



U.S. Department
of Transportation
**Federal Aviation
Administration**

Transport Airplane Directorate
Los Angeles Aircraft
Certification Office

3960 Paramount Boulevard
Lakewood, California, 90712-4137

APR 17 2014

Ref: 130L-14-114

Aviation Communication & Surveillance Systems
ATTN: Philip Heinicke
19810 North 7th Avenue
Phoenix, AZ 85027-4400

Aviation Communication & Surveillance Systems (ACSS)
NXT Release 1 Transponder Configuration,
Technical Standard Order C112d and C166b

Dear Mr. Heinicke:

This is in reply to your letter dated April 03, 2014 requesting approval of a Technical Standard Order (TSO) authorization for NXT Release 1 Transponder configuration. We accept your statement certifying your article meets the requirements of TSO-C112d, C166b and that you meet the requirements of Title 14 Code of Federal Regulations part 21 subpart O. Effective the date of this letter, we authorize you to identify the following NXT Release 1 Transponder configuration with the marking requirements defined in 14 CFR § 45.15(b) in TSO-C112d and C166b.

Part Number	End Item Drawing	S/W Mod Level	H/W Mod Level	TSO
9006000-55000	9006000-55000, Rev A	-	-	TSO-C112d (Level 3adens, Class 1) & TSO-C166b (Class A3 Transmit Only) w/dev

Your Quality Control Systems, as defined in your Quality Control Manual, currently on file at the Phoenix Manufacturing Inspection District Office, is considered satisfactory and complies with CFR § 21.607 for production of this article at your Phoenix, AZ 85027, facility.

As required by the TSO, the following statement must be furnished with each manufactured unit:

"The conditions and tests required for TSO approval of this article are minimum performance standards. It is the responsibility of those installing this article either on or within a specific type or class aircraft to determine that the aircraft installation conditions are within the TSO standards. TSO articles must have separate approval for installation in an aircraft. The article may be installed only if performed under 14 CFR part 43 or the applicable airworthiness requirements".

This letter also constitutes a deviation approval for the following:

- (1) TSO-C166b: Section 4(a)(b)(e) Marking Requirements
- (2) TSO-C112d and TSO-C166b: DO-160G, Section 21.5 Radiated RF Emissions

This TSO authorization, issued under 14 CFR § 21.611, is effective until surrendered, withdrawn or otherwise terminated under the provisions of 14 CFR § 21.613. With notice, we may withdraw this TSO authorization if articles are not in compliance with the applicable TSO performance standards per 14 CFR § 21.2.

You must obtain FAA approval prior to making any changes to the location of your manufacturing facilities pursuant to 14 CFR § 21.609(b).

Without further FAA approval, we don't allow manufacturers to mark articles after they change their company's name, address, or ownership. You must notify the ACO and MIDO of name, address, or proposed ownership changes.

Per 14 CFR 21.614, a holder of a TSOA may not transfer it. If you wish to transfer it, you must request a transfer from the FAA.

Send to the office below any design change(s) for this TSO article as outlined in 14 CFR 21.619(a). You should notify us of minor design changes within six months.

Also, as recipient of this authorization, we require you to report any failure, malfunction, or defect relating to articles produced under this authorization in accordance with the provisions of 14 CFR 21.3. The report should be communicated initially by telephone to the Supervisor, Technical and Administrative Support Staff, ANM-103L, (562) 627-5300, within 24 hours after it has been determined the failure has occurred and followed up with a written notice. Federal Aviation Administration Form 8010-4 (Malfunction or Defect Report) or other appropriate format is acceptable in transmitting the required details.

Please note that technical data the FAA retains may be subject to Freedom of Information Act (FOIA) requests. This office will notify you of any request(s) pertaining to your data and give you the opportunity to protect the data from public disclosure.

If you have any questions regarding this authorization, please contact Mr. Jen Pei, Project Manager, by telephone at (562) 627-5320, by e-mail at Jen.Pei@faa.gov, or by fax at (562) 627-5210.

Sincerely,



Haifa Haj-Eid
Supervisor, Technical and Administrative
Support Staff



Federal Aviation Administration

Memorandum

Date: **APR 11 2014**

To: Alan Shinseki, Manager, Systems and Equipment Branch, ANM-130L

From: Richard Jennings, Manager, Systems and Equipment Standards Branch, AIR-130

Prepared by: Dara Gibson, Aerospace Engineer, Systems Integration Section, AIR-134

CC: Haifa Haj-Eid, Supervisor, Technical and Administrative Support Staff, ANM-103L
Jen Pei, Systems and Equipment Branch, ANM-130L

Subject: Response to Aviation Communication & Surveillance Systems' (ACSS) deviation request to TSO-C112d and -C166b for their NTX Release 1 Transponders P/N 9006000-55000()

This is in response to your memorandum, dated March 28, 2014, requesting approval for ACSS to deviate from the following TSOs:

- TSO-C112d *Air Traffic Control Radar Beacon System/Mode Select (ATCRBS/Mode S) Airborne Equipment, and*
- TSO-C166b *Extended Squitter Automatic Dependent Surveillance-Broadcast (ADS-B) and Traffic Information Service- Broadcast (TIS-B) Equipment Operating on the Radio Frequency of 1090 Megahertz (MHz).*

This office concurs with this request as indicated in the attached Table 1. If you have any questions regarding this memorandum, please contact John D. Fisher at (202) 385-4948.

Table 1 - Deviation Response

Index #	TSO/Standard	Requirement	Deviation Request/ELOS	Request Granted/Denied	Comments to Request
1	TSO-C112d	TSO-C112d, Section 3.d. for compliance to RTCA/DO-160G for environmental qualification.	For DO-160G, Section 21.5 "Emission of RF Energy", Category M was identified as the appropriate category. This deviation would be for the RF radiated emissions to exceed the Category M requirement for the RF radiated emission limit in the following frequency bands: 2180MHz $\pm$ 78MHz (2nd Transmitter Harmonic) Exceeds Cat M limits by 27dB 4360MHz $\pm$ 78MHz (4th Transmitter Harmonic) Exceeds Cat M limits by 5dB 5450MHz $\pm$ 78MHz (5th Transmitter Harmonic) Exceeds Cat M limits by 10dB Equivalent Level of Safety (ELOS) summary: • Meets DO-181E spectrum reply bounds • There are no defined aeronautical safety related operations utilizing these frequencies. • For this deviation, the NXT Installation Manual will direct the installer to specifically verify non-interference with other avionics systems for these frequencies.	Granted	Concur with the ELOS provided by ACSS. Provide the exceedance in the installation manual and the guidance for the installer to verify non-interference with other avionics systems for those frequencies.
2	TSO-C166b	TSO-C166b, Section 3.d. for compliance to the RTCA/DO-260B Paragraph 2.3 requirements for environmental qualification	DO-160G was used for environmental testing to show compliance to the DO-260B Section 2.3 requirements. For DO-160G, Section 21.5 "Emission of RF Energy", Category M was identified as the appropriate category. This deviation would be for the RF radiated emissions to exceed the Category M requirement for the RF radiated emission limit in the following frequency bands: 2180MHz $\pm$ 78MHz (2nd Transmitter Harmonic) Exceeds Cat M limits by 27dB 4360MHz $\pm$ 78MHz (4th Transmitter Harmonic) Exceeds Cat M limits by 5dB 5450MHz $\pm$ 78MHz (5th Transmitter Harmonic) Exceeds Cat M limits by 10dB Equivalent Level of Safety (ELOS) summary: • Meets DO-181E spectrum reply bounds (per DO-260B) • There are no defined aeronautical safety related operations utilizing these frequencies. • For this deviation, the NXT Installation Manual will direct the installer to specifically verify non-interference with other avionics systems for these frequencies.	Granted	Concur with the ELOS provided by ACSS. Provide the exceedance in the installation manual and the guidance for the installer to verify non-interference with other avionics systems for those frequencies.