

Federal Communications Commission  
Washington, D. C. 20554

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

RECEIVED  
Approved by GAO  
B-180227(R03/64)  
AUG 31 10 42 AM '82

|                                                                                                                                                                                                                                                                                    |                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| <p>1. Applicant's Name and Post Office address<br/>(Give street, city, state, and ZIP Code, see Instruction No. 4)</p> <p>Radiation Systems, Inc.<br/>Technical Products Division<br/>1501 Moran Road<br/>Sterling, VA 20166</p> <p>Attention: J. H. Arnold, Jr.<br/>President</p> | <p>DO NOT WRITE IN THIS BLOCK</p> <p>File No.</p> <p>EX-100-92</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|

|                                                                                                                                                                          |                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| <p>2.(a) Class of station applied for</p> <p>XD FX</p>                                                                                                                   | <p>2.(b) Nature of Service Experimental -<br/>Research-Product Testing</p>                 |
| <p>3.(a) Application for (check only one box)</p> <p><input type="checkbox"/> New Station <input checked="" type="checkbox"/> Modification of existing authorization</p> | <p>3.(b) For Modification indicate below</p> <p>File No. 8234-EX-R-90 Call Sign KK2XFV</p> |

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

☒ Frequency ☐ Emission ☐ Power ☐ Location

☐ Other particulars (describe below or in attached Exhibit No. \_\_\_\_\_)

5. Particulars of Operation see instructions below)

| Frequency (State<br>Whether kHz or<br>MHz<br>(A)) | POWER |             |     | EMISSION<br>(E) | MODULATING<br>SIGNAL<br>(F) | NECESSARY<br>BANDWIDTH<br>(kHz)<br>(G) |
|---------------------------------------------------|-------|-------------|-----|-----------------|-----------------------------|----------------------------------------|
|                                                   | (B)   | (C) (Watts) | (D) |                 |                             |                                        |
| 50-73                                             |       | 4 (ERP)     |     | 2K00A2N         |                             |                                        |
| 75.4-108                                          |       | 4 (ERP)     |     | 2K00A2N         |                             |                                        |
| 138.2875                                          |       | 4 (ERP)     |     | 2K00A2N         |                             |                                        |
| 141.6125                                          |       | 4 (ERP)     |     | 2K00A2N         |                             |                                        |
| 143.8875                                          |       | 4 (ERP)     |     | 2K00A2N         |                             |                                        |
| 148.1875                                          |       | 4 (ERP)     |     | 2K00A2N         |                             |                                        |
| 149.2375                                          |       | 4 (ERP)     |     | 2K00A2N         |                             |                                        |
| 150.8 -                                           |       |             |     |                 |                             |                                        |
| 162.0125                                          |       | 4 (ERP)     |     | 2K00A2N         |                             |                                        |

(A) List each frequency or frequency band separately. (If more space is required, attach as Exhibit No. 1).

(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 the following information for each type of emission:

- for A1, insert maximum speed of keying in bauds
- for A2, insert maximum audio modulating frequency and maximum speed of keying in bauds
- for A3, insert maximum audio modulating frequency
- for F1, insert mark and space frequencies, maximum speed of keying in bauds
- for F2, insert maximum audio modulating frequency, frequency deviation of carrier, maximum speed of keying in bauds
- for F3, insert maximum audio modulating frequency and frequency deviation of carrier
- for P0, insert pulse duration and repetition rate
- for other emissions describe in detail in space provided below.

(G) Describe how the necessary bandwidth was determined in space provided below.

6(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<br>Virginia | County<br>Loudoun | City or Town<br>Sterling |
|-------------------|-------------------|--------------------------|

Number and street (or other indication of location)

1501 Moran Road

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

Geographical coordinates exact to the nearest second

North Latitude

38° 59' 43"

West Longitude

77° 26' 49"

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

North Latitude

West Longitude

Place an "X" in the appropriate column

YES

NO

7. Is a directional antenna (other than radar) used?

If "YES", give the following information:

(a) Width of beam in degrees at the half-power point. \_\_\_\_\_

(b) Orientation in horizontal plane \_\_\_\_\_

(c) Orientation in vertical plane \_\_\_\_\_

XX

8. Is this authorization to be used for fulfilling the requirements of a government contract with an agency of the United States Government?

XX

If "Yes", attach FCC Form 440-A, Supplemental Information for Applications in the Experimental Radio Service Involving Government Contract, in triplicate to this application. SEE EXHIBIT NO. 2

9. 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?

XX

If "Yes", attach as EXHIBIT No. \_\_\_\_\_, the following information:

(a) The contract number and the name of the foreign government concerned.

(b) The daily hours of operation and the estimated date of the beginning and end of the specific time period for which the authorization is required.

10. 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).

XX

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.

11. If all the answers to Items 8, 9, and 10 are "No", attach as EXHIBIT NO. \_\_\_\_\_, 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 lines not already investigated.

12. (a) Give an estimate of the length of time that will be required to complete the program of experimentation proposed in this application 25 years

(b) If less than 2 years, give the length of time in months that the authorization requested in this application will be required.

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

NO. OF UNITS

MANUFACTURER  
Hewlett Packard

TYPE  
RF Generator

2

14. State provisions that will be made for measurement and periodic checking of the station's technical characteristics (power, frequency, bandwidths) to insure compliance with terms of license.

Test equipment will be calibrated every six (6) months to manufacturers requirements.

Place an "X" in the appropriate column

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?

XX

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 or 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. Does this application propose a developmental program of experimentation which requires the submission of a petition? (See Instructions 10 and 11)

XX

If "Yes", attach the petition as EXHIBIT No. \_\_\_\_\_.

17. Applicant is (check only one box)

☐ Individual

☐ Association

☐ Partnership

☒ Corporation

☐ Other (describe below)

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

XX

19. 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?

XX

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

Place "X" in the appropriate column.

YES NO

20. Will applicant be owner and operator of station?

XX

If "No", explain applicant's relation to station.

21. Will applicant have absolute control of station, both as to physical operation and service conducted?

XX

If "No", explain circumstances and give name of person who will have control of station.

22. Will the transmitter be operated with licensed operator on duty at a remote control point?

XX

If "Yes", the following information must be provided. (If there is to be a licensed operator on duty at the transmitter, data required by this item may be omitted.)

(a) Location of remote control point. (If more than one remote control point is involved, attach as EXHIBIT No. \_\_\_\_\_, a statement giving location of each remote control point, plan of operation, etc.)

|              |              |
|--------------|--------------|
| State        | County       |
| City or Town | Street & No. |

(b) By what means will the transmitter be rendered inaccessible?

N/A

(c) Can transmitter be placed in an inoperative condition from the remote control point?

N/A

(d) Describe below the equipment to be used to enable the operator at the control point to determine when there is a deviation from the terms of the station license or when operation is not in accordance with the Commission's Rules governing the class of station involved.

N/A

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

Charles Pewsey  
Engineer III  
(703) 450-5680

24. 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              | Frequency 5(A)   | 2              | FCC 440A 8       |                |                  |
|                |                  |                |                  |                |                  |
|                |                  |                |                  |                |                  |
|                |                  |                |                  |                |                  |

## 25. 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 ether as against the regulatory power of the USA.

Signed and dated this 13 day of August, 1992.

Name of Applicant Radiation Systems, Inc., Technical Products Division  
correspond with name given on page 1)

By J. H. Arnold, Jr.  
(print)

Title 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
- ☒ Officer of Applicant Corporation or Association
- ☐ Authorized Employee

**NOTIFICATION TO INDIVIDUALS UNDER PRIVACY ACT OF 1974**

Information requested through this form are 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.

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).