

Raytheon Request for FCC Special Temporary Authorization (STA)

(Call Sign) **WH9XJP 0227-EX-ST-2014**

Purpose of Operation:

Narrow beam, electronically steered phased array radar system, to detect and track aircraft.

STA Explanation:

Radar will be at Redstone Arsenal, AL, for a period of time for testing under the direction of the US Army.

Test Summary:

Testing will be done to evaluate performance during operation of multiple radar modes, while tracking aircraft of opportunity as well as controlled target aircraft over Redstone Arsenal.

Raytheon Technical Point of Contact:

Frequency Coordination: John F. Adams, 803 318 0021

Radar System: Alan Moore, 714 686 3129

Period of Use:

Exact dates to be established; The radar will be transported to Redstone Arsenal for a period of 2 to six weeks within the overall time frame of April through September 2014. Operation will typically be during daytime weekday hours, with the possibility for occasional after-hours operation if required for maintenance or special testing.

Equipment Information:

The radar uses an Active Electronically Scanned Array (AESA) antenna which has 4096 active transmit/receive modules. Each module contains a power amplifier and a low noise receive amplifier, as well as adjustable attenuator and phase shifter for beam shape and beam steering control. The radar is capable of operating with rotating antenna to cover 360 degrees in azimuth, or with the antenna fixed to cover 90 degrees in azimuth.

For each frequency band:

Frequency Band: 9.3 to 10.0 GHz. Operation may be on a single channel within this band, or operation may employ frequency hopping over several frequencies within the band.

Effective radiated power from the antenna (if pulsed emission, specify peak power):

Peak power is 20,480 Watts; Mean power maximum is 2048 Watts.

Frequency Tolerance:

2 ppm.

List each type of emission separately for each frequency (basically list the emission designators)

21M8Q3N 27M0Q3N 424KP0N 6M36P0N 21M9Q1N

Necessary bandwidth. Explain how determined.

Calculated according to Annex J of NTIA Manual of Regulations and Procedures for Federal Radio Frequency Management.

List as appropriate for the type of modulation:

Pulse modulation is software controlled and varied according to anticipated target range and speed. Pulses are transmitted in bursts of 8 to 40 pulses at a fixed rate and fixed pulse width. Normal modes use NLFM pulses with pulse rates between 6000 and 20,000 per second (Inter-Pulse Periods from 50 μ s to 166 μ s selected in 1 μ s steps). Pulse widths are selected from 4 μ s to 15 μ s in 1 μ s steps, based upon the selected IPP to keep the duty cycle at 10% or less. Special test modes use non-coded pulse modulation with pulse widths from 1 μ s to 15 μ s. Barker coded 1.3 μ s pulse is used at a maximum of 70,000 pulses per second.