



Sonoma Technology, Inc.

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July 14, 1999

STI Ref. No. 999450

Federal Communications Commission
Attn. Mr. Franklin Wright
Experimental Radio Service
P.O. Box 358320
Pittsburgh, PA 15251-5320

Dear Mr. Wright,

Sonoma Technology, Inc. (STI), is applying for a Special Temporary Authority (STA) permit to operate one 915-MHz radar profiler to collect vertical profiles of atmospheric wind and temperature data from approximately 0.1 to 4.0 km altitude. These data are to be collected as part of an air quality study in Cincinnati, Ohio. This study is being sponsored by the Electric Power Research Institute (EPRI). The purpose of the study is to develop an improved understanding of the causes leading to high concentrations of particulate matter in the Cincinnati region. The profiler is scheduled to begin operating on July 22, 1999. The profiler will be operated for a period not to exceed three months.

The operator of the profiler equipment and licensee for profiler operations is:

SONOMA TECHNOLOGY, INC.
1360 REDWOOD WAY, SUITE C
PETALUMA, CA 94954
(707) 665-9900 voice
(707) 665-9800 fax

The contact person at STI regarding this license application is Mr. Joseph J. Kwiatkowski, Meteorologist.

The profiler transmission frequency is 915.0 MHz with a maximum RF output power of 1.0 kW peak at the transmitter terminals. The maximum effective radiated power from the antenna is 400 kW peak. The radar pulse duration is adjustable from 400 nanoseconds to 12 microseconds. Bi-phase (180°) modulation may be employed in

minimum intervals of 400 nanoseconds. The pulse repetition frequency is adjusted to the mode of operation, but can not exceed 50 kHz. The calculated bandwidths (confirmed by test measurements made by the manufacturer, Radian Corporation) using the minimum nanosecond pulse/code cell duration are 2.2 MHz at -3 dB below peak, 3.7 MHz at -10 dB below peak, and 12.7 MHz at -20 dB below peak.

The antenna/transmitter location will be located near Trenton, OH at 39° 26' 52" N, and 84° 27' 48" W, at approximately 229 m MSL.

The antenna system consists of one steerable micro-patch phased array planar antenna with sidelobe reduction fencing. The antenna is pointed vertically, with electrically switched delay introduced to point it 21° off-vertical in four (oblique) directions 90° apart. The antenna has a beam width of about 9° by 9° and approximately 26 dB of gain. The antenna is located on the ground and is less than three meters high. The radar uses a single transmitter type, Power Amplifier model 9150-52 manufactured by Microwave Power Devices. Normal operation consists of continual (24-hour) sequential transmissions using the vertical and two orthogonal oblique pointing directions.

The FCC Remittance Advice form 159 is enclosed for the STA application processing fee.

Thank you very much for your attention to this matter. If you have any questions please feel free to contact me at (707) 665-9900.

Sincerely,



Joseph J. Kwiatkowski
Meteorologist

enc.

cc: T. Dye