

September 9, 2003

By Regular Mail and Email: jkennedy@fcc.gov

John Kennedy
Office of Engineering & Technology
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

Re: FCC File #: 0258-EX-ST-2003
Reference Number: 2693
Confirmation Number: EL13452

Dear Mr. Kennedy:

We are in receipt of and thank you for forwarding the FAA's comments regarding the above-referenced FCC STA file. Matt Hederstrom is presently on holiday and I am providing ANPC's response in his absence.

On a general note, the application process apparently did not adequately brief the commentator on ANPC's purpose for requesting the STA and on the mission of the Transportable TLS (TTLS). ANPC is requesting the STA so that it can test for a specific and limited period of time a transponder-based cooperative target surveillance and approach guidance system being developed in cooperation with Marine Corps Warfighting Lab. This system is not being developed for use in the NAS and will not be permanently installed or situated at Madras, OR (or anywhere else in the NAS.) Clarification of this fundamental misunderstanding addresses many of the commentator's specific issues. ANPC's response to the other issues are also set forth in detail below.

With respect to the commentator's concerns regarding the requested interrogation rate, the civilian TLS is capped at 10 Hz because 10 Hz is the minimum interrogation rate required to accomplish the TLS mission. The Transportable TLS (TTLS) that will be tested at Madras, OR has an expanded military mission compared to the civilian mission defined for TLS.

With that expanded mission comes an increased requirement on interrogation rate. The proposed interrogation rate of 18 Hz includes a combination of Mode A and Mode C interrogations. Further, the overall interrogation rate of 18 Hz is the cap, not the minimum, on the interrogation rate required for the new mission.

At the same time, the new mission has a decreased need for primary volume interrogation which will be reduced from 120 degrees to 30 degrees through increased P2 suppression. Thus, 10 out of the 18 TTLS interrogations per second will be of a much smaller volume than is used for the civilian TLS.



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The military TTLS mission will require an additional 8 interrogations per second broadcast omni-directionally during testing at Madras, OR.

Further, the 10 Hz TLS does not produce 2.5 times the number of interrogations of an ATCRBS as asserted by the commentator. A conventional sliding window ATCRBS Interrogator provides the following interrogations of a single aircraft:

Given ATCRBS interrogation parameters of:

- 4.7 secs / rotation;
- 7.28 degree beamwidth; and
- 331.5 interrogation rate;

ATCRBS yields 31.5 interrogations per aircraft in a burst per 4.7 sec or 6.7 interrogations per second.

Thus, TLS produces $10/6.7 = 1.49$ times the interrogation rate of a conventional ATCRBS. The testing of the 18 Hz TTLS at Madras, OR will yield approximately 2.7 times the interrogation rate of a conventional ATCRBS in the 30-degree volume and 1.2 times in the remaining volume.

Fortunately, there are only 2 FAA radars within operable range of Madras, OR so the overall transponder reply rate will be well below the threshold where there should be a concern about transponder reply efficiency. As a point of comparison, a report¹ prepared for the FAA's Office of Spectrum Policy and Management by the Department of Defense Joint Spectrum Center (JSC) confirmed that even if 10 TLSs were installed in the LA Basin and Dallas Fort Worth and they were broadcasting at 100 Hz, the impact on TCAS and ATCRBS reply efficiency would be negligible.

Regarding the commentator's concerns over the efficiency of using transponder-based technology to provide 360-degree surveillance capability, we do not disagree with the commentator's concerns as they apply to the NAS. However, the military has other concerns arising out of its different mission needs and the development and proposed use of the TTLS is for use by the military not for use in the NAS.

With respect to the number of frequency pairs requested, the TTLS testing will require only one localizer/glide slope frequency pair. Any single frequency pair will be suitable for the testing.

Finally regarding the proposed ERP of the TTLS transmitter to be tested at Madras, OR, ANPC mistakenly applied for the TTLS STA at Madras, OR, using the authorized transmitter power for the TLS at Pullman, WA. The application was, therefore, in error in that regard. ANPC will amend its existing application, or reapply, for the TTLS STA at Madras, OR, per the following frequencies and powers:

¹ The Effect of Transponder Landing System Emissions on ATC Performance, November 1997, JSC-CR-97-049.



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Frequency	Station Purpose	Requested Power
108.35	Localizer	1 W (ERP)
333.95	Glide Slope	6.1 W (ERP)
1030 MHz	Interrogation	1035.5 (ERP)
1090 MHz	Built-In-Test	51.9 W (ERP)

Thank you for your reconsideration of our application based on the foregoing information. Please do not hesitate to contact the undersigned with questions or concerns.

Sincerely,

A handwritten signature in blue ink, appearing to read "Bradford Dezurick", is written over the printed name.

Bradford Dezurick
Vice President & General Counsel

cc: Uploaded to FCC at https://gulfoss2.fcc.gov/prod/oet/index_els.html

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