

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) Martin Marietta Corporation Attn: John S. Hickey P.O. Box 4906 Baltimore, MD 21220	DO NOT WRITE IN THIS BLOCK File No. <u>3910-EX-R-93</u>
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2.(a) Application for (check only one box) ☒ New Station ☐ Modification of existing authorization	2.(b) For Modification indicate below File No.: _____ Call Sign: _____
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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) GHz (A)	POWER			EMISSION (E)	MODULATING SIGNAL (F)	NECESSARY BANDWIDTH (kHz) (G)
	(B)	(C)	(D)			
Source A (Aut)					Pulse Width	318 Khz
3.06-4.5	1280 watt	119.5 kw	Peak	PON	20 μ s-102.4 μ s	
4.5 -6.0	640 watt	172.3 kw	Peak	PON	PRF=.5Khz - 2.5 Khz	
					20% max.duty	
Source B						
3.0 - 60	0.08 watt	760 watt	Mean	NON	N/A	N/A

(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.

The necessary bandwidth was calculated using the following equation:

$$B = \frac{6.36}{t} \quad \text{where } t = 20 \mu s.$$

resulting in a maximum nexessary bandwidth of 318 Khz. Annex J, "Guidance for Determination of Necessary Bandwidth" of the NTIA was used as a reference for the equation in the above calculation.

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		(d) If mobile, describe the exact area of operation	
State NJ	County Burlington	City or Town Moorestown	
Number and street (or other indication of location) Borton Landing Road			
(c) Geographical coordinates exact to the nearest second		(e) Geographical coordinates of the approximate center of proposed area of operation (mobile applications)	
North Latitude 39° 58' 54"	West Longitude 74° 54' 49"	North Latitude ° ' "	West Longitude ° ' "
6. Is a directional antenna (other than radar) used? ☒ Yes ☐ No If "YES", give the following information: *see exhibit 1 (Source B) (a) Width of beam in degrees at the half-power point 30° nominal (b) Orientation in horizontal plane * (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. <u>2</u> , 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. <u>2 years</u>			
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
Source B - Hewlett Packard	Model 8349B Microwave Amplifier	1
Source A - Martin Marietta	Dual Band Demonstration Array (experimental)	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 (Source B) ☒ No (Source A)

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

(a) Overall height above ground to tip of antenna is 10 meters.

(b) Elevation of ground at antenna site above mean sea level is 19 meters.

(c) Distance to nearest aircraft landing area is 7.2 (approximately) 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.

Building 117 (see figure 1)

(e) Submit as EXHIBIT No. 1, 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.

Michael Cucugliello, Member Engineering Staff, Antenna and Microwave Systems
 (609) 722-6062

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	6, 15				
2	10				

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:

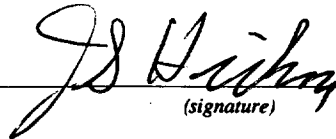
- (e) All the statements in the application and attached exhibits are true, complete and correct to the best of the applicant's knowledge; and
- (f) The applicant is willing to finance and conduct the experimental program with full knowledge and understanding of the above limitations; and
- (g) The applicant 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 7th day of September, 19 93.

Name of Applicant Martin Marietta Corporation

(correspond with name given on page 1)

By John S. Hickey
(print)


(signature)

Title Manager of Voice Services

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.