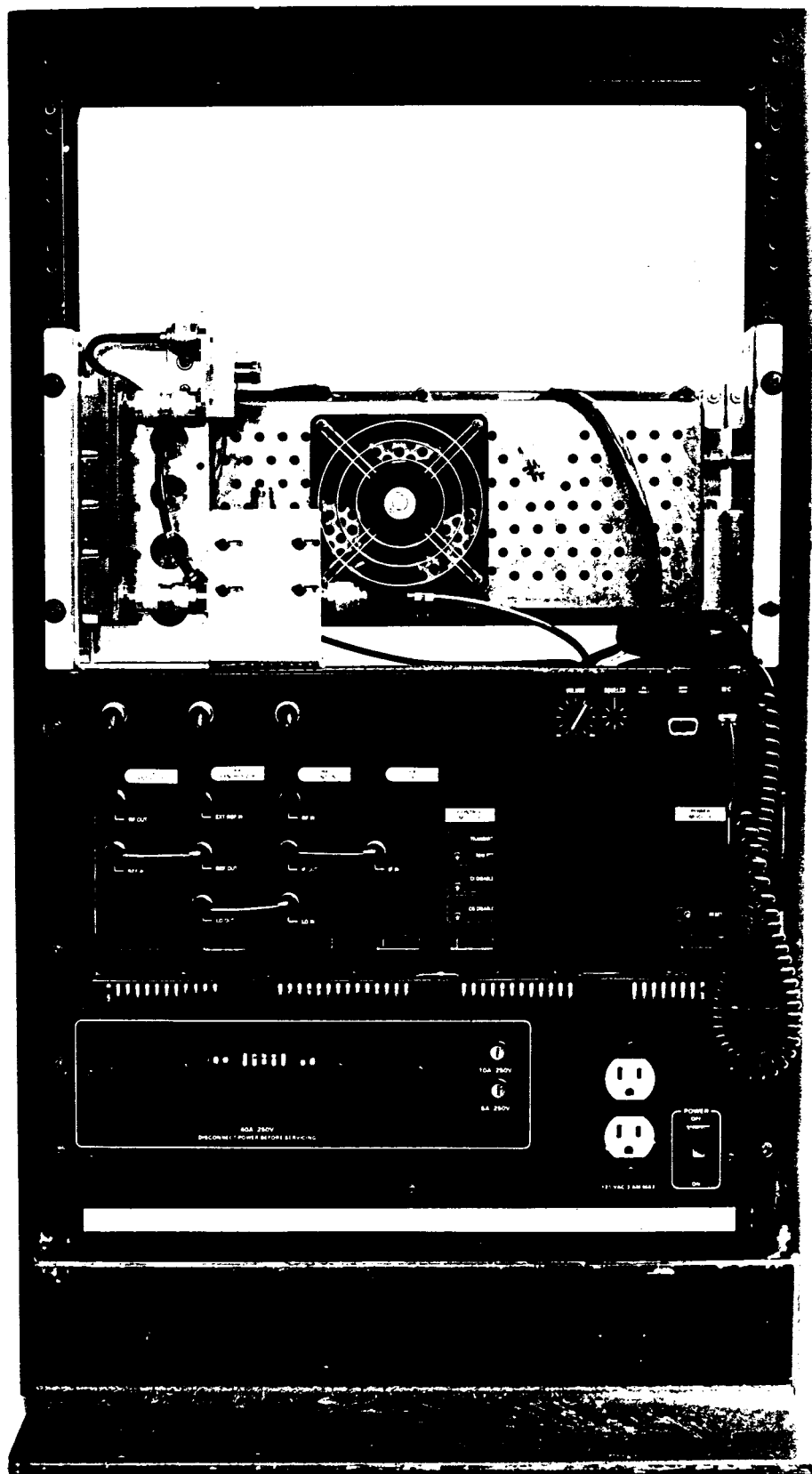


AXATR-307-D2 3/9/95  
H. SAMES

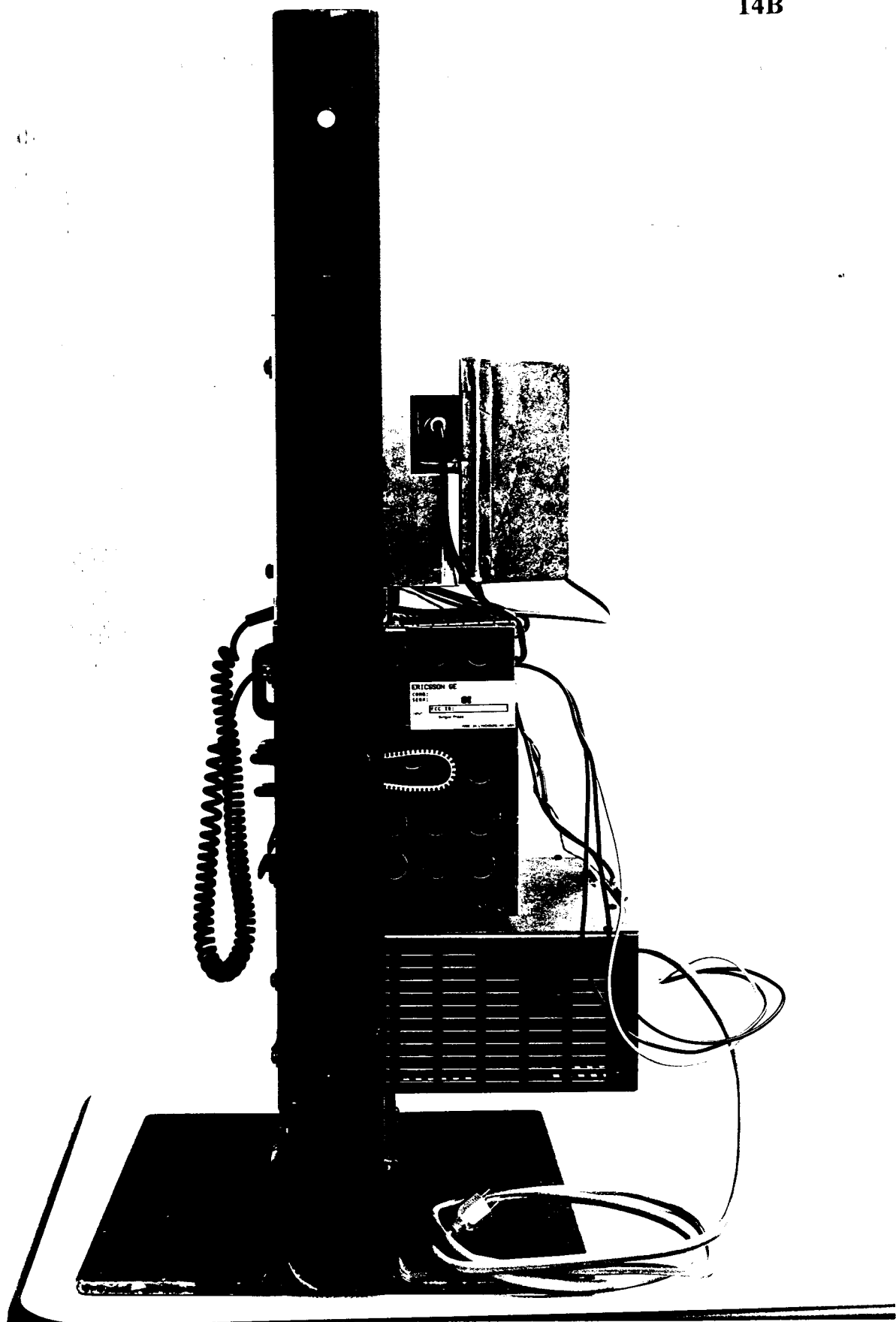


AXATR-307-D2 3-7-95  
H. SAMES

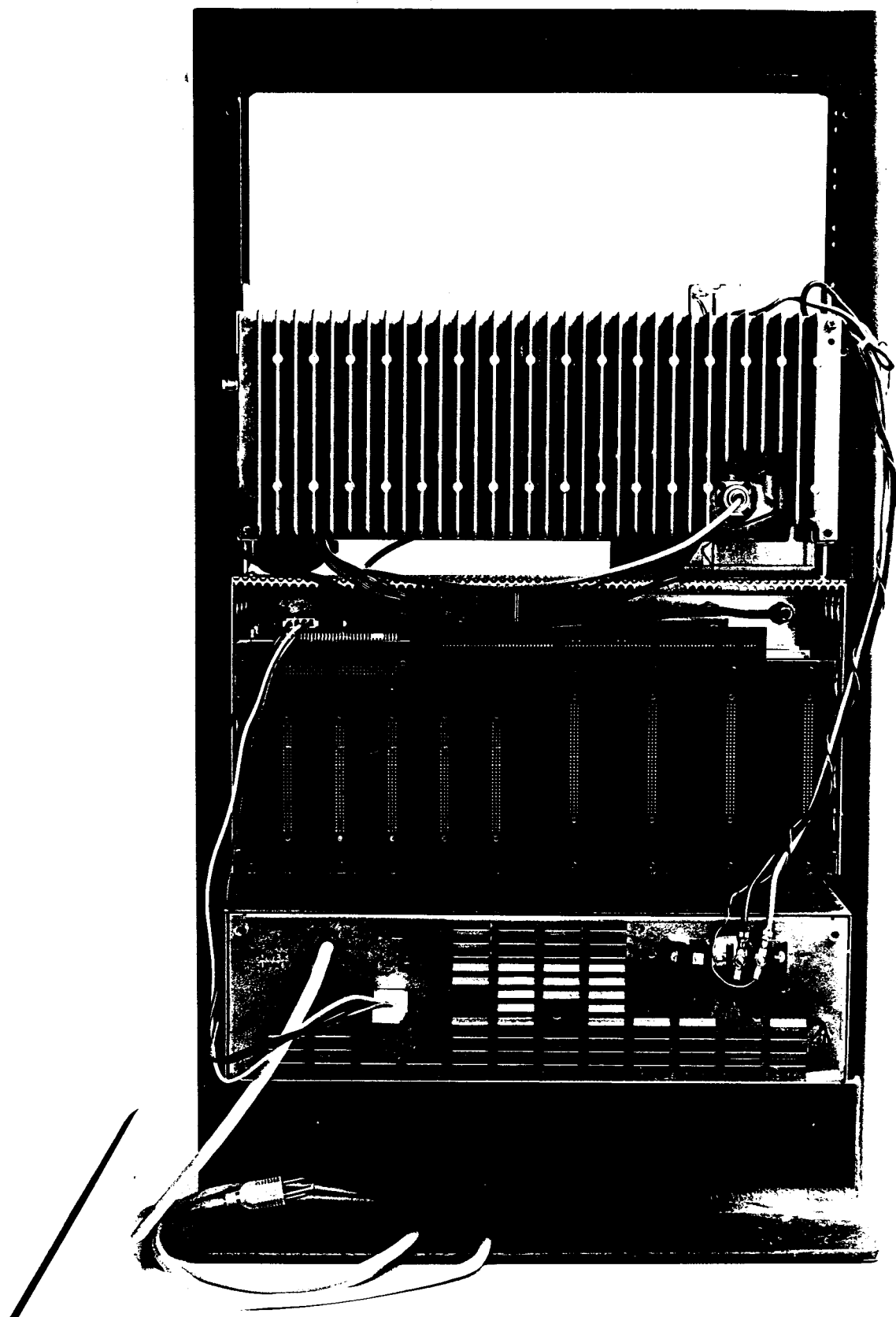




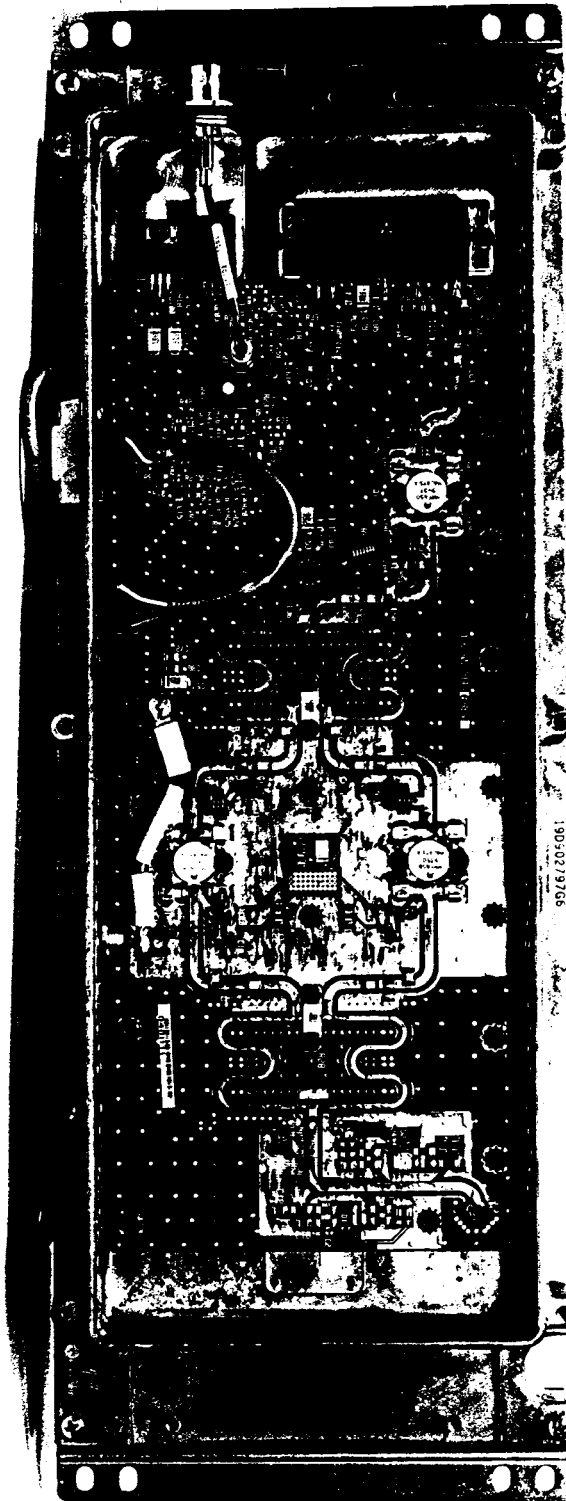
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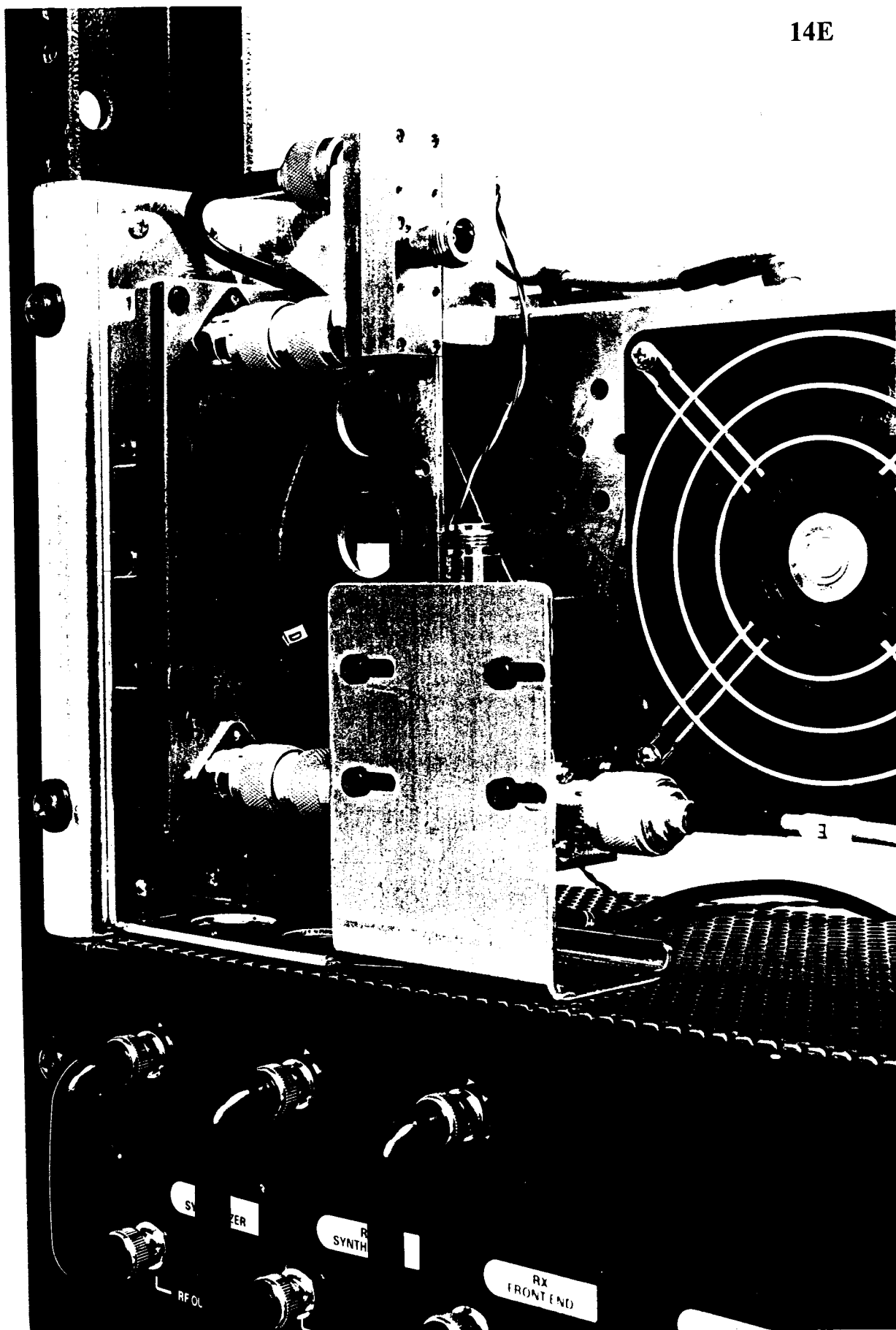
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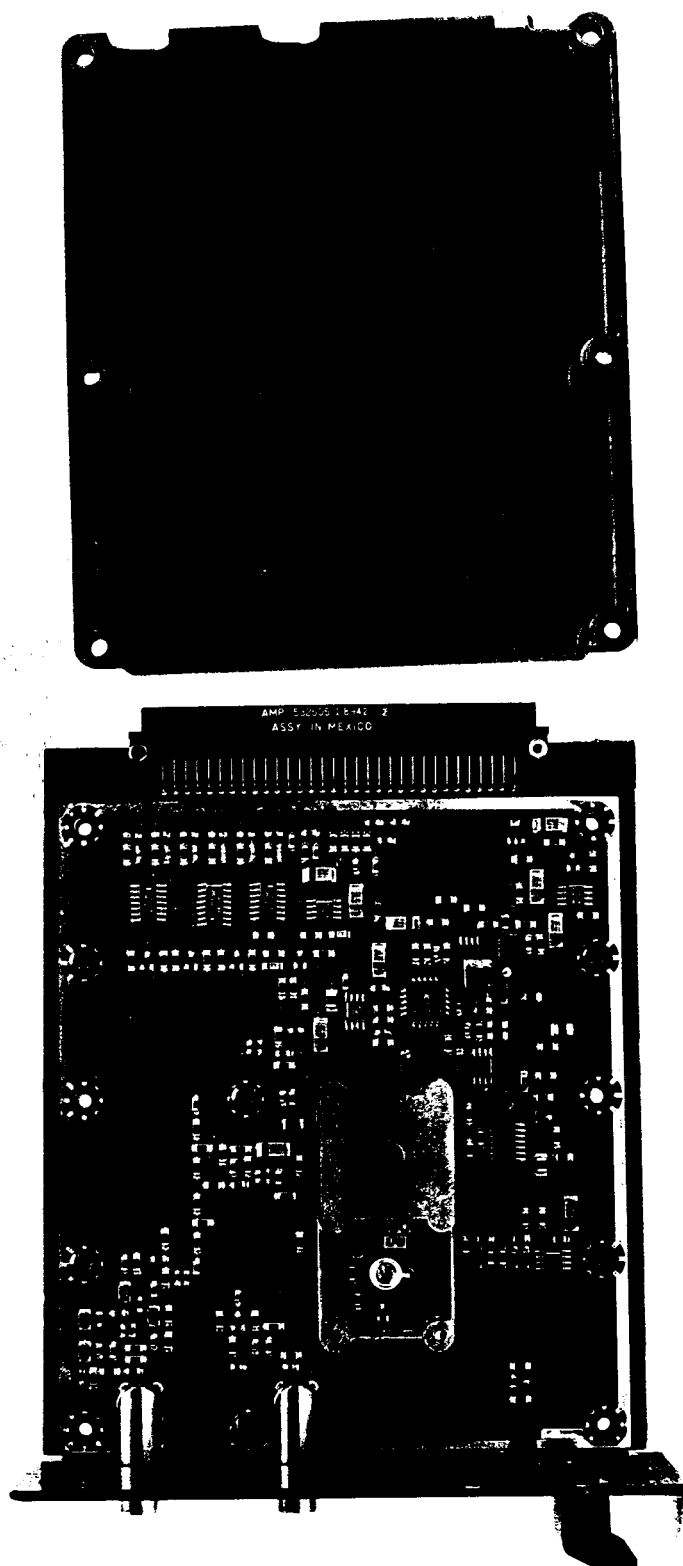
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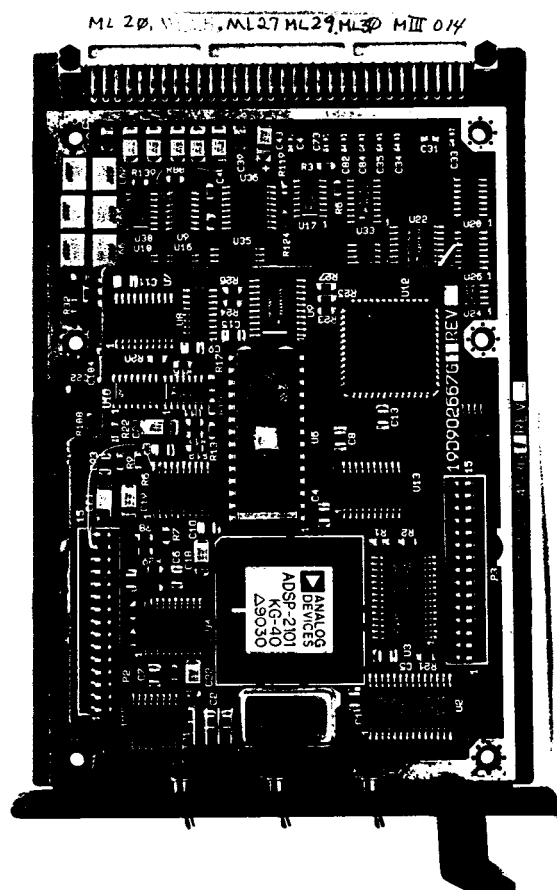
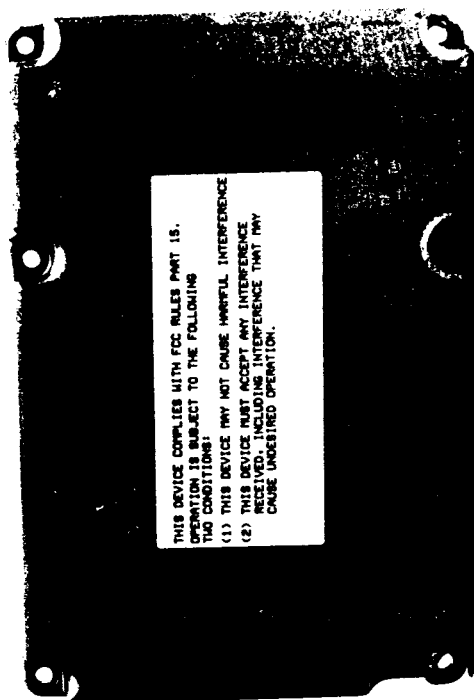
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8-6-91-5



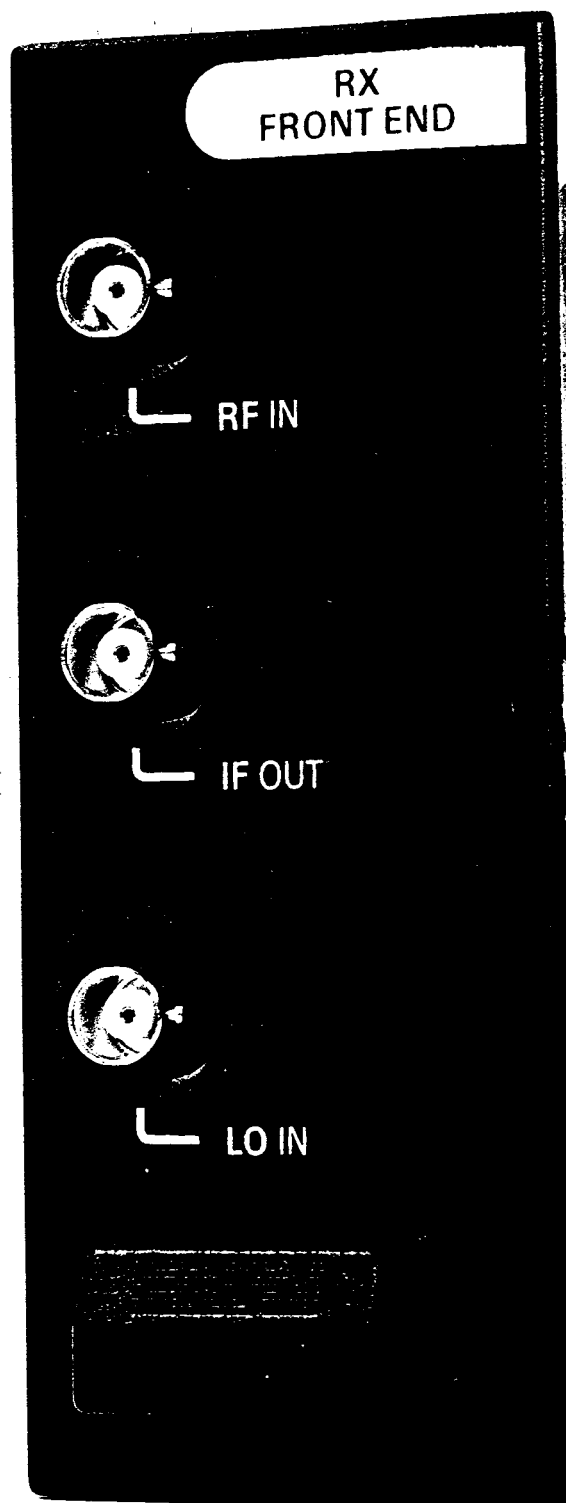
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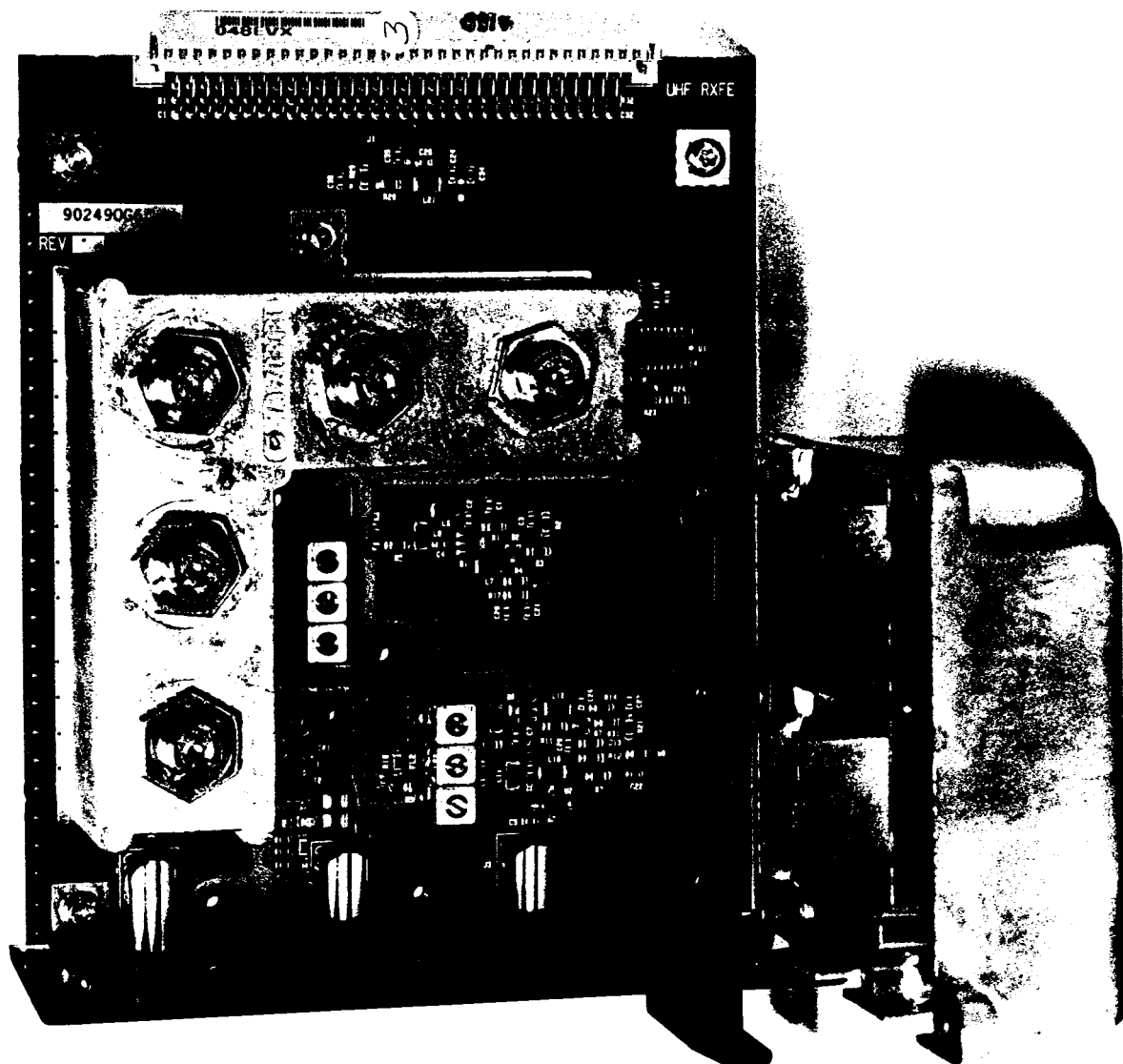
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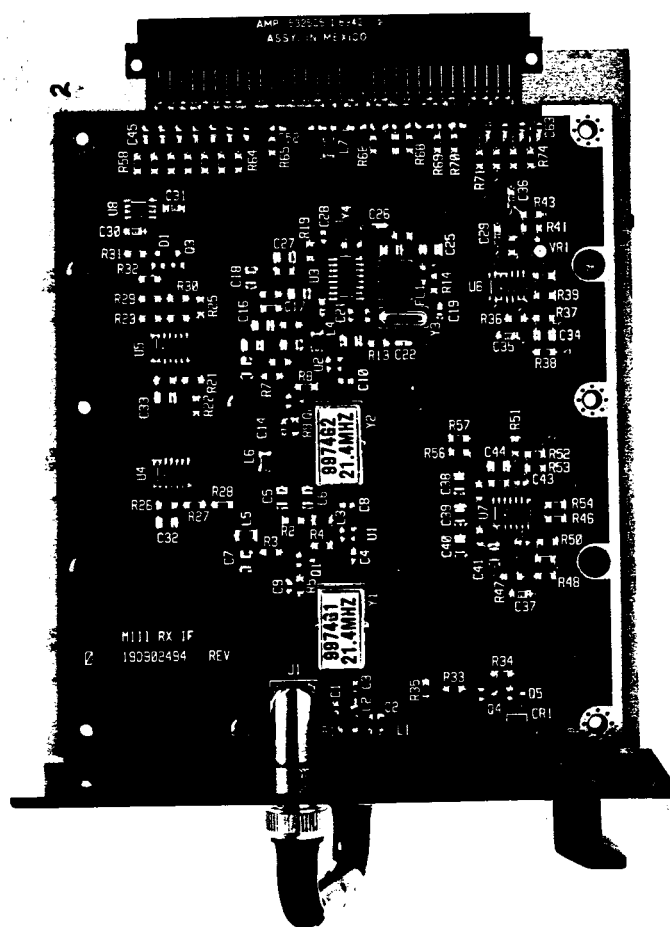
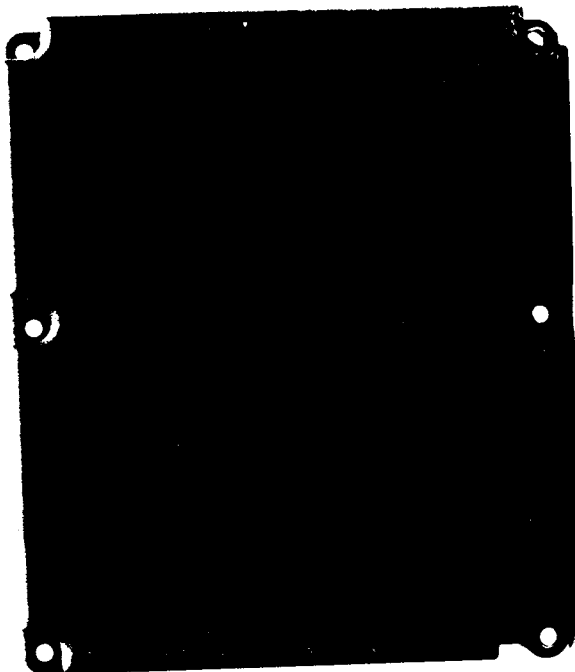




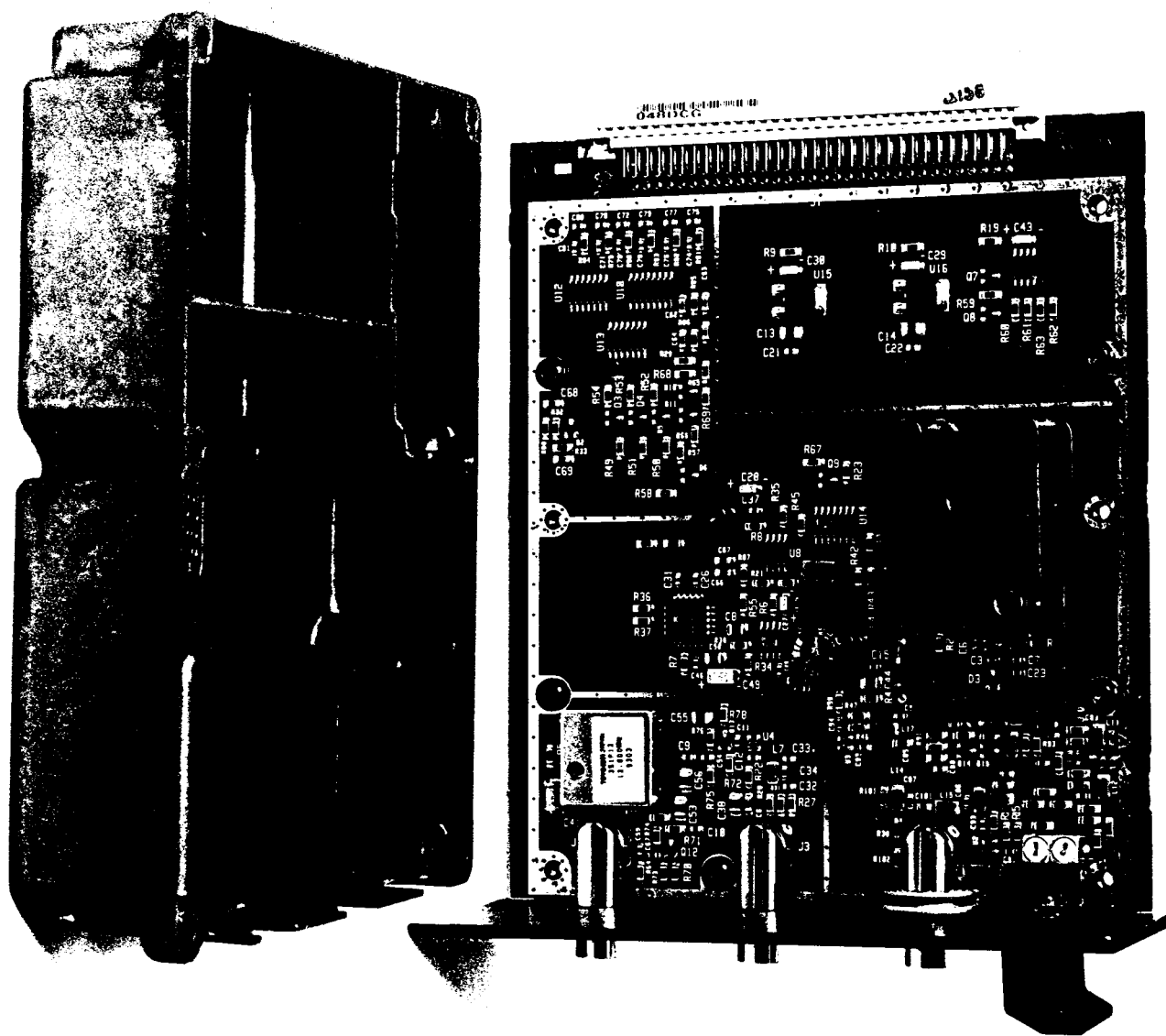


10-19-93-5

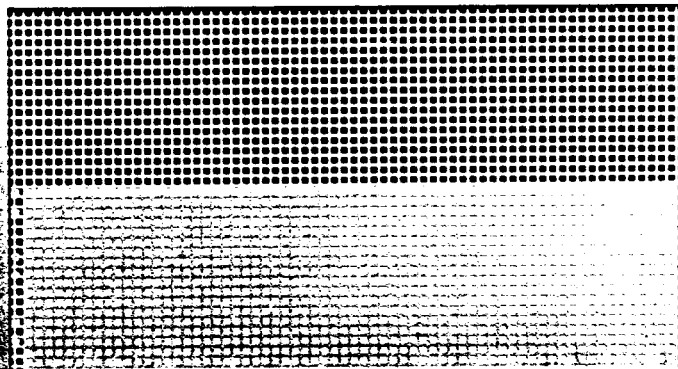




8-6-91-10



3-7-95-4



1-29-87-1