

November 9, 2000

Mr. Vito Pultera, ANE-170
Federal Aviation Administration
New York Aircraft Certification Office
10 Fifth Street 3rd Floor
Valley Stream, New York 11581-1200

Dear Mr. Pultera,

In the near future Narco Avionics Inc. will be submitting for TSO approval of a transponder Model AT155. We respectfully request to use the following deviations to TSO C74c for this approval:

1.3 *Effects of Test*. Unless otherwise stated, the design of the equipment must be such that the application of the specified tests produces no discernable condition that would be detrimental to the continued performance of equipment manufactured in accordance with such design.

2.2.a.1 The two pulses P1 and P3 constituting an interrogation are of equal amplitude and P2 is not detected; and

2.2.a.2 The amplitude of these signals received at the antenna end of the transmission line of the transponder is nominally 71 db below 1 milliwatt with limits between 69 and 77 db below 1 milliwatt.

2.6.a (2) The received amplitude of P3 is in excess of a level 1 db below the received amplitude of P1 but no greater than 3 db above the received amplitude of P1.

2.6.a (3) The received amplitude of a proper interrogation is more than 10 db above the received amplitude of random pulses where the latter are not recognized by the transponder as P1, P2, or P3.

2.6.c *Side-lobe Suppression*. The transponder must be suppressed for a period of 35 ± 10 microseconds following receipt of a pulse pair of proper spacing and amplitude indicative of side-lobe interrogation. This suppression action must be capable of being re-initiated for the full duration within 2 microseconds after the end of any suppression period. The transponder must be suppressed with a 99 percent efficiency over a received signal amplitude range between 3 db above minimum triggering level and 50 db above that level and upon receipt of properly spaced interrogations when the received amplitude of P2 is equal to or in excess of the received amplitude of P1 and spaced 2.0 ± 0.15 microsecond from P1.

2.7.d *Reply Rate Control*. A sensitivity-reduction type reply rate control must be provided. The range of this control must permit adjustment of the reply rate to any value between 500 replies per second and the maximum rate of which the transponder is capable, or 2,000 replies per second, whichever is the lesser, without regard to the number of pulses in each reply. Sensitivity reduction in excess of 3 db must not take effect until 90 percent of the selected reply rate is exceeded. The sensitivity must be reduced by at least 30 db when the rate exceeds the selected value by 50 percent. The reply rate limit must be set at 1,200 replies per second, or the maximum value below 1,200 replies per second of which the transponder is capable.

2.13.c *Special Position Identification Pulse (SPI)*. In addition to the information pulses provided, a special position identification pulse, which may be used with any of the other information pulses upon request, must be provided at a spacing 4.35 microseconds following the last framing pulse. When replying to any mode of interrogation to which the transponder is capable, except Mode C, the selection of the SPI pulse must be initiated by an IDENT switch. Upon activation of the IDENT switch, the SPI pulse must be transmitted for a period between 15 and 30 seconds and must be repeatable at any time.

3.1.b (2) When the equipment is subjected to the high operating temperature test, the standards of the following paragraphs must be met: 2.1a; 2.2, except that at temperatures above $+40^{\circ}\text{C}$., the sensitivity must not be less than -69 dbm and the variation of sensitivity of the receiver between any mode on which it is capable of operating must be less than 2 db; 2.6a(1); 2.6b(1); 2.6c; 2.7b; 2.7c; 2.10; 2.11; 2.12, except that at temperatures above $+40^{\circ}\text{C}$., the delay variation between modes on which the transponder is capable of replying must be less than 0.4 microseconds; 2.13c; 2.13d; and 2.13e.

3.1.c (1) When the equipment is subjected to this test the standards of the following paragraphs must be met: 2.1a and b; 2.10; 2.11; and 2.13d.

Appendix A

1.0.h

Pulse Shape (2) Pulse fall time: The time required for the trailing edge of pulses P1, P2, and P3 to fall from 90 percent to 10 percent of its maximum voltage amplitude must be between 0.05 and 0.2 microsecond.

1.0 i

Examples:

(1) Code 3600 consists of information pulses A1, A2, B2, B4.

We would also like to use DO-160C for the environmental testing.

The reason for this deviation request is that the current TSO C74c contains errors that were generated when it was transcribed into its present format from the original PART 37 document. All of the deviations listed above are just copies of the original PART 37 text. Please let me know if you agree with this request. If you have any questions please contact me.

Sincerely,

Martin Lockner
Manager, Engineering
Narco Avionics Inc.
215-643-2900 ext. 616