4421 Forbes Blvd. Lanham, Md. 20706

United States of America
FEDERAL COMMUNICATIONS COMMISSION
EXPERIMENTAL
RADIO STATION CONSTRUCTION PERMIT
AND LICENSE

EXPERIMENTAL (Nature of Service) — K C 2 X J U (Call Sign)

XD FX & MO (Class of station) — 1474-EX-PL-90 (File number)

NAME GENERAL ELECTRIC RADIO SERVICES CORPORATION

FIXED: Utica, (Oneida) New York - Lat. 43 05 55 N.; Long 75 12 30 W.
MOBILE: 50 mile radius above
(Location of station)

Subject to the provisions of the Communications Act of 1934, subsequent acts, and treaties, and all regulations heretofore or hereafter made by this Commission, and further subject to the conditions and requirements set forth in this license, the licensee hereof is hereby authorized to use and operate the radio transmitting facilities hereinafter described for radio communications.

Frequency MHz	Authorized Power (watts)	Emission Designator
1275-1330	2.4 kW (ERP)	4M00Q3X
1313-1317	2.4 kW (ERP)	4M00Q3X
1275-1330	5 watts (ERP)	NON/4M00AXX
1313-1317	5 watts (ERP)	NON/4M00AXX

In lieu of frequency tolerance, the occupied bandwidth of the emission shall not extend beyond the band limits set forth above.

Operation: In accordance with Sec. 5.202(i) of the Commission's Rules.

Special Conditions:

(1) Subject to prior coordination with FAA Eastern Regional Office, JFK, International Airport, New York 11430. Attn: Frequency Management Office Phone (718) 917-1191.

This authorization effective September 10, 1990 and will expire 3:00 A.M. EST March 1, 1992

FEDERAL COMMUNICATIONS COMMISSION

Federal Communications Commission
Washington, D.C. 20554

Approved by OMB
3060-0065
Expires 12/31/89

APPLICATION FOR NEW OR MODIFIED RADIO STATION AUTHORIZATION UNDER PART 5 OF FCC RULES
EXPERIMENTAL RADIO SERVICE (OTHER THAN BROADCAST)

A. Applicant's Name and Post Office address
(Give street, city, state, and ZIP Code. See Instruction No. 4)

General Electric Radio Services Corporation
4421 Forbes Blvd.
Lanham, MD 20706

DO NOT WRITE IN THIS BLOCK

File No. 1474-EX-PL-90

2.(a) Application for *(check only one box)*

☒ New Station ☐ Modification of existing authorization

2.(b) For Modification indicate below

File No.: Call Sign:

3. Application for modification indicate change in (check all that apply)

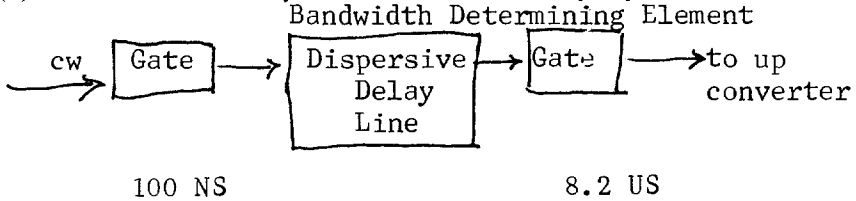
☐ Frequency ☐ Emission ☐ Power ☐ Location

☐ Other particulars *(describe below or in attached Exhibit No. _____)*

4. Particulars of Operation *(See instructions below)*

Frequency (State Whether kHz or MHz) (A)	POWER (B)	(C)	(D)	EMISSION (E)	MODULATING SIGNAL (F)	NECESSARY BANDWIDTH (kHz) (G)
1295 to 1330 MHz	2.4 KW	2.4KW	Peak	Q3X	8.2 US/300Hz	4M00
1313 to 1317 MHz	2.4 KW	2.4KW	Peak	Q3X	8.2 US/300Hz	4M00
1275 to 1330 MHz	5 w	5 w	Mean	Non, AXX	0/Noise	0/4M00
1313 to 1317 MHz	5 w	5 w	Mean	Non, AXX	0/Noise	0/4M00

(A) List each frequency or frequency band separately. (If more space is required, attach as Exhibit No. _____).
(B) Insert maximum R.F. output power at the transmitter terminals. Specify units.
(C) Insert maximum effective radiated power from the antenna (If pulsed emission specify peak power).
(D) Insert "MEAN" or "PEAK" (See definitions in Part 5).
(E) List each type of emission separately for each frequency. (See Section 2.201 FCC Rules.)
(F) Insert as appropriate for the type of modulation:
(1) the maximum speed of keying in bauds;
(2) maximum audio modulating frequency;
(3) frequency deviation of carrier;
(4) pulse duration and repetition rate.
For complex emissions, describe in detail in the space provided below.
(G) Describe how the necessary bandwidth was determined in space provided below.



Delay Scope = 2.0512 US/MHZ
Desired PW = 8.2 US
Necessary BW = $\frac{8.2}{2.0512}$ = 4 MHZ

4/10

5(a). Proposed location of transmitter and transmitting antenna (Check only one box)

☐ FIXED/BASE ☐ MOBILE ☒ BASE & MOBILE

(b) If permanently located at a fixed location, give below

State	County	City or Town
NY	Oneida	Utica

Number and street (or other indication of location)
901 Broad Street

(d) If mobile, describe the exact area of operation

North of Conrail Tracks
East of Route 58; West of Route 28
South of Route 365

(c) Geographical coordinates exact to the nearest second

North Latitude	West Longitude
43° 05' 55"	75° 12' 30"

(e) Geographical coordinates of the approximate center of proposed area of operation (mobile applications)

North Latitude	West Longitude
43° 10' 00"	75° 07' 30"

6. Is a directional antenna *(other than radar)* used? ☒ Yes ☐ No for mobile

If "YES", give the following information:

(a) Width of beam in degrees at the half-power point 30
(b) Orientation in horizontal plane X
(c) Orientation in vertical plane _____

7. Is this authorization to be used for fulfilling the requirement of a government contract with an agency of the United States Government? ☐ Yes ☒ No

If "Yes", attach as EXHIBIT No. _____, a narrative statement describing the government project, agency, and contact number.

8. Is this authorization to be used for the exclusive purpose of developing radio equipment for export to be employed by stations under the jurisdiction of a foreign government? ☐ Yes ☒ No

If "Yes", attach as EXHIBIT No. _____, the following information:
(a) The contract number and the name of the foreign government concerned.

9. Is this authorization to be used for providing communications essential to a research project? (The radio communication is not the objective of the research project). ☐ Yes ☒ No

If "Yes", attach as EXHIBIT No. _____, a narrative statement providing the following information:
(a) A description of the nature of the research project being conducted.
(b) A showing that the communications facilities requested are necessary for the research project involved.
(c) A showing that existing communications facilities are inadequate.

10. If all the answers to Items 7, 8, and 9, are "No", attach as EXHIBIT No. 1, a narrative statement describing in detail the following:

(a) The complete program of research and experimentation proposed including description of equipment and theory of operation.
(b) The specific objectives sought to be accomplished.
(c) How the program of experimentation has a reasonable promise of contribution to the development, extension, expansion, or utilization of the radio art, or is along line not already investigated.

11. (a) Give an estimate of the length of time that will be required to complete the program of experimentation proposed in this application.
(b) If less than 2 years, give the length of time in months that the authorization requested in this application will be required. Two years

12. Would a Commission grant of this application come within Section 1.1307 of the FCC Rules, such that it may have a significant environmental impact? ☐ Yes ☒ No

If you answer yes, submit an Environmental Assessment required by Section 1.1311.

13. List below transmitting equipment to be installed (if experimental, so state):

MANUFACTURER	TYPE	NO. OF UNITS
Base Station Experimental GE (see Exhibit 2)	Adaptive array	1
Mobile Station Hewlett Packard Signal Generator HP 614A with additional amplifiers(see Exhibit 3,4,5)	Mobile	1

14. Is the equipment listed in Item 13 capable of station identification pursuant to Section 5.152?

☐ Yes ☒ No

15. Will the antenna extend more than 6 meters above the ground, or if mounted on an existing building will it extend more than 6 meters above the building, or will the proposed antenna be mounted on an existing structure other than a building?

☐ Yes ☒ No

If "Yes", give the following (See Instruction 9):

(a) Overall height above ground to tip of antenna is _____ meters.

(b) Elevation of ground at antenna site above mean sea level is _____ meters.

(c) Distance to nearest aircraft landing area is _____ kilometers.

(d) List any natural formations of existing man-made structures (hills, trees, water tanks, towers, etc.) which, in the opinion of the applicant, would tend to shield the antenna from aircraft and thereby minimize the aeronautical hazard of the antenna.

(e) Submit as EXHIBIT No. _____, a vertical profile sketch of total structure including supporting building, if any, giving heights in meters above ground for all significant features. Clearly indicate existing portion, noting particulars of aviation obstruction lighting already available.

16. Applicant is *(check only one box)*

☐ Individual ☐ Association ☐ Partnership ☒ Corporation

☐ Other *(describe below)*

17. Is applicant a foreign government or a representative of a foreign government?

☐ Yes ☒ No

18. Has applicant or any party to this application had any FCC station license or permit revoked or had any application for permit, license or renewal denied by this Commission?

☐ Yes ☒ No

If "Yes", attach as EXHIBIT No. _____, a statement giving call sign of license or permit revoked and relate circumstances.

19. Will applicant be owner and operator of station?

☒ Yes ☐ No

20. Give name, title, and telephone number (include area code) of person who can best handle inquiries pertaining to this application.

Mark Hartnett, Project Engineer
315/793-4248

21. List below all exhibits in numerical sequence and the item number of form requiring the exhibit identified.

EXHIBITS AND ITEM NO. OF FORM

Exhibit Number	Item No. of Form	Exhibit Number	Item No. of Form	Exhibit Number	Item No. of Form
1	10				
2	13				
3	13				

22. **CERTIFICATION**

ATTENTION: Read this certification carefully before signing this application.

THE APPLICANT CERTIFIES THAT:

(a) Copies of the FCC Rules Parts 2 and 5 are on hand; and
(b) Adequate financial appropriations have been made to carry on the program of experimentation which will be conducted by qualified personnel; and
(c) All operations will be on an experimental basis in accordance with Part 5 and other applicable rules, and will be conducted in such a manner and at such a time as to preclude harmful interference to any authorized station; and
(d) Grant of the authorization requested herein will not be construed as a finding on the part of the Commission

(1) that the frequencies and other technical parameters specified in the authorization are the best suited for the proposed program of experimentation, and

(2) that the applicant will be authorized to operate on any basis other than experimental, and

(3) that the Commission is obligated by the results of the experimental program to make provision in its rules including its table of frequency allocations for applicant's type of operation on a regularly licensed basis.

APPLICANT CERTIFIES FURTHER THAT:

(e) All the statements in the application and attached exhibits are true, complete and correct to the best of the applicant's knowledge; and

(f) The applicant is willing to finance and conduct the experimental program with full knowledge and understanding of the above limitations; and

(g) The applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the USA.

Signed and dated this 9th day of April, 19 90.

Name of Applicant General Electric Radio Services Corporation
(correspond with name given on page 1)

By Robert M. Johnson *(print)* *(signature)*

Title Vice President

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

Check Appropriate Classification:

- ☐ Individual Applicant
- ☐ Member of Applicant Partnership
- ☒ Office of Applicant Corporation or Association
- ☐ Authorized Employee

NOTIFICATION TO INDIVIDUALS UNDER PRIVACY ACT OF 1974 AND THE PAPERWORK REDUCTION ACT OF 1980

Information requested through this form is authorized by the Communications Act of 1934, as amended, and specifically by Section 308 therein. The information will be used by Federal Communications Commission staff to determine eligibility for issuing authorizations in the use of the frequency spectrum and to effect the provisions of regulatory responsibilities rendered the Commission by the Act. Information requested by this form will be available to the public unless otherwise requested pursuant to Section 0.459 of FCC Rules and Regulations. Your response is required to obtain this 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.

SUPPLEMENTARY INFORMATION

FORM 442 - EXHIBIT 1

In accordance with Item 10 the following is submitted to support our need for a construction permit.

(1) This work is part of a total integrated effort of this Department's programs to provide the highest technical expertise in its Research and Development efforts. The General Electric Company, A.E.S.D. has proven an outstanding performance as a major contributor to the growth of Electronics.

(2) The Department is fully qualified with proper technical personnel and financial funding to complete the program specified in this application.

(3) (4) (5)

This project is to provide an adaptive array system suitable for use as a test bed and as a demonstration system. Both radar and communication system adaptive array experiments are to be performed after system design and construction are completed. To facilitate complementary computer simulation work, the recording of digitized antenna element signals is also planned as a function of this system. The design approach and experiment planning for the Adaptive Phased Array Demonstration Model are motivated by a need to verify the utility and practicality of adaptive detection system concepts. Practical applications and systems performance will be effected by partial implementation, signal environment, compatibility of adaptive array with other signal processing functions, avoidance of excessive system costs of array and sophisticated processing methods. Questions of signal environment analysis and simulation must include multipath propagation, reflections and polarization of received signals. Due to the relatively complex relations between the adaptive processor and other system parameters, a test bed array system can provide significant system performance information not attainable by other means. Moreover, factors of system performance can be isolated by the complementary use of experimental and computer simulation techniques. For example, recorded digitized array receiver signals employed as inputs to a computer simulation will isolate certain factors of performance. Further use of this off-line processing method is to evaluate other adaptive processor configurations.

(6) This Department will operate transmissions in full compliance of the applicable FCC rules and clauses.

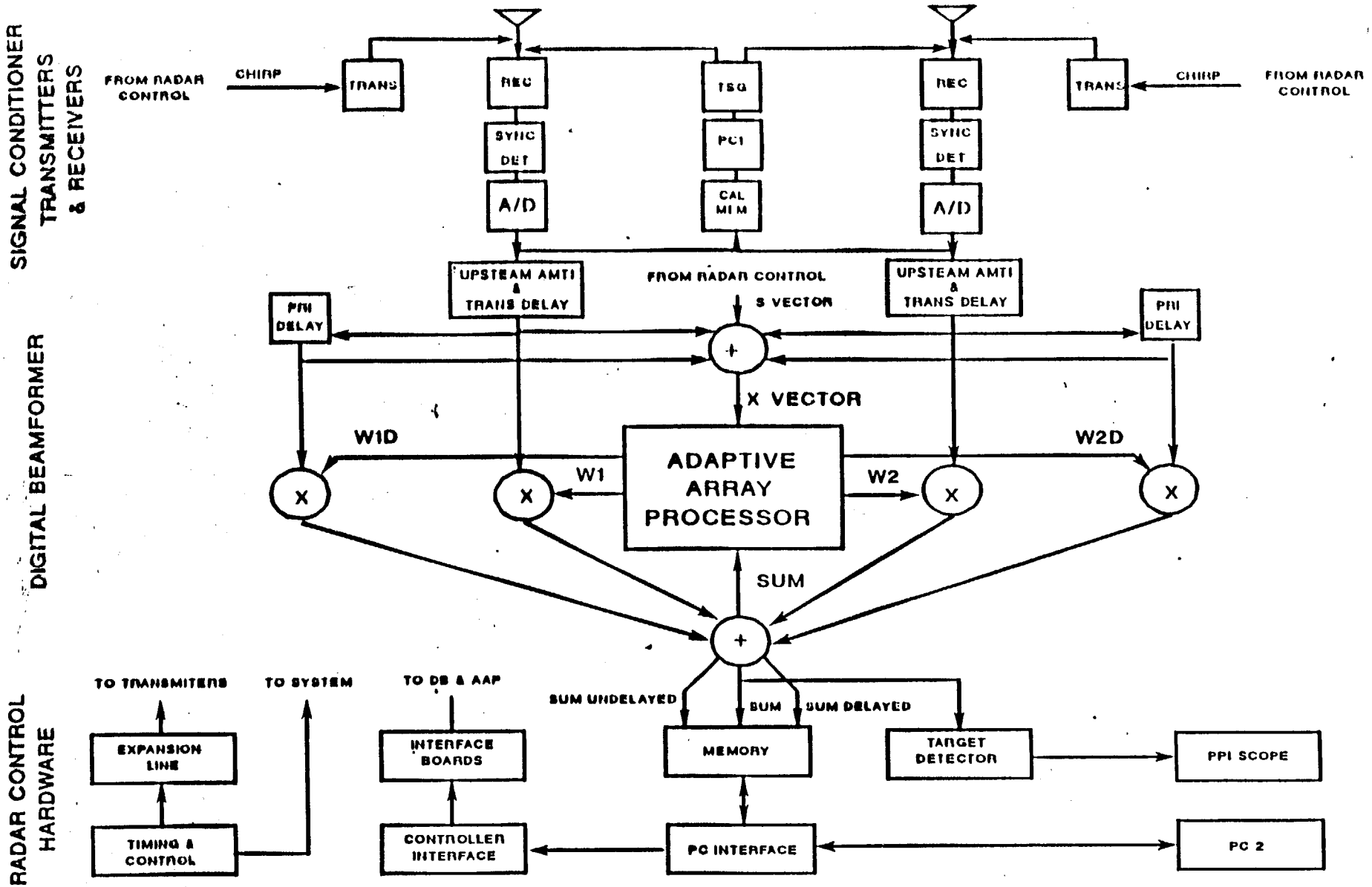
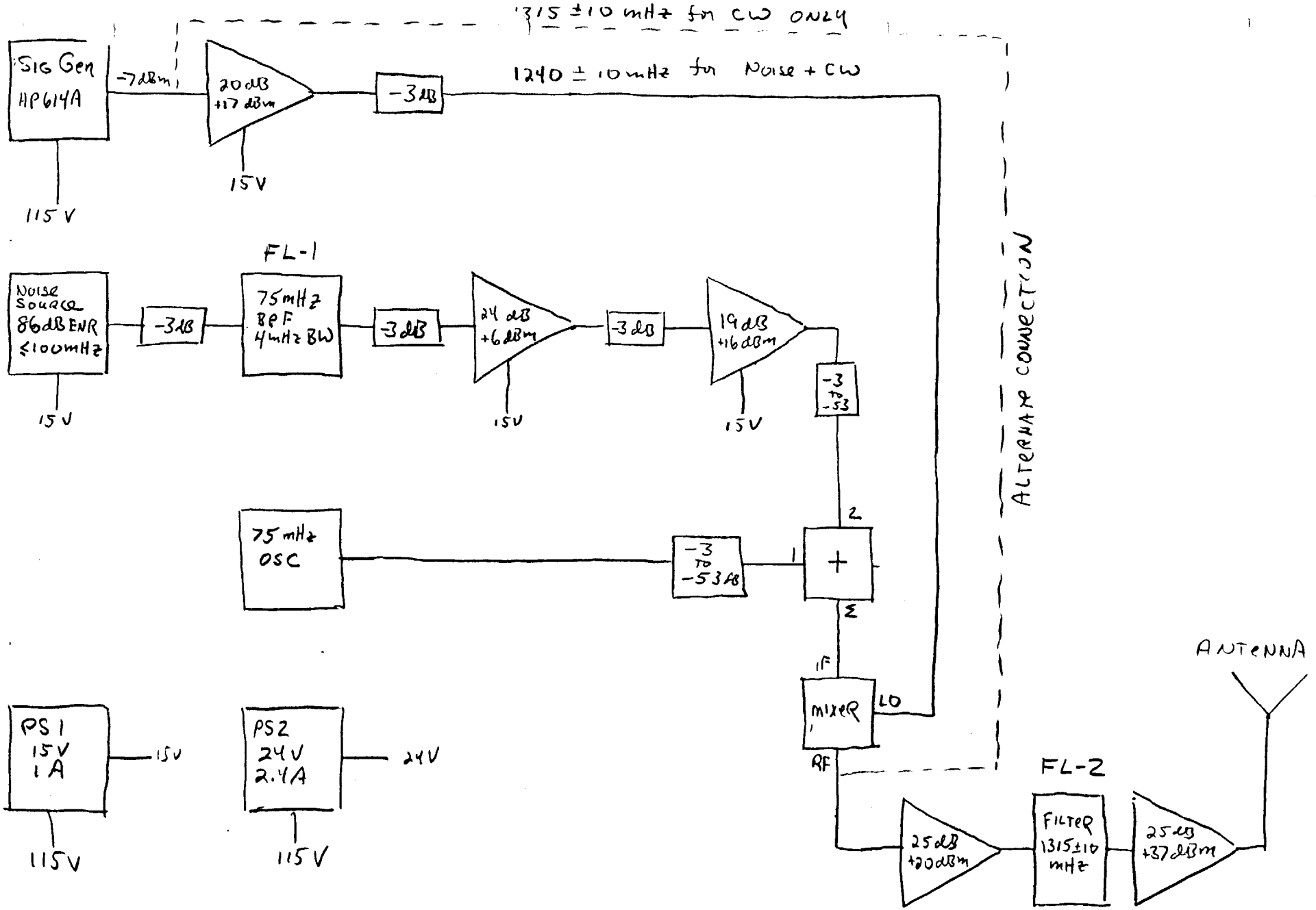


FIGURE 1 AES'S ADAPTIVE ARRAY DETECTION SYSTEM (TWO CHANNELS SHOWN)

EXHIBIT 2



ADAPTIVE ARRAY DETECTION SYSTEM
JAMMER SOURCE MOBILE

EXHIBIT 3

3/14/90

S/N 18

FL-2

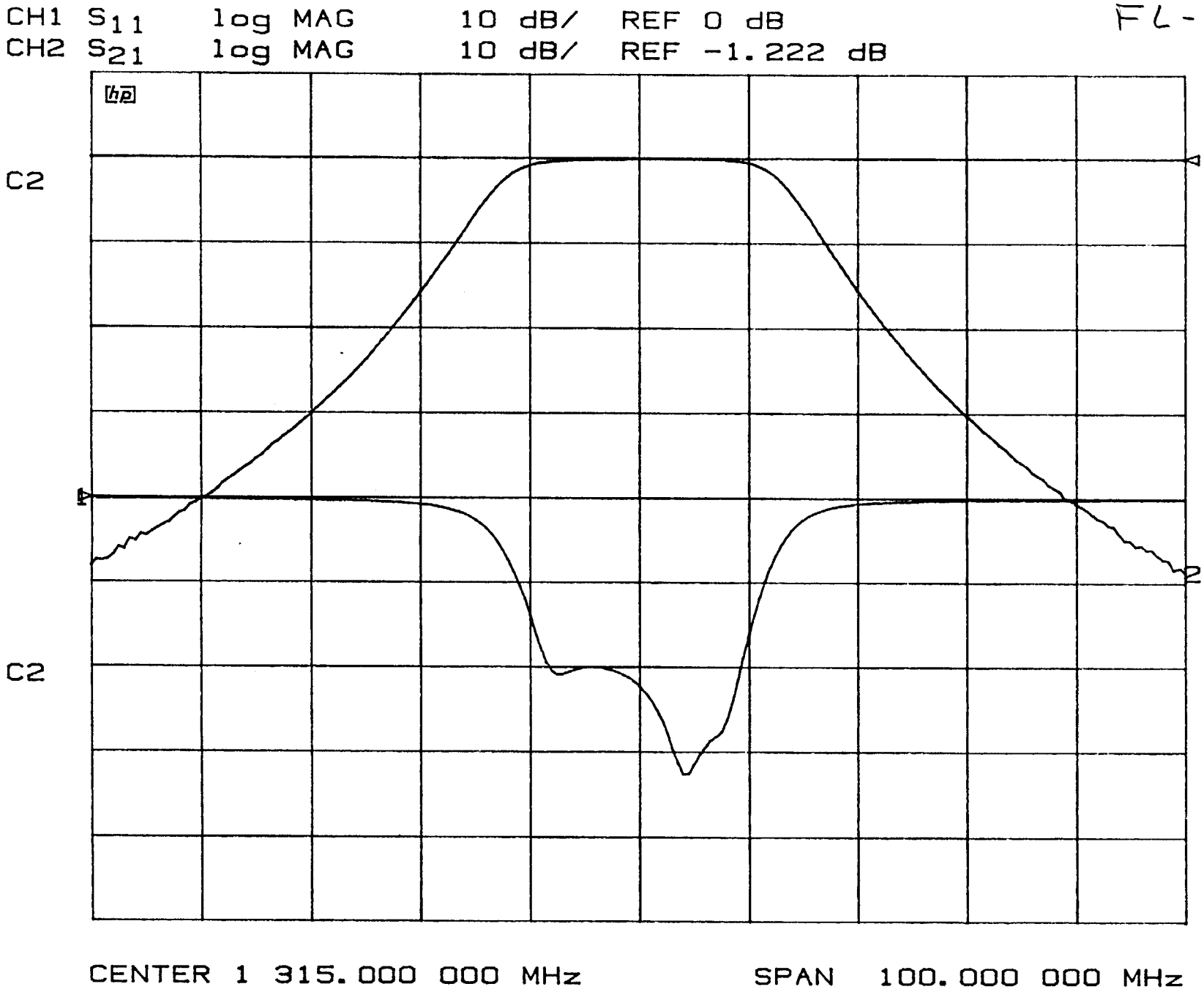


EXHIBIT 4

NJ 75mHz Freq NetCom MDL 904 SK-5501 P2

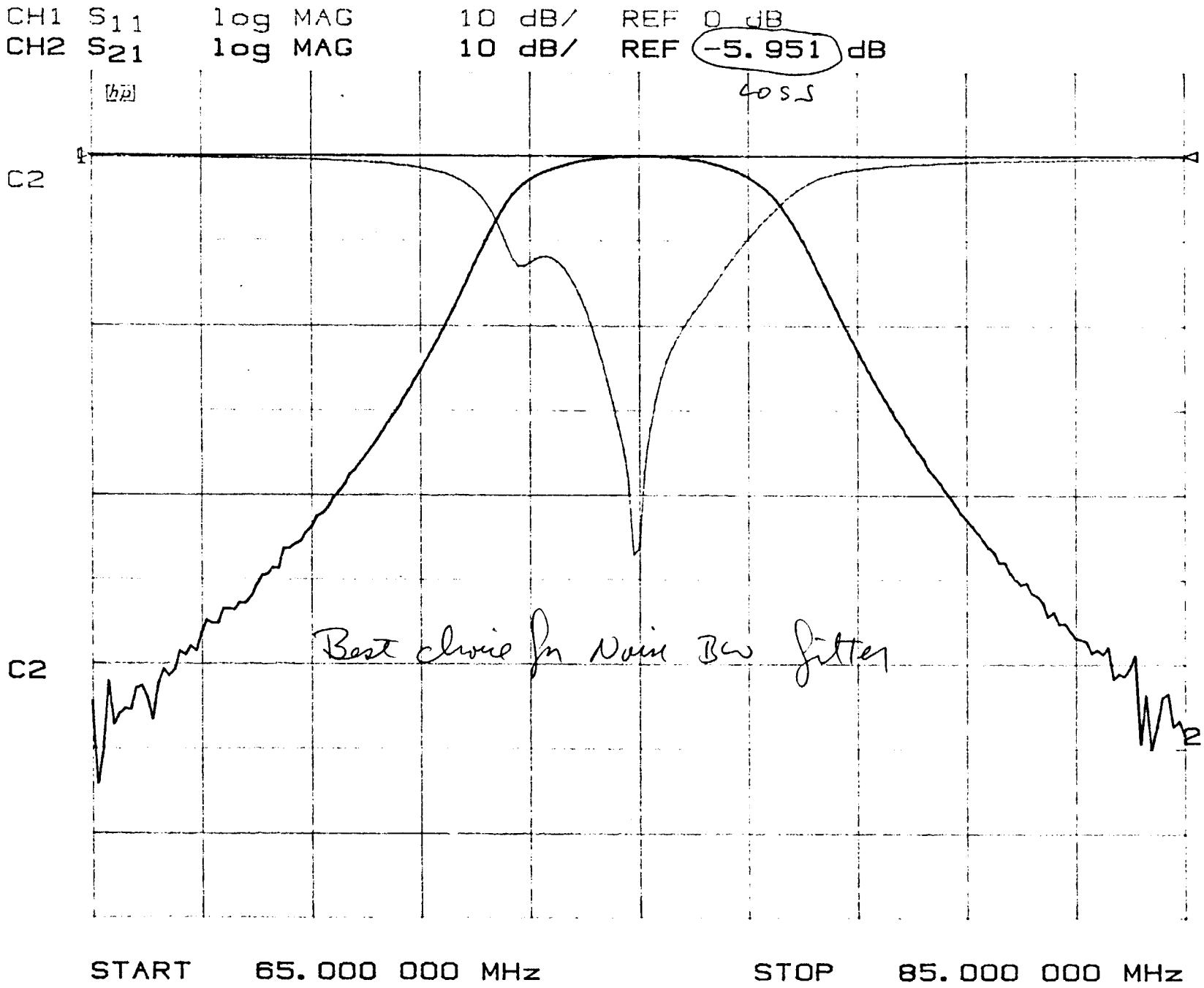


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EXHIBIT 5