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DEPARTMENT OF THE NAVY
Office of the Chief of Naval Operations
Washington 25 D C

C-S67/12-2(822)
S-S67/1-2
Ser 822D-0223

From: Chief, Bureau of Ships
To: Chief of Naval Operations

22 Sept 1953

Subj: Application for allocation of radio frequencies for
Precision Loran System

Ref: (a) BUSHIPS ltr ser 822D-0506 of 27 Aug 1952 to CNO
(b) CNO ltr ser 0723P37 of 30 Dec 1952 to BUSHIPS

Encl: (1) Application for Frequency Allocation for Precision
Loran System, dated 10 Sept 1953

1. Reference (a) proposed the development of a high precision phase comparison loran system, if investigations underway showed the system to be feasible, for evaluation in connection with requirements for navigation of mine countermeasures vessels. Reference (b) approved the project.
2. Based on investigations and demonstration in the laboratory of successful elemental systems by two contractors, it is concluded that the system is feasible and that a practicable system probably can be developed. These investigations further indicated that new production loran station equipments being purchased by the U. S. Coast Guard should be satisfactory for use in the precision system, with relatively minor modification. Arrangements have been made with the U. S. Coast Guard for the loan of sufficient equipment for one three-station harbor system, with the result that the major effort on the precision system can be applied to development of a shipboard navigation receiver.
3. This Bureau is proceeding with the development of equipment required for evaluation of the precision system. It is estimated that the system will be ready for evaluation during the second quarter of calendar 1955.
4. Enclosure (1) is submitted for consideration and approval.

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Authority NWD 978245

By Amg NARA. Date 7/14

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APPLICATION FOR FREQUENCY ALLOCATION

From: Chief, Bureau of Ships, Code 822D _____ Date _____

To: Chief of Naval Operations (Attn: OP-2030)

1. Application is hereby submitted for the allocation of the following frequencies for the purpose shown

- (a) Nomenclature: Precision Loran System
- (b) Function: Navigation of Mine Countermeasures Vessels
- (c) Frequency in megacycles (Note 1): 1950 KC
- (d) Type of emission: Pulse
- (e) Bandwidth of emission in kilocycles: 50 KC
- (f) Pulse length in microseconds: 40 Microseconds @ 1/2 amplitude
- (g) Pulse recurrence rate: 20, 25 or 33-1/3 pps loran rates
- (h) Power output in kilowatts (Note 2): 150 KW
- (i) Antenna system:
 - Polarization: Vertical
 - Beam width in azimuth: Omnidirectional
 - Beam width in elevation: Hemispherical (approx)
 - Gain: 3db
- (j) Installation (Note 3): Fixed shore stations
- (k) Estimated date of first operational use: Jan 1955 experimental tests
- (l) Rate of introduction into service: to be determined
- (m) Number of equipments proposed: One system initially; 10 to 20 later
- (n) Geographical area of use: Test system at Norfolk; eventually all Major U.S. Harbors
- (o) Remarks: (see below)

Note 1 - Figures separated by a dash specify frequency range;
Figures separated by commas specify spot frequencies.

Note 2 - For pulse equipments specify peak power.

Note 3 - If not ground equipment, specify type of ship or aircraft in which to be fitted; for ground equipment, specify degree of mobility.

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Enclosure (1)

Remarks:

It is estimated that two or three Precision systems of 3 stations each can be added in the presently used 1950 KC channel on the East Coast or 1850 KC channel on the West Coast. Expansion to include 7 to 10 systems on each coast may require allocation of a new Loran Channel for each coast.

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By <u>Ang. NARA.</u> Date <u>7/14</u>