

SUPPLEMENTARY DETAILS: (NTIA 8.2.21)

1. The application for which licensing is being requested is intended for the purpose of realtime monitoring of mesospheric and ionospheric phenomena.
 - 1a. The NOAA HF Radar was developed at the National Oceanic and Atmospheric Administration and is documented in a NOAA Report (*Grubb, 1979*).
 - 1c. The NOAA HF Radar was designed to exclude any frequency (including WWV, WWVH, etc.) by software. In other words, a table containing the list of “protected” frequencies is established. Centered at each protected frequency specified, a 50 kHz guard band in which there is no transmission is established.
 - 1e. The design ensures a Gaussian shape of the transmitted pulse. A 30 MHz low-pass filter is used to eliminate unwanted emissions in the VHF bands or higher. The upper limit of the stepped transmission is determined by the expected seasonal foF2 and the time of day. Previous experience would suggest that practical limits are ^a 15 MHz and ^a 10 MHz (at night).
- a) **Channeling plans:** this is not applicable to an digital ionospheric sounder of the type to be employed.
- b) **Pulse duration:** 60 microseconds (48μsec to 3 dB level), Gaussian. 30 microseconds is under consideration. The duty cycle is 0.6%.
- c) **Pulse repetition frequency:** Programmable, nominally 100 pulses per second (or less).
- d) **Pulse per channel:** one per selected frequency.
- e) **Scan rate:** programmable in software. Determined by user-defined start and end frequencies of ionogram sweep, the type of sweep, and the number of pulse sets per sounding.
- f) **Scan interval:** one stepped frequency sounding per five minute interval
- g) **Antenna azimuth:** traveling-wave dipole having no directional capabilities proposed.
- h) **Antenna orientation:** the traveling-wave dipole has an approximate East-West orientation.

Reference:

Grubb, R. N., The NOAA SEL HF radar system (Ionospheric sounder), Space Environment Laboratory, Boulder, Colorado, 1979.

In support of: 0124-EX-PL-1999

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19 March 2001