U.S. Department
of Transportation

**Federal Aviation
Administration**

Office of the Administrator

800 Independence Ave., SW.
Washington, DC 20591

June 17, 2020

The Honorable Roger Wicker
Chairman, Committee on Commerce, Science,
and Transportation
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

The Federal Aviation Administration (FAA) is required to update Congress on the FAA's National Test Equipment Program (the "Program") under Section 316 of the FAA Reauthorization Act of 2018. Section 316 requires the FAA Administrator to submit to the appropriate committees of Congress a report on the Program that will include the following:

(1) a list of all known outstanding requests for test equipment, cataloged by type and location, under the Program;
(2) a description of the current method under the Program of ensuring calibrated equipment is in place for utilization;
(3) a plan by the Administrator for appropriate inventory of such equipment;
(4) the Administrator's recommendations for increasing multi-functionality in future test equipment and all known and foreseeable manufacturer technological advances; and
(5) a plan to replace, as appropriate, obsolete test equipment throughout the service areas.

Please see the enclosed report.

We have sent identical letters to Chairman DeFazio, Senator Cantwell, and Congressman Graves.

Sincerely,

Steve Dickson
Administrator

Enclosure

U.S. Department
of Transportation

**Federal Aviation
Administration**

Office of the Administrator

800 Independence Ave., SW.
Washington, DC 20591

June 17, 2020

The Honorable Peter A. DeFazio
Chairman, Committee on Transportation
and Infrastructure
House of Representatives
Washington, DC 20515

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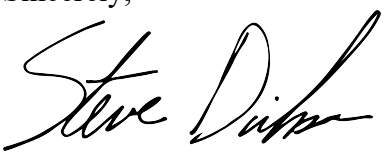

Steve Dickson
Administrator

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**Federal Aviation
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800 Independence Ave., SW.
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June 17, 2020

The Honorable Maria Cantwell
Committee on Commerce, Science,
and Transportation
United States Senate
Washington, DC 20510

Dear Senator Cantwell:

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Steve Dickson
Administrator

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

Office of the Administrator

800 Independence Ave., SW.
Washington, DC 20591

June 17, 2020

The Honorable Sam Graves
Committee on Transportation and Infrastructure
House of Representatives
Washington, DC 20515

Dear Congressman Graves:

The Federal Aviation Administration (FAA) is required to update Congress on the FAA's National Test Equipment Program (the "Program") under Section 316 of the FAA Reauthorization Act of 2018. Section 316 requires the FAA Administrator to submit to the appropriate committees of Congress a report on the Program that will include the following:

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Please see the enclosed report.

We have sent identical letters to Chairmen Wicker and DeFazio and Senator Cantwell.

Sincerely,

Steve Dickson
Administrator

Enclosure

REPORT ON OBSOLETE TEST EQUIPMENT

Required by Section 316 of the FAA Reauthorization Act of 2018

National Test Equipment Program
Executive Summary

Background

The National Airspace System (NAS) is composed of a mix of hardware and software systems that enable controllers to monitor and communicate with pilots and other ATC facilities. NAS system capabilities include automation, power, weather, communications, surveillance and navigation. Technical Operations ensures that pilots, terminal, and en route controllers have all critical parts of the NAS infrastructure available for the safe and efficient delivery of air traffic services.

Test Equipment (TE) is defined as portable, stand-alone (not a component of a system) electronic equipment that is required to perform functional checks, alignment, or troubleshooting of National Airspace System (NAS) equipment. TE is used for fault isolation, repair work, calibration of various systems and equipment, and is utilized by thousands of specialists daily on systems that contribute to our nation's safety. TE must be readily available on-site, and must provide reliable data.

The Program determines assets to be *"eligible for replacement"* if it meets either of the following conditions:

(1) Equipment is "obsolete" meaning that it is no longer available for purchase from the Original Equipment Manufacturer (OEM) and is not repairable by the OEM or FAA Logistics Center (FAALC); or
(2) The equipment is not economically feasible for repair such as
    a. Cost of replacement asset is cheaper; or
    b. The equipment calibration failure-rate reaches 5 to 10% critical rates and the spare inventory is too low to meet reliable operations without significantly increasing costs.

An obsolete unit may still be used as long as it passes calibration and is functional but this practice can result in increased maintenance costs in calibration and continual repair and/or delays in field service operations while there are cheaper, newer multifunctional replacements available for these obsolete units.

Obsolescence

There are currently 292 obsolete TE models of 410 models in inventory, which represent 71 percent of all TE models. If these units fail, economical replacement or borrowing within the System Support Center (SSC) are then the mission support options.

Approximately 15,000 operational assets of the 120,000 units in inventory are obsolete which means approximately 12% of inventory is elgible for replacement. With this backlog, the field experiences longer wait times to receive replacement deliveries. Ten examples of obsolete test equipment based on the original price of the equipment and their current failure rates are shown below.

Ten Examples of Obsolete Test Equipment
(Source: Automated Inventory Tracking System (AITS))

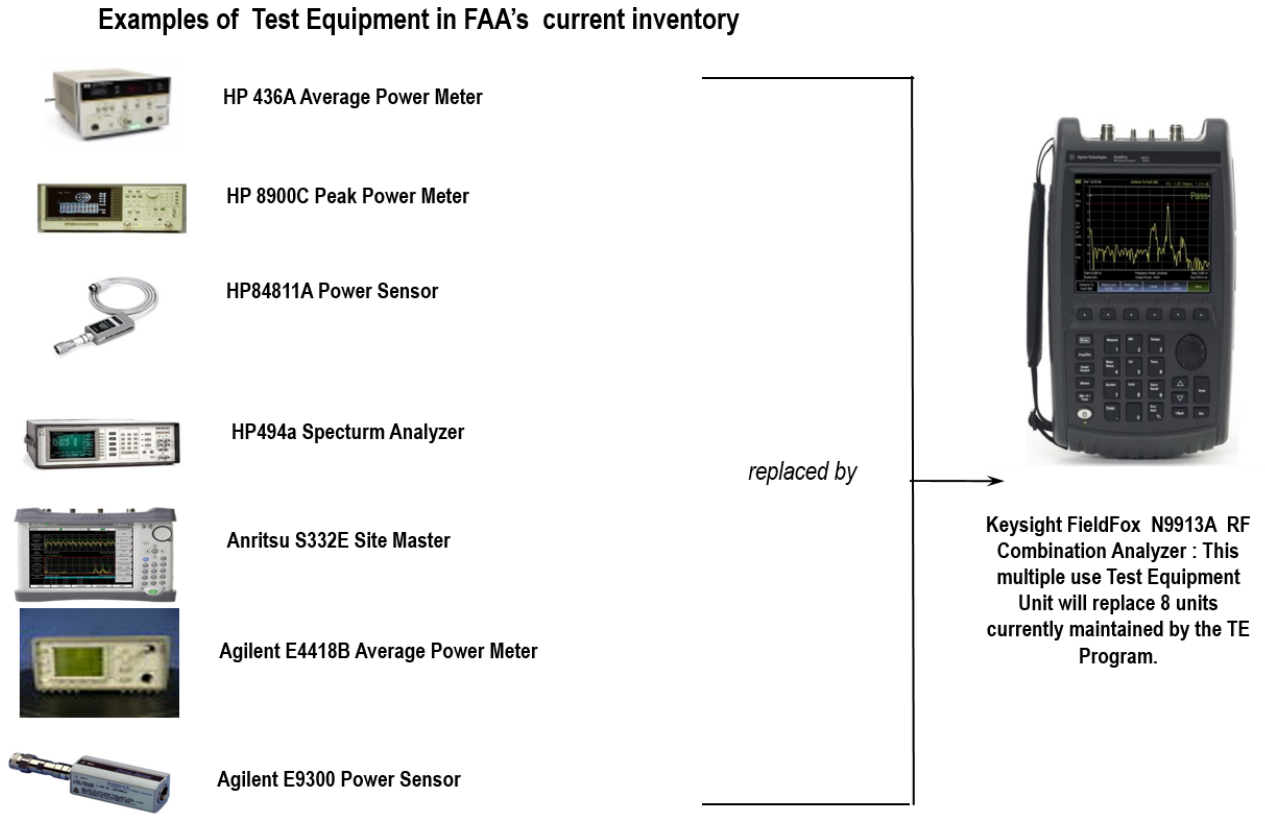
	Obsolete Test Equipment	Inventory	Original Price per Unit	Annual Failure Rate	Backlog/Total Inventory %
1	Comm Test Set (IFR 2947)	1465	$36,000	15.00%	1.22%
2	Oscilliscope (Fluke 199C)	1928	$4,800	6.50%	1.61%
3	Telephone Test Set (Halcyon)	97	$8,300	22.70%	0.08%
4	Radar Test Set (UPM 155)	342	$90,000	16.4%	0.29%
5	Frequency Counter (5131A)	918	$10,000	8.70%	0.77%
6	Modulation Meter (AM-257/03-IF)	599	$9,500	15.20%	0.50%
7	Oscilloscope (Tektronix 4000 series)	205	$7,400	16.60%	0.17%
8	Analog Multimeter (260)	330	$325	26.40%	0.28%
9	Spectrum Analyzer (492)	149	$28,700	32.40%	0.12%
10	TTS Test Set (44)	1727	$8,500	17.80%	1.44%
		7760	$129M		6.47%

Cost Effective Strategies for Addressing the Backlog of Obsolete TE

Benefits of Multi-Function/Multi-Use

The Program promotes the use of multi-functional and multi-use TE as a means of cost reduction, standardization, training and reduction in inventory management. A multi-functional TE unit is defined as a single TE unit with multiple internal functions for measuring, gathering, and displaying information. Multi-use TE is the utilization of a single multi-functional unit for performing checks on multiple or many NAS systems across varying technical Line of Business (LOB) disciplines such as navigation, surveillance, weather, communications, power, and infrastructure. Standardizing the configurations of both multi-functional and multi-use characteristics of TE reduces the number of separate units needed within the FAA inventory. Replacing several different pieces of test equipment with a single common multi-functional piece of test equipment reduces the number of pieces of test equipment needed, simplifies configuration management of the TE, reduces required storage space, simplifies training, reduces the amount of ancillary support equipment needed such as cables and probes, and reduces calibration costs. For example, the TE Program reduces annual operating costs for calibration requirements when replacing 4 individual single-function TE units with one multi-functional TE unit. There will be only calibration costs associated with one unit rather than 4 units. Continued incorporation of multifunction assets results in reduction of annual calibration and repair costs.

An example in the picture below of replacing a suit of 7 individual pieces of test equipment costing over $83,000 initial issue with a single multifunction piece of equipment FieldFox 9913A costing $29,000 intial issue will also result in saving annual operational cost in lowering calibration rejections and continual repair cost of 7 units. There are much cheaper options for all obsolete test equipment.



Bulk Purchasing

In the past 38 different NAS system program offices acquisitioned the 120,000 pieces of inventory. The TE Program has established three Blanket Purchase Agreements (BPA) for four years FY19-FY22 in order to purchase the highest priority units approved. The BPA eliminates a need for awarding multiple purchase orders and lessens the administrative burden. The 4-year BPA model is used to reduce the inventory / footprint, stay ahead of obsolescence, and buy test equipment for new technology as its deployed – while considering standardization and multi-functional/multi-use devices opportunities.

For example, the Common Terminal Digitizer (CTD) Program utilized the Test Equipment BPA for the recent purchase of 20 Signal Generators in order to complete their installation waterfall schedule. Bulk purchasing ensures better standardization of TE while benefiting from bulk pricing.

Conclusion

The National Airspace System requires test equipment to continue certifying and operating the safest and most efficient system in the world. By replacing the 292 obsolete models in its inventory of test equipment, the FAA is promoting the use of multi-function and multi-use equipment and using bulk purchases to modernize its inventory. By standardizing the configuration of test equipment types, the FAA can

- Simplify its training requirements,
- Reduce its annual calibration costs,
- Reduce the cost of annual repair services,
- Reduce the number of units the agency must maintain,
- Reduce the amount of space needed to store the equipment,
- Reduce the road time needed to retrieve proper assets,
- Reduce the number of cables and other accessories the agency needs, and
- Improve the agency's ability to address human factors such as portability, climbing hazards.

SEC. 316. REPORT ON OBSOLETE TEST EQUIPMENT.

(a) REPORT.—Not later than 180 days after the date of enactment of this Act, the Administrator shall submit to the appropriate committees of Congress a report on the National Test Equipment Program of the FAA (in this section referred to as the ‘‘Program’’).

(b) CONTENTS.—The report shall include the following:

(1) a list of all known outstanding requests for test equipment, cataloged by type and location, under the Program;

Test equipment replacement requests are recorded in a National database by an FAA technical employee when a TE unit fails to pass calibration or certification requirements of the National Institue of Standards and Technology (NIST) and the TE unit cannot be repaired or exchanged by the FAA Logistics Center or Original Equipment Manufacturer (OEM) for less cost of a replacement unit. A listing of test equipment replacement requests is provided in Attachment 1, Outstanding Equipment Requests 20190221. Test Equipment (TE) is defined as portable, stand-alone (not a component of a system) electronic equipment that is required to perform functional checks, alignment or troubleshooting of National Airspace System (NAS) systems. TE is critical for conducting maintenance actions to restore NAS equipment to approved operational baseline. TE is maintained and certified for operational status to support NAS systems that are used to control live aircraft and/or sustain the Federal Aviation Administration (FAA) infrastructure. For this purpose, the FAA established the Program whose mandate is derived from Policy and is provided in Attachment 2, Order 6200.4H, National Test Equipment Program Management dated December 8, 2017. The latest version of this order was approved on December 8, 2017. The Program is responsible for managing the test equipment replacement and calibration services in the FAA. The goals, vision, and guidelines of the Program are set out on Figure 1 of this report.

Customer focus is primarily the System Support Centers (SSC) that directly maintain NAS facilities but also encompasses Technical Support Centers (TSC), Operations Engineering Support Group (OESG), and Engineering Services (ES) offices within the Air Traffic Organization (ATO). Table 1 contains the number of items requested from each Service Area that the Program has prioritized at the facility's Tier level, with Tier 1 containing the highest priority facilities. Requests to order TE replacements have been collected in a National database since 2013 and the number of replacement order requests that remain unfulfilled in FY 2019 are shown below.

Unfufilled Orders for TE Requests	Tier 1	Tier 2	Tier 3	Total
Central Service Area	225	300	150	675
Eastern Service Area*	716	500	216	1,432
Western Service Area*	383	250	133	766
Overall Totals	1,324	1,050	499	2,873

Table 1: Unfulfilled TE Orders Remaining as of FY2019 Prioritized by Tier Level Facility

***Western/Eastern Service Area includes Outside Continental United States (OCONUS) orders.

(2) a description of the current method under the Program of ensuring calibrated equipment is in place for utilization;

The Program manages and monitors calibration services through a mobile and fixed calibration laboratory service contract under Contract # DTFAWA-15-D-00015, National Test Equipment Support Contract. The Program ensures the FAA is receiving satisfactory service through audits and reviews. The Program justifies and ensures annual operations appropriations are available to fund annual calibration of approved NAS test equipment for the remainder of the contract period. The Program coordinates with the current calibration contractor, the FAA Logistics Center (FAALC), and Second Level Engineering (SLE) organizations to ensure that each specific type of test equipment is within configuration management and supportability requirements prior to being added to the calibration contract. Ensuring proper configuration management helps reduce cost and streamlines our maintenance and repair activity.

The Program provides users with processes, guidance, and support to ensure that all test equipment utilized in taking quantitative measurements for NAS facilities is calibrated to the appropriate National Institute for Standards and Technology (NIST) requirements.

The calibration contractor must adhere to NIST guidelines and maintain a stringent internal Quality Management System (QMS), which is audited by Federal Program personnel.

(3) a plan by the Administrator for appropriate inventory of such equipment;

The Program relies on two methods for the tracking the inventory of test equipment. The first is the Calibration Certificate deliverables provided by the contractor. The second is the agency's Automated Inventory Tracking System (AITS), which records and tracks inventory in all FAA lines of business. Inventory from each method allows the Service Areas Test Equipment Managers (SATEMs) to utilize valid data to monitor systemic issues and quantities for each line of business to prioritize future purchases.

The Program plans to continue managing test equipment inventory records in AITS. The AITS barcode is required and utilized for calibration and certification traceability of all test equipment. The FAA defines all inventory requirements in Order 4600.27, Personal Property Management. All TE must be barcoded and assigned to the owning organization's cost center account in order to receive both calibration and replacement support from the Program. This policy is contained in Order 6200.4H.

(4) the Administrator's recommendations for increasing multifunctionality in future test equipment and all known and foreseeable manufacturer technological advances; and

The Program developed a Test Equipment Evaluation (TEE) project coordination checklist with SLE organizations to standardize the selection process for new test equipment across each system discipline in FAA engineering. The Program researches and communicates with manufacturers and vendors to determine the market status of TE technology and features. The Program coordinates with SLE to determine NAS requirements as well as support and procurement expectations. These processes replace obsolete TE with advanced technologies that are cross-functional and more reliable.

The Program not only considers each viable replacement item for multi-functionality, but also other logistics checklist features such as portability and "built-in obsolescence" (an industry term for a product feature or design that means it has a limited reliable time for service). Multiuse test equipment adds the convenience of having multiple functions in a single unit and reduces the number of separate equipment needed for purchase and calibration. All approved TE must meet each facility's technical requirements for maintenance and alignment.

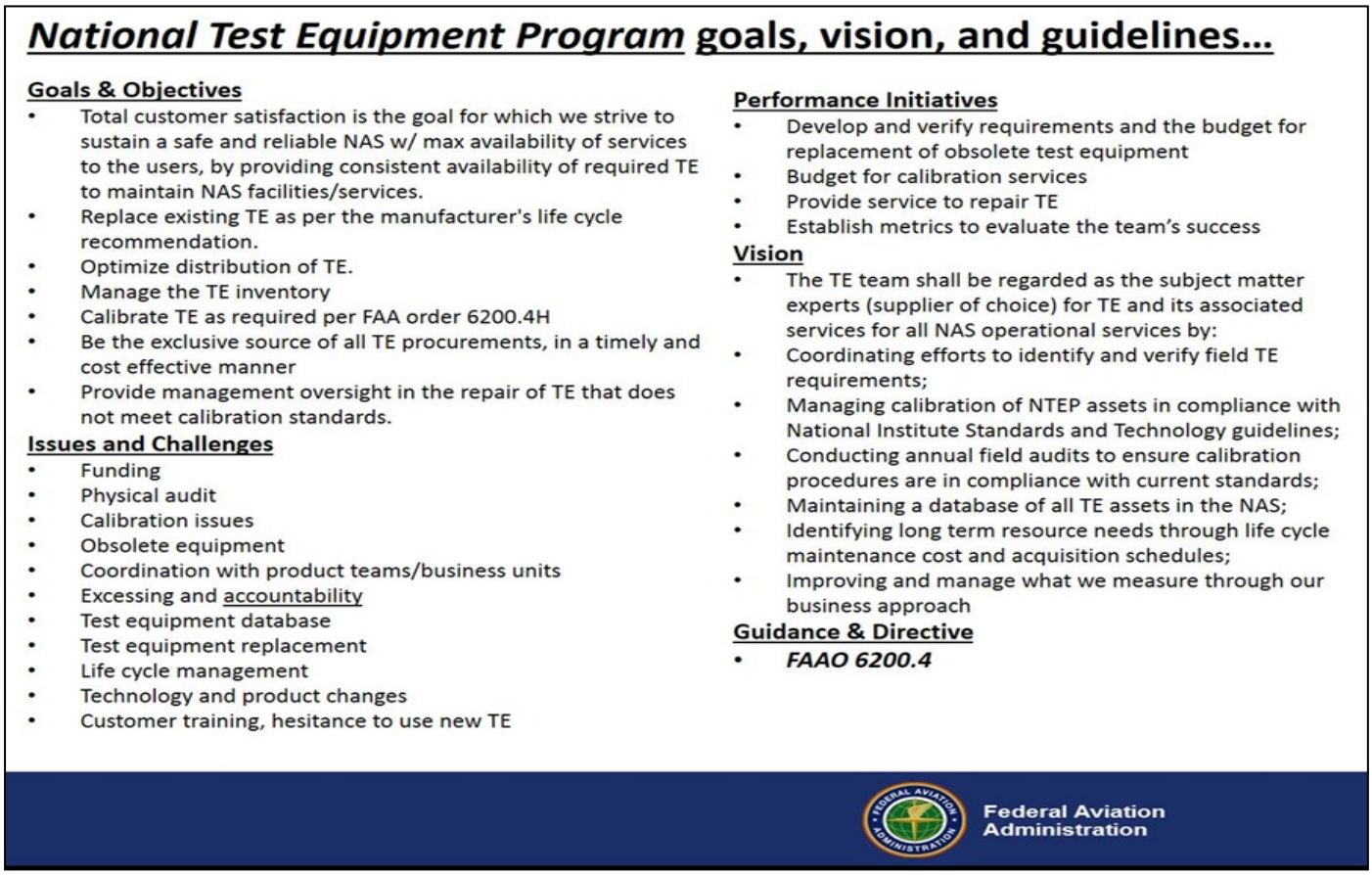


Figure 1. National Test Equipment Program (NTEP) Goals, Visions, and Guidelines

(5) a plan to replace, as appropriate, obsolete test equipment throughout the service areas.

The Program has taken various approaches to alleviate the obsolete equipment backlog such as using the facility tier prioritization approach to replacing obsolete TE, repositioning aging or unused units to lower tier facilities, making cost effective bulk purchases, and expediting the evaluation process with SLE organizations to obtain multifunctional items. The tiered approach effort would largely serve to accommodate requests for TE that are for the Tier 1 (core airport) facility locations first, and then reallocate where possible the working old units to Tier 2 and 3 locations.

Other improvements considered to meet growing NAS TE requirements:

- Improve procurement and delivery needs.
- Increase customer confidence and awareness of the Program and processes.
- Provide training for TE in a more standardized fashion.
- Continue testing and evaluation procedures across lines of business.

Obsolete Test Equipment:

Attachment 3, Obsolete Test Equipment NSNs 20190221 contains the National Stock Numbers (NSNs) for obsolete part numbers within the inventory. There are currently 405 obsolete NSNs still in active use within the NAS. Only 113 of these units have maintenance support remaining with the FAALC. Once these units fail calibration or operation, the National Test Equipment Program will be unable to provide support for that unit. Replacement to a newer model or borrowing within the SSC are then the appropriate mission support options.

Attachments

1. Outstanding Equipment Requests Report by State dated 2019 0221
2. Order 6200.4H National Test Equipment Program Management
3. Obsolete Test Equipment NSN 20190221

Attachment 1: Outstanding Equipment Requests Report by State dated 2019 0221

Equipment Type	State	Service Area	Count
Ammeter - Clampmeter	AR	CSA	1
Ammeter - Clampmeter	AS	WSA	1
Ammeter - Clampmeter	AZ	WSA	2
Ammeter - Clampmeter	CA	WSA	3
Ammeter - Clampmeter	CT	ESA	1
Ammeter - Clampmeter	FL	ESA	3
Ammeter - Clampmeter	GA	ESA	3
Ammeter - Clampmeter	HI	WSA	2
Ammeter - Clampmeter	IL	CSA	1
Ammeter - Clampmeter	KY	ESA	1
Ammeter - Clampmeter	LA	CSA	2
Ammeter - Clampmeter	MA	ESA	1
Ammeter - Clampmeter	ME	ESA	2
Ammeter - Clampmeter	MI	CSA	4
Ammeter - Clampmeter	NC	ESA	2
Ammeter - Clampmeter	NE	CSA	3
Ammeter - Clampmeter	NH	ESA	1
Ammeter - Clampmeter	NM	CSA	3
Ammeter - Clampmeter	NY	ESA	3
Ammeter - Clampmeter	RI	ESA	1
Ammeter - Clampmeter	SC	ESA	1
Ammeter - Clampmeter	SD	CSA	1
Ammeter - Clampmeter	TX	CSA	1
Ammeter - Clampmeter	WA	WSA	3
Ammeter - Clampmeter	WI	CSA	3
Ammeter - Clampmeter	WV	ESA	4
Ammeter - Clampmeter	WY	WSA	3
Analyzer, Network	AK	WSA	20
Analyzer, Network	AR	CSA	5
Analyzer, Network	AZ	WSA	2
Analyzer, Network	CA	WSA	12
Analyzer, Network	CO	WSA	3
Analyzer, Network	CT	ESA	3
Analyzer, Network	FL	ESA	12
Analyzer, Network	GA	ESA	4
Analyzer, Network	HI	WSA	1
Analyzer, Network	IA	CSA	1
Analyzer, Network	IL	CSA	3
Analyzer, Network	KS	CSA	4
Analyzer, Network	KY	ESA	3
Analyzer, Network	LA	CSA	1
Analyzer, Network	MA	ESA	2

Equipment Type	State	Service Area	Count
Analyzer, Network	MD	ESA	1
Analyzer, Network	MN	CSA	2
Analyzer, Network	MO	CSA	6
Analyzer, Network	MS	ESA	1
Analyzer, Network	MT	WSA	2
Analyzer, Network	NE	CSA	2
Analyzer, Network	NH	ESA	3
Analyzer, Network	NJ	ESA	5
Analyzer, Network	NM	CSA	2
Analyzer, Network	NV	WSA	2
Analyzer, Network	NY	ESA	12
Analyzer, Network	OH	CSA	1
Analyzer, Network	OR	WSA	1
Analyzer, Network	PA	ESA	8
Analyzer, Network	RI	ESA	2
Analyzer, Network	SC	ESA	4
Analyzer, Network	TN	ESA	6
Analyzer, Network	TX	CSA	10
Analyzer, Network	UT	WSA	4
Analyzer, Network	VA	ESA	5
Analyzer, Network	VT	ESA	1
Analyzer, Network	WA	WSA	2
Analyzer, Network	WI	CSA	1
Analyzer, Network	WV	ESA	2
Analyzer, Network	WY	WSA	3
Analyzer, Network (Field Fox, Approved For Mode S Only)	AL	ESA	1
Analyzer, Network (Field Fox, Approved For Mode S Only)	CA	WSA	5
Analyzer, Network (Field Fox, Approved For Mode S Only)	CO	WSA	1
Analyzer, Network (Field Fox, Approved For Mode S Only)	FL	ESA	6
Analyzer, Network (Field Fox, Approved For Mode S Only)	GA	ESA	4
Analyzer, Network (Field Fox, Approved For Mode S Only)	IL	CSA	2
Analyzer, Network (Field Fox, Approved For Mode S Only)	IN	CSA	3
Analyzer, Network (Field Fox, Approved For Mode S Only)	KS	CSA	1
Analyzer, Network (Field Fox, Approved For Mode S Only)	LA	CSA	2
Analyzer, Network (Field Fox, Approved For Mode S Only)	MA	ESA	4
Analyzer, Network (Field Fox, Approved For Mode S Only)	ME	ESA	1
Analyzer, Network (Field Fox, Approved For Mode S Only)	MI	CSA	1
Analyzer, Network (Field Fox, Approved For Mode S Only)	MN	CSA	4
Analyzer, Network (Field Fox, Approved For Mode S Only)	MO	CSA	2
Analyzer, Network (Field Fox, Approved For Mode S Only)	MT	WSA	1
Analyzer, Network (Field Fox, Approved For Mode S Only)	NC	ESA	1
Analyzer, Network (Field Fox, Approved For Mode S Only)	ND	CSA	1
Analyzer, Network (Field Fox, Approved For Mode S Only)	NE	CSA	3
Analyzer, Network (Field Fox, Approved For Mode S Only)	NJ	ESA	2

Equipment Type	State	Service Area	Count
Analyzer, Network (Field Fox, Approved For Mode S Only)	NM	CSA	1
Analyzer, Network (Field Fox, Approved For Mode S Only)	NV	WSA	1
Analyzer, Network (Field Fox, Approved For Mode S Only)	OH	CSA	3
Analyzer, Network (Field Fox, Approved For Mode S Only)	OK	CSA	1
Analyzer, Network (Field Fox, Approved For Mode S Only)	SC	ESA	2
Analyzer, Network (Field Fox, Approved For Mode S Only)	SD	CSA	2
Analyzer, Network (Field Fox, Approved For Mode S Only)	TN	ESA	2
Analyzer, Network (Field Fox, Approved For Mode S Only)	TX	CSA	7
Analyzer, Network (Field Fox, Approved For Mode S Only)	UT	WSA	1
Analyzer, Network (Field Fox, Approved For Mode S Only)	VA	ESA	4
Analyzer, Network (Field Fox, Approved For Mode S Only)	WA	WSA	1
Analyzer, Network (Field Fox, Approved For Mode S Only)	WI	CSA	1
Analyzer, Network (Field Fox, Approved For Mode S Only)	WV	ESA	1
Analyzer, Peak Power	AK	WSA	1
Analyzer, Peak Power	CA	WSA	3
Analyzer, Peak Power	CT	ESA	1
Analyzer, Peak Power	MO	CSA	1
Analyzer, Peak Power	TX	CSA	1
Analyzer, Peak Power	VA	ESA	2
Analyzer, Power Quality (PQA)	AR	CSA	1
Analyzer, Power Quality (PQA)	AZ	WSA	1
Analyzer, Power Quality (PQA)	FL	ESA	2
Analyzer, Power Quality (PQA)	GA	ESA	1
Analyzer, Power Quality (PQA)	KY	ESA	1
Analyzer, Power Quality (PQA)	MA	ESA	1
Analyzer, Power Quality (PQA)	MN	CSA	1
Analyzer, Power Quality (PQA)	MO	CSA	2
Analyzer, Power Quality (PQA)	NH	ESA	1
Analyzer, Power Quality (PQA)	NJ	ESA	1
Analyzer, Power Quality (PQA)	NY	ESA	1
Analyzer, Power Quality (PQA)	TN	ESA	1
Analyzer, Power Quality (PQA)	TX	CSA	1
Analyzer, Power Quality (PQA)	VA	ESA	1
Analyzer, Power Quality (PQA)	WV	ESA	1
Analyzer, Signal (Includes PIR & ZIFOR)	CA	WSA	2
Analyzer, Signal (Includes PIR & ZIFOR)	FL	ESA	1
Analyzer, Signal (Includes PIR & ZIFOR)	NY	ESA	3
Analyzer, Signal (Includes PIR & ZIFOR)	TX	CSA	1
Analyzer, Spectrum	AL	ESA	1
Analyzer, Spectrum	AR	CSA	1
Analyzer, Spectrum	CA	WSA	1
Analyzer, Spectrum	IA	CSA	1
Analyzer, Spectrum	MA	ESA	1
Analyzer, Spectrum	MN	CSA	1

Equipment Type	State	Service Area	Count
Analyzer, Spectrum	NV	WSA	1
Analyzer, Spectrum	TX	CSA	1
Analyzer, Spectrum	WI	CSA	2
Barometer, Digital	AK	WSA	3
Barometer, Digital	AR	CSA	1
Barometer, Digital	AZ	WSA	1
Barometer, Digital	CA	WSA	1
Barometer, Digital	CO	WSA	1
Barometer, Digital	FL	ESA	1
Barometer, Digital	GU	WSA	1
Barometer, Digital	HI	WSA	1
Barometer, Digital	MA	ESA	1
Barometer, Digital	MN	CSA	1
Barometer, Digital	MO	CSA	1
Barometer, Digital	NC	ESA	1
Barometer, Digital	NE	CSA	1
Barometer, Digital	NV	WSA	1
Barometer, Digital	NY	ESA	3
Barometer, Digital	OK	CSA	3
Barometer, Digital	OR	WSA	1
Barometer, Digital	SC	ESA	2
Barometer, Digital	TX	CSA	1
Barometer, Digital	WA	WSA	1
Barometer, Digital	WV	ESA	1
Cable Fault Locator- Test Set, Electrical Cable	CA	WSA	1
Cable Fault Locator- Test Set, Electrical Cable	IL	CSA	2
Cable Fault Locator- Test Set, Electrical Cable	MI	CSA	1
Cable Fault Locator- Test Set, Electrical Cable	NM	CSA	1
Calibrator	FL	ESA	1
Camera, Thermal Imaging	AZ	WSA	1
Camera, Thermal Imaging	CA	WSA	2
Camera, Thermal Imaging	IL	CSA	2
Camera, Thermal Imaging	KY	ESA	1
Camera, Thermal Imaging	ME	ESA	1
Camera, Thermal Imaging	MT	WSA	1
Camera, Thermal Imaging	NH	ESA	1
Camera, Thermal Imaging	SC	ESA	2
Camera, Thermal Imaging	TN	ESA	1
Camera, Thermal Imaging	WA	WSA	3
Camera, Thermal Imaging	WV	ESA	2
Cellcorder- Test Set, Battery	CO	WSA	1
Cellcorder- Test Set, Battery	IN	CSA	1
Cellcorder- Test Set, Battery	KS	CSA	1
Cellcorder- Test Set, Battery	MA	ESA	1

Equipment Type	State	Service Area	Count
Cellcorder- Test Set, Battery	MN	CSA	1
Cellcorder- Test Set, Battery	ND	CSA	1
Cellcorder- Test Set, Battery	NH	ESA	1
Cellcorder- Test Set, Battery	NY	ESA	1
Cellcorder- Test Set, Battery	TN	ESA	1
Communications Service Monitor	AK	WSA	12
Communications Service Monitor	AL	ESA	1
Communications Service Monitor	AZ	WSA	9
Communications Service Monitor	CA	WSA	43
Communications Service Monitor	CO	WSA	2
Communications Service Monitor	FL	ESA	14
Communications Service Monitor	GA	ESA	2
Communications Service Monitor	HI	WSA	3
Communications Service Monitor	ID	WSA	6
Communications Service Monitor	IL	CSA	8
Communications Service Monitor	IN	CSA	9
Communications Service Monitor	KS	CSA	2
Communications Service Monitor	KY	ESA	5
Communications Service Monitor	MA	ESA	2
Communications Service Monitor	MI	CSA	9
Communications Service Monitor	MO	CSA	2
Communications Service Monitor	MS	ESA	1
Communications Service Monitor	MT	WSA	6
Communications Service Monitor	NC	ESA	6
Communications Service Monitor	NJ	ESA	9
Communications Service Monitor	NM	CSA	2
Communications Service Monitor	NV	WSA	5
Communications Service Monitor	NY	ESA	1
Communications Service Monitor	OH	CSA	5
Communications Service Monitor	OK	CSA	1
Communications Service Monitor	OR	WSA	8
Communications Service Monitor	PA	ESA	11
Communications Service Monitor	SC	ESA	3
Communications Service Monitor	TN	ESA	7
Communications Service Monitor	TX	CSA	14
Communications Service Monitor	UT	WSA	13
Communications Service Monitor	VA	ESA	5
Communications Service Monitor	WA	WSA	11
Communications Service Monitor	WI	CSA	6
Communications Service Monitor	WV	ESA	1
Communications Service Monitor	WY	WSA	2
Counter, Elect., Dig. Readout (Frequency Counter)	AK	WSA	3
Counter, Elect., Dig. Readout (Frequency Counter)	AL	ESA	2
Counter, Elect., Dig. Readout (Frequency Counter)	AR	CSA	1

Equipment Type	State	Service Area	Count
Counter, Elect., Dig. Readout (Frequency Counter)	AZ	WSA	1
Counter, Elect., Dig. Readout (Frequency Counter)	CA	WSA	6
Counter, Elect., Dig. Readout (Frequency Counter)	CO	WSA	2
Counter, Elect., Dig. Readout (Frequency Counter)	CT	ESA	4
Counter, Elect., Dig. Readout (Frequency Counter)	FL	ESA	3
Counter, Elect., Dig. Readout (Frequency Counter)	GA	ESA	1
Counter, Elect., Dig. Readout (Frequency Counter)	IA	CSA	1
Counter, Elect., Dig. Readout (Frequency Counter)	LA	CSA	1
Counter, Elect., Dig. Readout (Frequency Counter)	MA	ESA	1
Counter, Elect., Dig. Readout (Frequency Counter)	ME	ESA	1
Counter, Elect., Dig. Readout (Frequency Counter)	MI	CSA	1
Counter, Elect., Dig. Readout (Frequency Counter)	MN	CSA	2
Counter, Elect., Dig. Readout (Frequency Counter)	NE	CSA	1
Counter, Elect., Dig. Readout (Frequency Counter)	NV	WSA	2
Counter, Elect., Dig. Readout (Frequency Counter)	OH	CSA	2
Counter, Elect., Dig. Readout (Frequency Counter)	OR	WSA	1
Counter, Elect., Dig. Readout (Frequency Counter)	PA	ESA	1
Counter, Elect., Dig. Readout (Frequency Counter)	TN	ESA	1
Counter, Elect., Dig. Readout (Frequency Counter)	TX	CSA	2
Counter, Elect., Dig. Readout (Frequency Counter)	WA	WSA	2
Counter, Elect., Dig. Readout (Frequency Counter)	WI	CSA	3
Generator, Sweep- Signal	CA	WSA	4
Generator, Sweep- Signal	CO	WSA	1
Generator, Sweep- Signal	DC	ESA	1
Generator, Sweep- Signal	FL	ESA	1
Generator, Sweep- Signal	GA	ESA	1
Generator, Sweep- Signal	HI	WSA	1
Generator, Sweep- Signal	IA	CSA	1
Generator, Sweep- Signal	IN	CSA	2
Generator, Sweep- Signal	LA	CSA	2
Generator, Sweep- Signal	MA	ESA	1
Generator, Sweep- Signal	MI	CSA	2
Generator, Sweep- Signal	NC	ESA	1
Generator, Sweep- Signal	NV	WSA	1
Generator, Sweep- Signal	NY	ESA	2
Generator, Sweep- Signal	OR	WSA	1
Generator, Sweep- Signal	PA	ESA	2
Generator, Sweep- Signal	PR	ESA	3
Generator, Sweep- Signal	SC	ESA	2
Generator, Sweep- Signal	TN	ESA	3
Generator, Sweep- Signal	TX	CSA	2
Generator, Sweep- Signal	WV	ESA	4
Generator, Sweep- Signal	WY	WSA	2
Hydrometer, Digital	AZ	WSA	1

Equipment Type	State	Service Area	Count
Hydrometer, Digital	GA	ESA	1
Hydrometer, Digital	ME	ESA	1
Hydrometer, Digital	MI	CSA	1
Hydrometer, Digital	MO	CSA	3
Hydrometer, Digital	NH	ESA	1
Meter, Modulation	AR	CSA	2
Meter, Modulation	MN	CSA	3
Meter, Modulation	NY	ESA	1
Meter, Modulation	PA	ESA	1
Meter, Modulation	SC	ESA	1
Meter, Modulation	WI	CSA	1
Micro- Ohmmeter, Digital Low Resistance (DLRO)	CA	WSA	1
Micro- Ohmmeter, Digital Low Resistance (DLRO)	NY	ESA	1
Multimeter	AK	WSA	4
Multimeter	AL	ESA	8
Multimeter	AR	CSA	1
Multimeter	AS	WSA	1
Multimeter	AZ	WSA	8
Multimeter	CA	WSA	6
Multimeter	CO	WSA	6
Multimeter	CT	ESA	1
Multimeter	DC	ESA	1
Multimeter	FL	ESA	16
Multimeter	GA	ESA	8
Multimeter	GU	WSA	1
Multimeter	HI	WSA	4
Multimeter	IA	CSA	2
Multimeter	IL	CSA	2
Multimeter	IN	CSA	1
Multimeter	KS	CSA	1
Multimeter	LA	CSA	8
Multimeter	ME	ESA	2
Multimeter	MI	CSA	7
Multimeter	MN	CSA	3
Multimeter	MO	CSA	3
Multimeter	MS	ESA	1
Multimeter	NC	ESA	2
Multimeter	NE	CSA	3
Multimeter	NH	ESA	2
Multimeter	NJ	ESA	1
Multimeter	NM	CSA	1
Multimeter	NV	WSA	1
Multimeter	NY	ESA	4
Multimeter	OH	CSA	3

Equipment Type	State	Service Area	Count
Multimeter	OK	CSA	3
Multimeter	OR	WSA	1
Multimeter	PA	ESA	5
Multimeter	PR	ESA	2
Multimeter	RI	ESA	2
Multimeter	SC	ESA	3
Multimeter	SD	CSA	2
Multimeter	TN	ESA	3
Multimeter	TX	CSA	16
Multimeter	WA	WSA	2
Multimeter	WI	CSA	2
Multimeter	WY	WSA	3
Multimeter, Analog	AL	ESA	2
Multimeter, Analog	AR	CSA	3
Multimeter, Analog	CA	WSA	4
Multimeter, Analog	FL	ESA	1
Multimeter, Analog	LA	CSA	1
Multimeter, Analog	MN	CSA	2
Multimeter, Analog	MO	CSA	1
Multimeter, Analog	OH	CSA	1
Multimeter, Analog	OK	CSA	1
Multimeter, Analog	RI	ESA	1
Multimeter, Analog	TN	ESA	1
Multimeter, Analog	TX	CSA	3
Multimeter, Analog	WI	CSA	1
Multimeter, Insulation Resistance (Megger)	AR	CSA	1
Multimeter, Insulation Resistance (Megger)	CA	WSA	1
Multimeter, Insulation Resistance (Megger)	CO	WSA	1
Multimeter, Insulation Resistance (Megger)	FL	ESA	1
Multimeter, Insulation Resistance (Megger)	IL	CSA	2
Multimeter, Insulation Resistance (Megger)	MA	ESA	1
Multimeter, Insulation Resistance (Megger)	MI	CSA	1
Multimeter, Insulation Resistance (Megger)	MN	CSA	1
Multimeter, Insulation Resistance (Megger)	MO	CSA	2
Multimeter, Insulation Resistance (Megger)	NE	CSA	1
Multimeter, Insulation Resistance (Megger)	NH	ESA	1
Multimeter, Insulation Resistance (Megger)	NJ	ESA	1
Multimeter, Insulation Resistance (Megger)	NY	ESA	1
Multimeter, Insulation Resistance (Megger)	OH	CSA	1
Multimeter, Insulation Resistance (Megger)	SC	ESA	2
Multimeter, Insulation Resistance (Megger)	TN	ESA	1
Multimeter, Insulation Resistance (Megger)	TX	CSA	1
Multimeter, Insulation Resistance (Megger)	WA	WSA	1
Multimeter, Insulation Resistance (Megger)	WI	CSA	1

Equipment Type	State	Service Area	Count
Network Analyzer	FL	ESA	2
Network Analyzer	MI	CSA	1
Network Analyzer	WA	WSA	2
Oscilloscope	AK	WSA	4
Oscilloscope	AL	ESA	6
Oscilloscope	AR	CSA	7
Oscilloscope	AZ	WSA	5
Oscilloscope	CA	WSA	8
Oscilloscope	CT	ESA	14
Oscilloscope	DC	ESA	9
Oscilloscope	FL	ESA	13
Oscilloscope	GA	ESA	4
Oscilloscope	HI	WSA	1
Oscilloscope	IA	CSA	1
Oscilloscope	IL	CSA	2
Oscilloscope	IN	CSA	1
Oscilloscope	KS	CSA	1
Oscilloscope	LA	CSA	6
Oscilloscope	MA	ESA	8
Oscilloscope	ME	ESA	4
Oscilloscope	MI	CSA	1
Oscilloscope	MN	CSA	9
Oscilloscope	MO	CSA	5
Oscilloscope	NC	ESA	8
Oscilloscope	NE	CSA	1
Oscilloscope	NH	ESA	5
Oscilloscope	NJ	ESA	2
Oscilloscope	NM	CSA	2
Oscilloscope	NY	ESA	5
Oscilloscope	OH	CSA	11
Oscilloscope	OK	CSA	2
Oscilloscope	PA	ESA	14
Oscilloscope	PR	ESA	4
Oscilloscope	RI	ESA	1
Oscilloscope	SC	ESA	8
Oscilloscope	TN	ESA	10
Oscilloscope	TX	CSA	12
Oscilloscope	VA	ESA	4
Oscilloscope	WA	WSA	1
Oscilloscope	WI	CSA	3
Oscilloscope	WV	ESA	12
Oscilloscope	WY	WSA	3
Power Meter / Watt Meter / Test Set / Radio Freq & Power Analyzer	AK	WSA	2
Power Meter / Watt Meter / Test Set / Radio Freq & Power Analyzer	CA	WSA	1

Equipment Type	State	Service Area	Count
Power Meter / Watt Meter / Test Set / Radio Freq & Power Analyzer	LA	CSA	2
Power Meter / Watt Meter / Test Set / Radio Freq & Power Analyzer	MN	CSA	1
Power Meter / Watt Meter / Test Set / Radio Freq & Power Analyzer	MO	CSA	1
Power Meter / Watt Meter / Test Set / Radio Freq & Power Analyzer	NC	ESA	2
Power Meter / Watt Meter / Test Set / Radio Freq & Power Analyzer	NE	CSA	1
Power Meter / Watt Meter / Test Set / Radio Freq & Power Analyzer	NH	ESA	1
Power Meter / Watt Meter / Test Set / Radio Freq & Power Analyzer	NY	ESA	1
Power Meter / Watt Meter / Test Set / Radio Freq & Power Analyzer	OH	CSA	1
Power Meter / Watt Meter / Test Set / Radio Freq & Power Analyzer	SC	ESA	1
Power Meter / Watt Meter / Test Set / Radio Freq & Power Analyzer	TX	CSA	1
Power Meter / Watt Meter / Test Set / Radio Freq & Power Analyzer	WV	ESA	2
Power Meter / Watt Meter / Test Set / Radio Freq & Power Analyzer	WY	WSA	1
Psychrometer, Digital	CT	ESA	1
Psychrometer, Digital	FL	ESA	1
Psychrometer, Digital	LA	CSA	1
Psychrometer, Digital	MT	WSA	1
Psychrometer, Digital	NY	ESA	1
Psychrometer, Digital	PA	ESA	2
Psychrometer, Digital	WA	WSA	1
Reflectometer, Frequency	AK	WSA	8
Reflectometer, Frequency	AL	ESA	1
Reflectometer, Frequency	AS	WSA	2
Reflectometer, Frequency	AZ	WSA	1
Reflectometer, Frequency	CA	WSA	7
Reflectometer, Frequency	CO	WSA	3
Reflectometer, Frequency	CT	ESA	1
Reflectometer, Frequency	GA	ESA	1
Reflectometer, Frequency	GU	WSA	1
Reflectometer, Frequency	HI	WSA	3
Reflectometer, Frequency	ID	WSA	1
Reflectometer, Frequency	IN	CSA	1
Reflectometer, Frequency	KY	ESA	1
Reflectometer, Frequency	MA	ESA	2
Reflectometer, Frequency	ME	ESA	2
Reflectometer, Frequency	MI	CSA	1
Reflectometer, Frequency	NM	CSA	1
Reflectometer, Frequency	NV	WSA	2
Reflectometer, Frequency	NY	ESA	2
Reflectometer, Frequency	OH	CSA	1
Reflectometer, Frequency	OR	WSA	2
Reflectometer, Frequency	PA	ESA	3
Reflectometer, Frequency	SC	ESA	1
Reflectometer, Frequency	TN	ESA	1
Reflectometer, Frequency	UT	WSA	1

Equipment Type	State	Service Area	Count
Reflectometer, Frequency	WA	WSA	7
Reflectometer, Frequency	WY	WSA	4
Reflectometer, Time Domain (TDR)	AR	CSA	1
Reflectometer, Time Domain (TDR)	AZ	WSA	1
Reflectometer, Time Domain (TDR)	CT	ESA	1
Reflectometer, Time Domain (TDR)	FL	ESA	3
Reflectometer, Time Domain (TDR)	KS	CSA	1
Reflectometer, Time Domain (TDR)	MA	ESA	1
Reflectometer, Time Domain (TDR)	NH	ESA	1
Reflectometer, Time Domain (TDR)	NM	CSA	1
Reflectometer, Time Domain (TDR)	TX	CSA	1
Reflectometer, Time Domain (TDR)	WA	WSA	1
Sensor, Power (Sa Or Local Funds Only)	CT	ESA	2
Test Kit, Fiber Optic	GU	WSA	1
Test Set Radio	FL	ESA	4
Test Set Telephone	FL	ESA	7
Test Set, Insulation Resistance (Megger)	AR	CSA	1
Test Set, Insulation Resistance (Megger)	CA	WSA	1
Test Set, Insulation Resistance (Megger)	FL	ESA	3
Test Set, Insulation Resistance (Megger)	IL	CSA	1
Test Set, Insulation Resistance (Megger)	KS	CSA	1
Test Set, Insulation Resistance (Megger)	MN	CSA	2
Test Set, Insulation Resistance (Megger)	MS	ESA	1
Test Set, Insulation Resistance (Megger)	SC	ESA	1
Test Set, Insulation Resistance (Megger)	TN	ESA	3
Test Set, Insulation Resistance (Megger)	WA	WSA	7
Test Set, Radio	AK	WSA	3
Test Set, Radio	AL	ESA	10
Test Set, Radio	AR	CSA	2
Test Set, Radio	AZ	WSA	1
Test Set, Radio	CA	WSA	14
Test Set, Radio	CT	ESA	2
Test Set, Radio	FL	ESA	20
Test Set, Radio	GA	ESA	7
Test Set, Radio	GU	WSA	2
Test Set, Radio	IL	CSA	7
Test Set, Radio	IN	CSA	4
Test Set, Radio	KS	CSA	11
Test Set, Radio	KY	ESA	3
Test Set, Radio	LA	CSA	4
Test Set, Radio	MA	ESA	4
Test Set, Radio	MD	ESA	2
Test Set, Radio	ME	ESA	5
Test Set, Radio	MI	CSA	1

Equipment Type	State	Service Area	Count
Test Set, Radio	MO	CSA	10
Test Set, Radio	MS	ESA	5
Test Set, Radio	NC	ESA	3
Test Set, Radio	ND	CSA	1
Test Set, Radio	NH	ESA	5
Test Set, Radio	NM	CSA	5
Test Set, Radio	NV	WSA	4
Test Set, Radio	NY	ESA	2
Test Set, Radio	OH	CSA	2
Test Set, Radio	OK	CSA	3
Test Set, Radio	PA	ESA	9
Test Set, Radio	SD	CSA	1
Test Set, Radio	TN	ESA	1
Test Set, Radio	TX	CSA	17
Test Set, Radio	UT	WSA	3
Test Set, Radio	VA	ESA	1
Test Set, Radio	VT	ESA	1
Test Set, Radio	WA	WSA	1
Test Set, Radio	WI	CSA	1
Test Set, Radio- Communications	AK	WSA	2
Test Set, Radio- Communications	AL	ESA	10
Test Set, Radio- Communications	AR	CSA	2
Test Set, Radio- Communications	AZ	WSA	2
Test Set, Radio- Communications	CA	WSA	11
Test Set, Radio- Communications	CO	WSA	4
Test Set, Radio- Communications	CT	ESA	2
Test Set, Radio- Communications	DC	ESA	1
Test Set, Radio- Communications	FL	ESA	14
Test Set, Radio- Communications	GA	ESA	1
Test Set, Radio- Communications	GU	WSA	1
Test Set, Radio- Communications	IA	CSA	2
Test Set, Radio- Communications	ID	WSA	2
Test Set, Radio- Communications	IL	CSA	5
Test Set, Radio- Communications	IN	CSA	1
Test Set, Radio- Communications	KY	ESA	2
Test Set, Radio- Communications	LA	CSA	2
Test Set, Radio- Communications	MA	ESA	8
Test Set, Radio- Communications	ME	ESA	2
Test Set, Radio- Communications	MI	CSA	3
Test Set, Radio- Communications	MN	CSA	13
Test Set, Radio- Communications	MO	CSA	1
Test Set, Radio- Communications	NC	ESA	1
Test Set, Radio- Communications	NE	CSA	2
Test Set, Radio- Communications	NH	ESA	2

Equipment Type	State	Service Area	Count
Test Set, Radio- Communications	NJ	ESA	2
Test Set, Radio- Communications	NV	WSA	1
Test Set, Radio- Communications	NY	ESA	6
Test Set, Radio- Communications	OH	CSA	2
Test Set, Radio- Communications	OK	CSA	4
Test Set, Radio- Communications	OR	WSA	2
Test Set, Radio- Communications	PA	ESA	9
Test Set, Radio- Communications	SC	ESA	6
Test Set, Radio- Communications	TN	ESA	3
Test Set, Radio- Communications	TX	CSA	10
Test Set, Radio- Communications	VA	ESA	2
Test Set, Radio- Communications	WA	WSA	1
Test Set, Radio- Communications	WI	CSA	2
Test Set, Radio- Communications	WV	ESA	1
Test Set, Radio- Communications	WY	WSA	7
Test Set, Telephone	AK	WSA	67
Test Set, Telephone	AL	ESA	9
Test Set, Telephone	AS	WSA	2
Test Set, Telephone	AZ	WSA	15
Test Set, Telephone	CA	WSA	119
Test Set, Telephone	CO	WSA	22
Test Set, Telephone	CT	ESA	2
Test Set, Telephone	FL	ESA	44
Test Set, Telephone	GA	ESA	29
Test Set, Telephone	GU	WSA	2
Test Set, Telephone	HI	WSA	15
Test Set, Telephone	IA	CSA	13
Test Set, Telephone	ID	WSA	8
Test Set, Telephone	IL	CSA	11
Test Set, Telephone	IN	CSA	6
Test Set, Telephone	KS	CSA	13
Test Set, Telephone	KY	ESA	8
Test Set, Telephone	LA	CSA	9
Test Set, Telephone	MA	ESA	5
Test Set, Telephone	MD	ESA	1
Test Set, Telephone	ME	ESA	6
Test Set, Telephone	MI	CSA	2
Test Set, Telephone	MN	CSA	7
Test Set, Telephone	MO	CSA	30
Test Set, Telephone	MS	ESA	1
Test Set, Telephone	MT	WSA	8
Test Set, Telephone	NC	ESA	9
Test Set, Telephone	NE	CSA	1
Test Set, Telephone	NH	ESA	5

Equipment Type	State	Service Area	Count
Test Set, Telephone	NJ	ESA	9
Test Set, Telephone	NM	CSA	1
Test Set, Telephone	NV	WSA	17
Test Set, Telephone	NY	ESA	12
Test Set, Telephone	OH	CSA	16
Test Set, Telephone	OK	CSA	2
Test Set, Telephone	OR	WSA	20
Test Set, Telephone	PA	ESA	26
Test Set, Telephone	SC	ESA	20
Test Set, Telephone	SD	CSA	1
Test Set, Telephone	TN	ESA	6
Test Set, Telephone	TX	CSA	14
Test Set, Telephone	UT	WSA	14
Test Set, Telephone	VA	ESA	4
Test Set, Telephone	WA	WSA	43
Test Set, Telephone	WI	CSA	6
Test Set, Telephone	WV	ESA	6
Test Set, Telephone	WY	WSA	5
Test Set, Transmission	NV	WSA	8
Test Set, Transmission/ Telephone /Universal (TTS)	AK	WSA	2
Test Set, Transmission/ Telephone /Universal (TTS)	AL	ESA	8
Test Set, Transmission/ Telephone /Universal (TTS)	AR	CSA	5
Test Set, Transmission/ Telephone /Universal (TTS)	CA	WSA	4
Test Set, Transmission/ Telephone /Universal (TTS)	CT	ESA	2
Test Set, Transmission/ Telephone /Universal (TTS)	DC	ESA	2
Test Set, Transmission/ Telephone /Universal (TTS)	FL	ESA	24
Test Set, Transmission/ Telephone /Universal (TTS)	GA	ESA	1
Test Set, Transmission/ Telephone /Universal (TTS)	HI	WSA	1
Test Set, Transmission/ Telephone /Universal (TTS)	IL	CSA	3
Test Set, Transmission/ Telephone /Universal (TTS)	KS	CSA	1
Test Set, Transmission/ Telephone /Universal (TTS)	LA	CSA	5
Test Set, Transmission/ Telephone /Universal (TTS)	MA	ESA	8
Test Set, Transmission/ Telephone /Universal (TTS)	MD	ESA	1
Test Set, Transmission/ Telephone /Universal (TTS)	ME	ESA	4
Test Set, Transmission/ Telephone /Universal (TTS)	MN	CSA	7
Test Set, Transmission/ Telephone /Universal (TTS)	MO	CSA	1
Test Set, Transmission/ Telephone /Universal (TTS)	NC	ESA	2
Test Set, Transmission/ Telephone /Universal (TTS)	NE	CSA	1
Test Set, Transmission/ Telephone /Universal (TTS)	NH	ESA	3
Test Set, Transmission/ Telephone /Universal (TTS)	NJ	ESA	1
Test Set, Transmission/ Telephone /Universal (TTS)	NV	WSA	1
Test Set, Transmission/ Telephone /Universal (TTS)	NY	ESA	3
Test Set, Transmission/ Telephone /Universal (TTS)	OH	CSA	5
Test Set, Transmission/ Telephone /Universal (TTS)	OK	CSA	3

Equipment Type	State	Service Area	Count
Test Set, Transmission/ Telephone /Universal (TTS)	PA	ESA	4
Test Set, Transmission/ Telephone /Universal (TTS)	SC	ESA	11
Test Set, Transmission/ Telephone /Universal (TTS)	TN	ESA	4
Test Set, Transmission/ Telephone /Universal (TTS)	TX	CSA	4
Test Set, Transmission/ Telephone /Universal (TTS)	WI	CSA	5
Test Set, Transmission/ Telephone /Universal (TTS)	WV	ESA	1
Test Set, Transmission/ Telephone /Universal (TTS)	WY	WSA	1
Tester, Earth Ground	CA	WSA	1
Tester, Earth Ground	GA	ESA	1
Tester, Earth Ground	IL	CSA	2
Tester, Earth Ground	NH	ESA	1
Tester, Earth Ground	TX	CSA	1
Tester, Earth Ground	VA	ESA	1
Tester, Earth Ground	WA	WSA	1
Tester, Earth Ground	WI	CSA	2
Thermometer, Self-Indicating, Digital (IR)	AZ	WSA	3
Thermometer, Self-Indicating, Digital (IR)	CA	WSA	1
Thermometer, Self-Indicating, Digital (IR)	FL	ESA	1
Thermometer, Self-Indicating, Digital (IR)	IA	CSA	2
Thermometer, Self-Indicating, Digital (IR)	MI	CSA	1
Thermometer, Self-Indicating, Digital (IR)	MO	CSA	1
Thermometer, Self-Indicating, Digital (IR)	NY	ESA	1
Thermometer, Self-Indicating, Digital (IR)	TX	CSA	2
Thermometer, Self-Indicating, Digital (IR)	WV	ESA	3
Wattmeter	CO	WSA	1
Wattmeter	NC	ESA	1
Wattmeter	OK	CSA	1
Wattmeter	PA	ESA	1
Wattmeter	WV	ESA	1

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
National Policy

ORDER 6200.4H

Effective Date : 12/08/2017

SUBJ: National Test Equipment Program Management

1. Purpose of This Order. This order prescribes Federal Aviation Administration (FAA) Air Traffic Organization (ATO) policy and responsibility for management and control of FAA's National Test Equipment Program (NTEP). Test equipment supports the maintenance and troubleshooting requirements in accordance with FAA Order 6000.15, General Maintenance Handbook for National Airspace System (NAS) Facilities.

2. Audience. Employees involved in providing, safeguarding, and maximizing the utilization of FAA Test Equipment (TE).

3. Where Can I Find This Order? You can find an electronic copy of this order on the Directives Management System (DMS) web site https://employees.faa.gov/tools_resources/orders_notices/. Or go to the MyFAA Employee web site, select “Tools and Resources”, then select “Orders and Notices”.

4. Cancellation. This order replaces Order 6200.4G, Test Equipment Management Handbook, dated March 08, 2010.

5. Explanation of Policy Changes.

a. Updated Office of Primary Responsibility to National Airway Systems Engineering Group, AJW-14.

b. Deleted appendices and incorporated relevant content into body of paragraph: Definitions, Acronyms, Process and Procedure Guide, and Quality Assurance Plan.

c. Update language in Paragraph 9. Roles and Responsibilities to be consistent with Acquisition Management System (AMS).

6. Policy. The FAA is responsible for the calibration, maintenance, and management of TE under its authority or control. This order establishes FAA’s formal structure of accountability to safeguard, calibrate, replace, reutilize and dispose of test equipment.

7. Scope. Test, Measurement, and Diagnostic Equipment is defined as portable, standalone (not a component of a system) electrical and electronic equipment that is required to perform the functional checks, align, troubleshoot, or calibrate an operational system within the National Airspace System (NAS).

8. Roles and Responsibilities. Assist employees and managers in carrying out their responsibilities for providing, safeguarding, and maximizing the utilization of TE, FAA has established formal TE management positions and organizations. Primary responsibilities are defined below:

a. National Test Equipment Program (NTEP) Office. The NTEP Office resides within National Airway Systems Engineering Group. The NTEP ensures that each NAS facility has the necessary TE to meet the specifications and requirements to maintain associated facilities/services provided within the National maintenance handbook program. NTEP establishes and maintains policy and guidance for the standardization of TE inventory and asset configuration management in support of the NAS operations, including management of National Calibration Contract.

b. National Test Equipment Program Manager (NTEPM). The NTEPM is responsible for the overall direction of the NTEP. This includes:

(1) Securing a budget and developing spending plans to support the TE calibration and replacement used to maintain and certify the NAS;

(2) Evaluating commercially available TE with appropriate stakeholders which could include Service Areas, Second-Level Engineering, FAA Logistics Center (FAALC), In-Service Management, and Program Offices;

(3) Validating and approving acquisition of all TE, accessories, and associated configurations to support new and legacy NAS system platforms to promote agency standardization and ensure disposition or redistribution plans are implemented for replaced equipment. Ensure that TE assets and accessories are identified and evaluated with national change proposals in compliance with FAA Order 1800.66, Configuration Management Policy, to include proper asset identification, assignment to a configuration control board, adherence to the change process, and complete documentation of the test equipment.

(4) Evaluating lifecycle management requirements to determine the Agency's future needs;

(5) Providing national guidance and delegation of responsibilities to the Service Area Test Equipment Program Managers (SATEPM);

(6) Ensure that configuration management of TE assets and accessories are maintained in the National TE inventory pool to support National reporting, warranting timely and effective agency decisions;

(7) Ensuring TE calibration requirement changes are updated biannually in the Calibration Cycle Requirements Table (CCRT) per National Calibration Contract;

(8) Approving all limited calibration procedure(s) on any TE and coordinating the implementation of limited calibration procedure(s) on a National basis; Managing the Test Equipment Quality Assurance Program and updating the Test Equipment Quality Assurance Calibration Checklist (See Appendix B);

(9) Issuing National Directives for TE recalls;

(10) Approving all TE calibration extensions waivers greater than 30 days; from the original calibration due date.

(11) Reviewing all National Change Proposals, System Engineering Requirements Documents (SERD), In-Service Requirement checklist, and other lifecycle plan and acquisition documentation relating to TE to ensure standardization and compliance with NTEP goals and initiatives.

c. Service Area Test Equipment Program Managers (SATEPM). The SATEPM provides supplemental guidance and support to Service Area Technical Operations **(**SATO) and Engineering Services (ES) customers, Calibration Delivery Points, and System Support Centers (SSC). Additional responsibilities include:

(1) Informing the NTEPM when TE no longer serves the intended purpose;

(2) Ensuring redistribution of TE is accomplished via a property transfer record within their Service Area to improve effectiveness;

(3) Providing assessment of TE needs to ensure configuration management issues are addressed when the FAA acquires a non-federal facility;

(4) Providing analysis and feedback regarding configuration management and lifecycle costs of TE recommended for purchase by SATO and ES;

(5) Monitoring Automated Inventory Tracking System (AITS) for any TE related actions not processed and notify any property custodians of delinquent inventory management actions;

(6) Approving purchases of initial issuances based on acceptable configuration management and lifecycle costs analysis;

(7) Participating in Joint Acceptance Inspection (JAI) reviews in accordance with FAA Order 6010.7, Joint Acceptance Inspection to evaluate and identify TE deficiencies then report findings to the NTEPM;

(8) Obtain a Contracting Officer Representative (COR) letter necessary for monitoring the mobile calibration contract compliance for locations in their service area; and report findings to the Contracting Officer and COR, as needed;

(9) Provide recommended changes to the CCRT;

(10) When accompanied by COR, administer schedule and impromptu quality assurance audits when warranted and directed by the NTEPM; and

(11) Approving calibration due date extensions of TE for up to 30 days after the original

calibration due date.

d. Service Area Technical Operations (SATO). Includes ALL TECHNICAL OPERATIONS (i.e. Districts, Operations Engineering Support (OESG), ES:

(1) Service Areas must assign a TE District Point of Contact (POC) to support each District, and if necessary an OESG and ES as well, on local TE matters.

(2) The selected District TE POC communicates with the SATEPM in their SA's to ensure field requirements are met. In support of NAS facilities it is necessary for the District TE POC to possess the necessary skillsets, and the technical understanding of TE in order to make productive administrative decisions. The District TE POC roles are defined below:

(a) Disseminate NTEP, Engineering, and SATEPM communications to field offices;

(b) Assist SATEPM in ensuring that field offices have the necessary TE for maintaining NAS facilities by coordinating, prioritizing, reallocating, or transferring TE assets. Provide feedback in terms of TE inventory, TE related issues/concerns, and functional changes.

(c) Coordinate and validate TE selections prior to any TE procurements with the SATEPM and NTEPM to ensure TE and accessories are approved under NTEP configuration management;

> **Note:** Any organization acquiring TE and accessories that are not under configuration management will be responsible for providing all lifecycle costs associated with that equipment.

(d) Assist SATEPM in monitoring field office processing of AITS actions within their area in accordance with the FAA Reutilization and Disposition Process and Procedure Guide, found in Appendix B of FAA Order 4600.27, Personal Property Management. This includes adding, transferring, or the excessing of damaged or replaced TE.

(e) Provide SATEPM an up-to-date listing of TE POC's and the physical addresses for mobile calibration van destination sites 60 days prior to scheduled calibration visits.

(f) Notify SATEPM when made aware of NAS Technical Evaluation Program (NASTEP) TE issues.

(g) Notify SATEPM of JAI or projects issues that involve test equipment.

(h) Inform SATEPM when TE is no longer required, and can be relocated within the ATO or given to the FAALC. (i.e. decommissioned facility, system upgrades, etc.)

(3) Field Office (defined as each SSC, Technical Support Center (TSC), or ES TE user, delegate or office custodian/manager) – This is the field level of the ATO, which is the primary customer and focus of the NTEP. This level should up channel any issues or concerns through their District TE POC, their SATEPM, then the NTEPM in this order. The responsibilities of this

role are as follows:

(a) Ensure all TE which requires calibration is in compliance with the specified interval listed on the CCRT. Each item requiring calibration should also have a calibration sticker affixed to it when applicable.

(b) Process AITS records in accordance with the FAA Reutilization and Disposition Process and Procedure Guide, found in Appendix B of FAA Order 4600.27, Personal Property Management to ensure all calibrated TE is in AITS. This includes "add" and "transfer" actions;

(c) Utilize the FAALC for TE repair support. For any rejected (red-tagged) calibration items, reference paragraph 12 prior to submitting NTEP requests;

(d) Submit requests for new and replacement TE via the NTEP site (See Appendix D) when TE is no longer supported and needs to be replaced, reference paragraph 10c;

> **Note:** Any organization acquiring TE and accessories that are not under configuration management will be responsible for providing all lifecycle costs associated with that equipment.

(e) Provide site calibration support. Site TE POC(s) will assist NTEP by verifying that calibration standards are adhered to by following the TE Quality Assurance Checklist (See Appendix B). Prior to the calibration van leaving the Site POC's should receive the following: Calibration Certificates, End of Site Summary (EOSS), Calibration Receiving Report, and Form 4650-15, Receiving Report (Form 4650-15 must be verified and signed by the TE POC or Manager and given to the contractor prior to leaving). Sites will receive soft copies of the listed documents.

(f) Process Return Material Authorization's (RMA) to send TE to contractor for calibration. Once TE is received back from the contractor, the POC must sign and return the RMA document to the contractor in a timely manner. Reference NTEP website for the RMA process;

(g) Disposition of TE. Reference paragraph 11.

(4) **FAA Logistics Center (FAALC).** The FAALC provides logistical support for repair of TE through Exchange and Repair (E&R) and Repair and Return (R&R) processes. Additional responsibilities include:

(a) Providing status updates for items in the E&R and the R&R process;

(b) Processing field orders for initial issue, repair, and replacement of TE; FAALC does not procure or replace test equipment (maintenance only)

(c) Procuring project materiel for field deployment;

(d) Providing a FAALC quarterly TE report of TE no longer supported or obsolete to the NTEP; and only when directed by the Staff Office (SO);

(e) Providing supplemental calibration services through established work orders that are not included in the National Calibration Contract. See paragraph 12 (e). R&R calibration only.

e. Product/Service Teams. The Product/Service Teams or other AMS procurement organizations that have the responsibility to acquire or upgrade NAS systems will coordinate TE requirements (common as well as specialized TE in support of their platform) with the NTEPM for agency standardization and optimization goals. Product/Service Teams are responsible for the lifecycle management of all NAS TE including funding to support:

(1) Initial site TE, accessories, and support equipment while transitioning to the NTEP; One year of calibration traceable to NIST for each acquisitioned item;

(2) Spares for FAALC stock which is typically 10 percent of the planned fielded TE amount unless a known manufacturing reliability factor can determine a more accurate sparing requirement;

(3) FAA Academy TE and training materials for use during NAS system training;

(4) TE operation and service manuals;

(5) Any other resources necessary to ensure lifecycle support as outlined in the maintenance concept for each new system and standardization of TE within the agency.

Note: Any organization acquiring TE and accessories that are not under configuration management will be responsible for providing all lifecycle costs associated with that equipment.

9. Initial Issue of Test Equipment. The NTEP Office collaborates with all stakeholders including Program Offices, FAALC, In-Service Management, Second-Level Engineering, and SATEPMs to determine the requirements needed for initial procurement.

a. Program Offices must coordinate with NTEPM for approval of TE configurations prior to purchasing TE including prototype products. Program offices must address all lifecycle requirements prior to deploying TE including warranties and calibration needs.

b. NTEP Office purchases and issues TE based on acceptable configuration and lifecycle costs analysis for field offices. NTEP may deploy initial issue TE and training via a National Directive.

c. SATOs, ESs, and SSCs request initial procurement via Test Equipment Request (TER) (See Appendix D).

d. SATEPMs review, edit, and submit purchase requests of initial issuances based on acceptable configuration and lifecycle costs analysis. SATEPMs will coordinate with the NTEP for funding.

10. Service or Repair of Test Equipment. Acceptable methods of repair include an E&R process and an R&R. The only limitation is if an asset is R&R'd first and found obsolete, then an E&R action can no longer be performed.

a. Non-Operational TE that has been rejected by the calibration service (red-tagged) must be removed from service immediately and taken out of the operational area. Any equipment that has been red-tagged must be sent to the FAALC for either E&R or R&R.

(1) If R&R is the only option, then a TER should be submitted for a replacement asset.

(2) If neither of these are an option, a TER should be submitted for a replacement asset.

(3) If an asset that is R&R'd is condemned, notify your SATEPM to update the priority of your TER.

b. The FAALC will provide a calibrated replacement with a minimum of nine (9) months calibration remaining for any TE that has gone through the E&R or R&R process. Items procured or repaired by the FAALC come with a minimum warranty of 90 days from the date of purchase. TE received from the FAALC or other contract support must not be considered calibrated unless a current calibration label is affixed to the unit.

c. Upon receipt of the E&R replacement, immediately process an E&R action in AITS to update the property records.

d. Ensure the calibration certificate is filed with calibration documentation.

11. Replacement of Test Equipment

a. NTEP will inform the SATEPM and the field via National Directive upon discovery if TE used for an operational platform becomes obsolete or unsupportable.

b. Field offices will notify the SATEPM upon discovery if TE used in an operational platform becomes obsolete or unsupportable.

c. SATEPM approval of TE need and verification of replacement compliance with agency standardization goals is required before new or replaced equipment is purchased. Field offices will notify the SATEPM of the need for replacement TE via a TER. The TER may be used to request new or replacement equipment for reasons such as:

(1) Operational asset has become obsolete or unsupportable.

(2) Operational asset is identified as beyond economical repair by the FAALC via the R&R process.

(3) Items are currently part of a National Replacement Program acquisition.

d. SATEPM may reject a TER for reasons such as:

(1) Equipment requested is not under configuration and lifecycle management.

(2) AITS records indicate site already has item(s) listed in inventory at the facility.

(3) Alternate technology or TE is being evaluated nationally.

12. Disposition of Test Equipment

a. Disposition of TE should be in accordance with the FAA Reutilization and Disposition Process and Procedure Guide, found in Appendix B of FAA Order 4600.27, Personal Property Management.

b. Contact SATEPM prior to disposing TE through AITS. If another service area need exists, the asset may be transferred to another facility. Replaced or obsolete assets will not be transferred to another FAA site without the approval of SATEPM.

c. The SATEPM will monitor AITS disposal actions for replaced TE and notify property custodians if excess actions are not performed upon discovery.

13. Calibration of Test Equipment and Accessories. TE must be calibrated according to the manufacturer's specifications. NTEPM may make adjustments to manufacturer's recommended calibration intervals after review of historical maintenance data or with coordination from the second-level engineering offices. TE assets require FAA barcodes recorded in AITS to be eligible for calibration services on the National Calibration Contract.

Note: Built-in TE is not eligible for calibration service on the National Calibration Contract.

a. All End State TE must be calibrated according to intervals as outlined in the CCRT. The NTEPM identifies TE assets that do not require calibration in the CCRT as:

(1) NCR (No Calibration Required)

(2) USER CAL (Owner/User Validates Performance)

b. TE accessories that require calibration such as probes and sensors are identified in the CCRT. Accessories that are not calibrated such as elements and attenuators are not funded for calibration service under the National Calibration Contract. If a customer requires calibration of TE accessories, the National Calibration vendor will accept the customer’s credit card for payment for calibration services. The NTEPM identifies TE accessories that do not require calibration in the CCRT as:

(1) NCR (No Calibration Required)

(2) USER CAL (Owner/User Validates Performance)

c. All calibrations conducted must provide traceability to reference standards recognized by NIST. Listed below are the guides used by the FAA for calibration laboratory organization, management, quality system, personnel, environment, standards/equipment, reference materials, procedures, traceability, certification, labeling, records, and reporting. All calibration service providers will minimally comply with the appropriate standard:

(1) ANSI/NCSL Z540-1-1994, Calibration Laboratories and Measuring and General Requirements for the Competence of Testing and Calibration Laboratories

(2) ISO/IEC 17025 (International Organization for Standardization Calibration, Measurement Gages and Test Laboratories)

(3) MIL-Q-9858A, Quality Program Requirements

d. TE used on NAS equipment will have a valid calibration sticker, calibration void label, if required; and a calibration certificate on file. The calibration certificate is proof that the equipment has been calibrated and is acceptable as evidence of traceability. However, if a "Calibration Void if Broken" label is broken or removed then the calibration of the asset is voided.

e. TE that cannot be calibrated through the National Calibration Contract, FAALC, or other assorted contract vehicles offered through the NTEP, must be calibrated through either a separate calibration vendor or through the original equipment manufacturer. A purchase order or credit card shall be used when calibrating TE using these methods. Calibration services are provided by several sources:

(1) National Calibration Contract is established for onsite and fixed laboratory calibration of TE. The majority equipment at a calibration delivery point can be calibrated on site.

Note: An RMA process has been established for items not calibrated locally; and identified as RMA on column "H Calibration Responsibility" on the CCRT. Note SSC/office TE POC responsibilities.

(2) FAALC AML-4000 is established for R&R for calibration and repair.

(3) Kansas City Staging area is responsible for calibrating the Zero Indicator for Omni Range ZIFOR.

f. The NTEPM must approve all limited calibrations. All TE with limited calibration must display a limited calibration label. Equipment requiring limited calibration will be identified as "Limited Cal" in the CCRT. An SSC Manager should make limited calibration requests within their purview by sending an email to the NTEPM for approval.

g. Copies of the current calibration certificates will be maintained for calibration cycles. The calibration certificate states a specific item was calibrated with measurement traceability and must include the standards used, calibration procedure, calibration interval, and expiration date.

h. TE may be used up to 30 days past the calibration due date with approval from the SATEPM via Memorandum. Calibration extensions beyond 30 days must be approved by the NTEPM via Memorandum. All calibration extensions need to be filed along with calibration documentation and retained for current calibration cycle.

14. Test Equipment Quality Assurance Program

a. A minimum of one Mobile Calibration Laboratory (MCL) audit must be performed within each service area annually.

b. A minimum of three calibration documentation audits must be performed annually and held at nonrecurring locations.

c. The National Test Equipment Quality Assurance Program establishes ATO guidelines to validate customers are receiving calibration services in accordance with the Statement of Work contracted at a national level. It also establishes guidelines for auditing calibration facilities; and documentation received at service delivery points. Additional impromptu audits will be performed, if warranted and directed by the NTEPM COR.

d. A Test Equipment Quality Assurance Calibration Checklist (See Appendix B) for each calibration service delivery point must be submitted to SATEPM annually by each Site/office TE POC. SATEPMs will validate and provide completed checklists to NTEPM.

e. The NTEP COR ensures that calibration vendors have a Quality Assurance Plan implemented.

15. Waivers. All waiver requests regarding any portion of this policy will be submitted to NTEPM for approval by the Vice President of Technical Operations Services. The request will contain rationale for the waiver, justification, and other appropriate information to support the request.

Vaughn A. Turner
Vice President, Technical Operations Services

Appendix A. Administrative Information.

16. Distribution. This order will be distributed electronically.

a. On the Technical Library web site at: http://nas.amc.faa.gov/phoenix/views/technicalLibrary.xhtml.

b. The Airway Transportation System Specialist (ATSS) and all administrative personnel must subscribe to the Auto-Notifications Services for electronic library release notifications at http://technet.faa.gov/. Administrative offices can print these documents for local use as required.

17. Definitions. Refer to the NTEP website http://nas.amc.faa.gov/ajw14/ntep/ for a list of definitions related to this directive.

18. NTEP Flowcharts. To view detailed guidance regarding the calibration process, R&R, purchase, support of accessories, and the disposition of TE refer to the NTEP website http://nas.amc.faa.gov/ajw14/ntep/.

Appendix B. Test Equipment Quality Assurance Calibration Checklist

This checklist is provided to help ensure all actions regarding calibrating TE are completed, and provides documented evidence that quality control measures are in place. This checklist should be completed by each site or SSC TE POC, sending a copy to the SATEPM, and then maintained with calibration records until next calibration cycle. To find the latest Test Equipment Quality Assurance Calibration Checklist, visit the NTEP web site http://nas.amc.faa.gov/ajw14/ntep/ .

Appendix C: NTEP Calibration Survey

The National Test Equipment Program Manager is continuously looking for ways to improve the quality of services provided to our customers. Please take a moment to provide feedback on your service experience with the Mobile Calibration Team and the Return Material Authorization (RMA) process used. With your input we can enhance the quality of service provided to our customers.

Mobile Calibration Lab (MCL) #: _____

FAA Site Location: _____

Please rate questions 1-7 and provide written response for question #8 and 9. Explanations are requested for any rating categories less than "Agree."

1. The mobile calibration technicians do a great job of keeping me informed of the scheduled arrival dates and delay notifications.
   - ☐ Strongly Agree
   - ☐ Agree
   - ☐ Neither Agree or Disagree
   - ☐ Disagree
   - ☐ Strongly Disagree

2. The mobile calibration technicians provide adequate RMA guidance and forms needed to send equipment offsite for calibration services, when mobile service is not available.
   - ☐ Strongly Agree
   - ☐ Agree
   - ☐ Neither Agree or Disagree
   - ☐ Disagree
   - ☐ Strongly Disagree

3. The mobile calibration technicians arrived on the scheduled date provided during 10-day and 2-day advance notification?
   - ☐ Strongly Agree
   - ☐ Agree
   - ☐ Neither Agree or Disagree
   - ☐ Disagree
   - ☐ Strongly Disagree

4. Prior to leaving the work site, the mobile calibration technicians completed all work in a timely manner.
   - ☐ Strongly Agree
   - ☐ Agree
   - ☐ Neither Agree or Disagree
   - ☐ Disagree
   - ☐ Strongly Disagree

5. The quality of the mobile calibration services I received met or exceeded my expectations.
   - ☐ Strongly Agree
   - ☐ Agree
   - ☐ Neither Agree or Disagree
   - ☐ Disagree
   - ☐ Strongly Disagree

6. The mobile calibration technicians have a high level of expertise in providing the services contracted.
   - ☐ Strongly Agree
   - ☐ Agree
   - ☐ Neither Agree or Disagree
   - ☐ Disagree
   - ☐ Strongly Disagree

7. Overall, how satisfied are you with the service provided by the mobile calibration technicians?
   - ☐ Strongly Agree
   - ☐ Agree
   - ☐ Neither Agree or Disagree
   - ☐ Disagree
   - ☐ Strongly Disagree

8. IMPROVEMENTS: When thinking about the overall mobile calibration services, what improvements would you recommend?
   (Manufacturer Name & Model Number is required for FAA equipment referenced)

   _____

   _____

   _____

   _____

9. OTHER COMMENTS: We greatly appreciate explanations for any questions with rating categories less than "Agree" to better understand and target improvements.

   _____

   _____

   _____

   _____

   _____

   Survey Completed By: _____

   Phone Number: _____ Date: _____

Please forward completed surveys to the National Test Equipment Program Manager:
David.Byrd@faa.gov

Appendix D. Test Equipment Management Tools

TE records, in accordance with FAA Order 1350.14B Records Management, should be updated timely and accurately to improve the agency's ability to create standardization of TE assets, write National maintenance procedures, and use the National TE inventory data to make effective business decisions.

1. **Automated Inventory Tracking System (AITS).** Automated tool used to manage inventory of equipment for the FAA. TE must be in AITS to be supported under the national baseline. https://my.faa.gov/org/staffoffices/afn/finance/systems/aits.html

2. **NTEP Web site**. Web site for all NTEP information. Latest notices, CCRT, calibration waivers, MCL schedule, and training information are available on the NTEP Web site. http://nas.amc.faa.gov/ajw14/ntep/

3. **NTEP KSN**. The NTEP KSN will be maintained to provide National Calibration Contract information. Access to this KSN will be controlled. To request access, contact the SATEPM or NTEPM. http://nas.amc.faa.gov/ajw14/ntep/

4. **Test Equipment Request (TER)**. Automated tool used to request new or replacement TE. Requests are processed by SATEPM and NTEPM. http://nas.amc.faa.gov/ajw14/ntep/

5. **Test Equipment Quality Assurance Calibration Checklist.** http://nas.amc.faa.gov/ajw14/ntep/

Appendix E. Related Publications

The latest editions of the following publications are the primary references for preparing and maintain agency directives. For additional information, the latest versions of the following documents should be referenced.

- FAA Order 6000.15, General Maintenance Handbook for National Airspace System (NAS) Facilities.
  https://employees.faa.gov/tools_resources/orders notices/

- ANSI /NCSL Z540-1-1994, Calibration Laboratories and Measuring and Test Equipment-General Requirements.
  Note: This is a non-government document and it is not available for distribution.

- ISO/IEC 17025: 2005, General Requirements for the Competence of Testing and Calibration Laboratories.
  http://www.iso.org/iso/home/store/catalogue_ics/catalogue_detail_ics.htm?csnumber=39883

- National Institute of Standards and Technology (NIST) publications.
  http://csrc.nist.gov/publications/PubsSPs.html

- MIL-Q-9858A, Quality Program Requirements.
  http://www.quality-control-plan.com/examples/mil-q-9858-quality-program/mil-q-9858-spec/

- Order 4600.27, Personal Property Management
  https://employees.faa.gov/tools_resources/orders_notices/

- FAA Order 6010.7, Joint Acceptance Inspection (JAI).
  https://employees.faa.gov/tools_resources/orders_notices/

- FAA Order 1350.14, Records Management.
  https://employees.faa.gov/tools_resources/orders_notices/

- FAA Order 1800.66, Configuration Management Policy.
  https://employees.faa.gov/tools_resources/orders_notices/

NSN	Description
6605-01-140-6787	TEST SET,SPD LOOP
6625-01-300-6148	METER, AUDIO LEVEL
6625-00-906-0733	METER MVMT (NCR)
6625-01-360-3926	METER MVMT (NCR)
6625-01-375-2290	AMMETER,RF
6625-01-413-9080	METER,SPEC SCALE
6625-01-369-6058	ANALYZER,ENERGY
6625-01-369-5886	TESTER,DIELECTRIC
6625-01-369-5979	TEST SET,ELEC.,SYS
6625-00-443-5809	VTM 0-40DCV SQ
6625-00-925-9394	AMM RCD AA82
6625-01-392-0211	OHMTR,W/CASE&LEADS
6625-01-392-3718	MOUNT,VERTICALFEET
6625-00-062-2288	ELEMENT, 5 W
6625-00-132-8293	ELEMENT, 2.5 W
6625-00-190-0332	ELEMENT, 250 MW
6625-00-502-7425	ELEMENT, 1 W
6625-00-502-7430	ELEMENT, 25 W
6625-00-502-7431	ELEM 5J
6625-00-502-7441	ELEMENT, 100 W
6625-00-502-7453	ELEMENT, 500 W
6625-00-502-7459	ELEMENT, 2500 W
6625-00-502-7502	ELEMENT, 1 W
6625-00-504-1016	ELEMENT, 1 W
6625-00-504-5716	ELEMENT, 2.5 W
6625-00-504-5721	DETECTING ELEMENT
6625-00-974-6299	ELEMENT, 100 MW
6625-01-083-8520	ELEMENT, 500 MW
6625-01-094-1073	ADP 4043
6625-01-233-9911	ELEMENT, 500 MW
6625-01-260-7422	ELEMENT, 4410-1
6625-01-296-9421	WMTR ELEM 4410-13
6625-01-379-4715	ELEMENT, 250 W
6625-01-468-7441	ELEMENT, 10 W
6625-01-481-8975	DETECTING ELEMENT,
6625-01-481-8980	ELEMENT, 100 MW
6625-01-483-2605	ELEMENT, 500 MW
6625-01-539-6534	ELEMENT, 250 MW
6625-01-537-0148	MBTS1 TESTSET ONLY
6625-01-551-2706	TEST SET, BATTERY
6625-01-452-5761	METER,MODULATION
6625-01-582-3405	TEST SET, XMS
6625-01-423-6599	PWR MTR, 8502
6625-01-465-0926	SENSOR,CURRENT
6625-01-586-4810	DETECTOR, RF
6625-01-465-1844	SPECTRUM ANALYZER

NSN	Description
6625-01-478-2653	WATTMETER 4391A
6625-01-490-3651	PEAK POWER METER
6625-01-540-2319	TEST SET, UNIV SER
6625-01-353-7073	IND DISTORTION
6625-01-478-0915	COUNTER,ELECTRONIC
6625-01-517-6003	POWER METER
6625-01-486-9447	TEST SET, ELEC PWR
6625-01-595-6758	ANALYZER,NETWORK
6625-01-537-2708	METER, SPECIAL SCA
6625-01-522-2737	ANALYZER, NETWORK
6625-01-333-7843	ANALYZER, SPECTRUM
6625-01-426-4166	PWR MTR, 6970
6625-01-486-3728	COUNTER,ELECTRONIC
6625-01-530-6875	MBTS2 TS & LAPTOP
6625-01-542-3625	COUNTER, ELECTRONI
6635-01-576-2591	HYDROMETER,DIGITAL
6625-01-314-7737	TST BE9000L2
6625-01-454-5750	GEN SMP02/01/12/14
6625-01-492-9281	TEST SET, RADIO
6625-01-522-2734	CALIBRATION KIT
6625-01-586-4401	GENERATOR, SIGNAL
6625-01-588-3354	OSCILLOSCOPE
6625-01-228-7848	RECORDER(USER CAL)
6625-01-412-3076	TRANSPONDER,DME TS
6625-01-467-6665	TST,CABLE,FL
6650-01-563-6641	TEST SET, OPTICAL
6625-01-067-0413	PWR SEN 8478B
6625-01-278-5135	POWER SENSOR
6625-01-358-0166	ANA,ELC PLS658-400
6625-01-358-8105	TEST SET,ELECT PWR
6625-01-426-8833	POWER,SENSOR
6625-01-599-8304	SENSOR, CURRENT
6625-01-615-6312	TESTER, INSULATION
6635-01-576-2597	HYDROMETER,DIGITAL
6650-01-365-7804	GAGE,CONVERGENCE
6660-01-518-0977	BAROMETER, DIGITAL
6625-00-138-6522	PWR MTR, 432B
6625-00-339-9826	MTR 230240/20C
6625-00-463-3522	TST FA8169
6625-01-036-0474	4300A GEN
6625-01-278-5134	POWER SENSOR, 6910
6625-01-293-3501	TEST SET,ELEC. SYS
6625-01-304-2326	GEN 1358A-01-02
6625-01-313-1555	4210-4ES2 PWR SEN
6625-01-315-6241	CAL MODEL 100
6625-01-338-3053	DDS DSOA/B INF

NSN	Description
6625-01-353-3292	TEST SET,INS BKDN
6625-01-369-5885	TEST SET,FREQUENCY
6625-01-391-1091	METER,NDB ANT RES
6625-01-443-3360	GENERATOR,NOISE
6625-01-444-8847	4300/H-T-M TST
6625-01-447-3921	SIGNAL GENERATOR
6625-01-448-0558	POWER METER/COUNTE
6625-01-448-6092	SPECTRUM ANALYZER
6625-01-462-5740	TEST SET, AUDIO
6625-01-475-3434	ANALYZER,LOCAL
6625-01-477-8172	GEN FNCT ELEC TEST
6625-01-490-1884	TEST SET,FIBER OPT
6625-01-496-8552	ANALYZER,NETWORK
6625-01-500-4970	ANALYSER, NETWORK
6625-01-507-7092	TEST SET, ELECTRIC
6625-01-509-9303	ANALYZER, WAN
6625-01-527-0670	COMMUNICATION ANAL
6625-01-530-0005	TEST SET, BATTERY
6625-01-544-5779	NOISE GENERATOR
6625-01-549-4699	ANALYZER, SPECTRUM
6625-01-553-3137	MULTIMETER
6625-01-579-7331	OSCILLOSCOPE
6625-01-583-0918	SENSOR, CURRENT
6625-01-585-4467	VOLTMETER, RF
6625-00-003-2992	METER MVMT (NCR)
6625-00-422-3126	ELEMENT, 250 MW
6625-00-610-5792	ELEMENT, 50 W
6625-00-854-4043	ELEMENT, 100 W
6625-00-925-2115	ELEMENT, 12/2.5 W
6625-00-987-6723	ELEMENT, 50 W
6625-01-042-3219	INDICATOR,DIG(NCR)
6625-01-073-0613	MTR
6625-01-108-6560	MTR 523W3DSW101-6
6625-01-125-5956	METER MVMT (NCR)
6625-01-144-9292	MTR MA23
6625-01-172-6051	TEST CLIP KIT(NCR)
6625-01-223-2980	OHMMETER 212159
6625-01-231-2414	CASE,TEST SET
6625-01-232-3075	MTR-CAP TSTR 830
6625-01-276-0507	VTM016-01NA-NGNG
6625-01-289-5943	PLUG-IN ELECTRONIC
6625-01-316-2631	MTR MMCL27-1003
6625-01-337-8682	TEST CLIP,BLK(NCR)
6625-01-352-4956	LEAD, TEST (NCR)
6625-01-371-6329	ADAPTER&CABLE(NCR)
6625-01-378-9673	DETECTOR,RF

NSN	Description
6625-01-379-4787	DETECTOR,RF
6625-01-384-2811	HIGH VOLTAGE PROBE
6625-01-387-8719	ADAPTER,TEST (NCR)
6625-01-391-7762	ELEMENT, 500 MW
6625-01-392-2792	CASE,ELECTRICAL
6625-01-421-2510	ADAPTER KIT (NCR)
6625-01-422-9788	DIODE DETECTOR
6625-01-445-7087	PROBE-LEAD ASSEMBL
6625-01-460-7608	MULTIMETER
6625-01-469-3144	PROBE, LEAD ASSEMB
6625-01-469-6401	CASE, ELECT/ELECTR
6625-01-471-1584	PROBE TEST
6625-01-475-3433	TEST SET CBL (NCR)
6625-01-475-5438	AMMETER
6625-01-491-9918	PROD, TEST
6625-01-502-0864	SENSOR, CURRENT
6625-01-523-6310	PROBE, TEST
6625-01-531-1947	METOR, PWR FACTOR
6625-01-538-0767	REFLECTOMETER
6625-01-538-0773	REFLECTOMETER
6625-01-543-2303	OHMMETER
6625-01-548-4318	MULTIMETER, CLMPON
6625-01-548-8939	DETECTOR, RF(NCR)
6625-01-556-2679	POWER SENSOR
6625-01-568-9397	TEST, INSULATION
6625-01-574-2910	CALIBRATOR,AUD LVL
6625-01-595-5466	CLAMPMETER
6625-01-595-6795	TST, ELT SYSTEMS
6625-01-595-6798	TST, ELT SYSTEMS
6625-01-595-6803	TST, ELT SYSTEMS
6625-01-599-6807	MULTIMETER
6625-01-606-1506	METER, ELC FRQ
6625-01-606-1561	PROBE, TEST
6625-01-611-8986	SENSOR, CURRENT
6625-01-615-6306	LEAD SET, TEST
6625-01-615-6317	LEAD SET, TEST
6625-01-623-7061	TEST SET, RADIO
6650-01-615-6520	TST, OPTICAL PWR
6650-01-615-6574	TST, OPTICAL PWR
6660-01-576-0059	PSMETER ONLY (NCR)
6660-01-583-8573	PSYCHROMETER + PRB
6685-01-548-9494	TEMPERATURE PROBE
6625-01-045-2183	SIG GEN 8640B-003
6625-01-261-8107	ANA SPEC 494AP
6625-00-436-4883	PWR MTR, 432A
6625-01-262-3953	TST 85046A

NSN	Description
6625-00-937-6156	1840A AUD PWR MTR
6625-00-240-3954	CAV TS270BUP
6625-00-443-8086	TST 519A
6625-00-969-4105	410C MUL
6625-01-071-8403	PULSE GEN 801
6625-01-082-1128	606-3 ANALYZER
6625-01-223-8356	GEN,SIG, 3336B
6625-01-239-4638	TEST SET,SCD
6625-01-317-8373	DIGITAL MULTIMETER
6625-01-389-3705	VOLTMETER
6625-01-441-9555	WATTMETER
6625-01-072-4895	POWER SENSOR 8482H
6625-01-217-9427	MULTIMETER 8840A
6625-01-238-7314	GEN M0DEL 20
6625-01-518-8500	O-SCOPE,DIGITAL
6625-00-995-7716	400E VTM
6625-01-425-2550	GENERATOR,SWEEP
6625-01-370-2085	OSL, 2247A
6625-00-433-6477	GEN 921A
6625-00-689-7685	ANA WAVE 312A
6625-01-282-9397	PWR METER 893B_C
6625-01-416-4444	GENERATOR,FUNCT
6625-01-478-4823	ANALY,DIG DTA,ELEC
6625-00-175-1472	MTR 3073
6625-00-579-6667	AMM 50-250340LALA
6625-00-583-1526	DETECTOR,RF,XTL
6625-00-693-3750	IND PH SEQ K3
6625-00-887-3896	ATT AA06T
6625-00-901-5575	P6028 PROD,TEST
6625-00-907-8358	010-0075-00
6625-00-915-1281	MTR 013-0076-00
6625-00-949-8027	PRB ASSY 10001B
6625-00-964-9267	PRB 010-0074-00
6625-00-983-6437	206-0060-00
6625-01-005-2381	LEADA 3787C60
6625-01-010-4700	PRB 80K40
6625-01-044-1753	SNFRA 044424-0002
6625-01-049-7947	PRB P6063B 3 1-2FT
6625-01-053-4187	TSTR 61-035
6625-01-059-2435	PRB 010-6063-13
6625-01-141-5673	METER ACV 868658-1
6625-01-141-5675	VTM 868657-1
6625-01-147-8587	TEST LEADS
6625-00-965-7051	TST RF 4301
6625-01-304-2215	FRQ CNTR 7220A
6625-01-399-2298	COUNTER

NSN	Description
6625-00-495-3447	BOL RF 478A
6625-01-322-5296	ANALYZER,ELEC TEST
6625-01-429-9277	SENSOR,CURRENT
6625-01-307-0512	AN/UPM-155 RDR TST
6625-00-350-5714	CNT 6153-50
6625-00-918-5721	TST TTS37B
6625-01-079-9347	PK PWR MTR, 8900C
6625-01-227-4370	WATTMETER
6625-01-316-6448	PWR MTR, 437B
6625-01-590-6362	SENSOR, CURRENT
6625-00-033-3931	MTR 035236-0003
6625-00-124-5158	CASE,WM & ELEMENTS
6625-00-132-8299	ELEMENT, 2.5 W
6625-00-242-8590	DET ELEM 2500H
6625-00-247-6198	ELEMENT, 5 W
6625-00-264-4358	ELEMENT, 1 W
6625-00-269-4459	ELEMENT, 100 W
6625-00-307-5267	ELEMENT, 1 W
6625-00-307-7124	ELEMENT, 50 W
6625-00-410-0241	ELEM 425020-093-8
6625-00-441-1921	ELEMENT, 1000 W
6625-00-441-1922	ELEMENT, 5000 W
6625-00-451-9245	ELEMENT, 2 W
6625-00-483-2608	ELEMENT, 2.5 W
6625-00-495-3862	ELEMENT, 100 MW
6625-00-497-2912	ELEMENT, 5 W
6625-00-504-5710	ELEMENT, 1 W
6625-00-504-5719	ELEMENT, 2.5 W
6625-00-543-9481	ELEMENT, 25 W
6625-00-581-5894	ELEMENT, 25 W
6625-00-610-5791	ELEMENT, 25 W
6625-00-610-5795	ELEMENT, 100 W
6625-00-678-0464	ELEMENT, 100 W
6625-00-733-3702	ELEMENT, 10 W
6625-00-767-4215	ELEMENT, 5 W
6625-00-804-9671	ELEMENT, 100 W
6625-00-805-7100	ELEMENT, 100 W
6625-00-805-7102	ELEMENT, 50 W
6625-00-868-4638	ELEMENT, 250 W
6625-00-913-5175	ELEMENT, 10 W
6625-00-918-5709	ELEMENT, 10 W
6625-00-945-6092	ELEMENT, 50 W
6625-00-946-5842	DELM 095-1
6625-00-949-5382	ELEMENT, 10 W
6625-00-954-2785	ELEMENT, 1 W
6625-00-980-8255	ELEMENT, 25 W

NSN	Description
6625-00-987-6722	ELEMENT, 250 W
6625-01-013-4854	ELEMENT, 250 MW
6625-01-031-4735	MTR FRQ
6625-01-060-4647	METER MVMT (NCR)
6625-01-080-5452	ELEM 4274-025
6625-01-080-6026	ELEM 400-75
6625-01-084-0254	CAPACITANCE METER
6625-01-184-8090	PROBE,CURRENT
6625-01-260-1915	WATTMETER, DIR RF
6625-01-269-2463	MULTIMETER, ANALOG
6625-01-291-2642	DETECTOR,RF
6625-01-296-4006	FLUKE METER PROD,
6625-01-296-9420	WMTR ELEM 4410-12
6625-01-327-5153	DETECTOR,DIOD(NCR)
6625-01-337-2100	ELEMENT, 100 MW
6625-01-353-4383	PROD,TEST
6625-01-521-7106	MULTIMETER
6625-01-432-6997	TEST SET, RADIO
6625-01-494-0438	OSCILLOSCOPE
6625-01-341-4437	SPC ANA492P/1/2/3
6625-01-103-6524	TTS44 TST XMS
6625-01-275-4766	OSL, 2246 MOD A
6625-01-252-0319	TEL TS,4935A
6625-01-252-0298	438A W/OPT 002 MTR
6625-01-311-5272	SPEC ANA 8563A-K01
6625-01-304-4945	TTS, AM48
6625-01-495-8448	TEST SET,RADIO
6625-01-361-0033	T/S RADIO 8920A-02
6625-01-289-8580	TEL TST,4935A/002
6625-01-164-0519	CNTR 5328A-030
6625-01-448-2281	TEL TS,704A-400B
6625-01-532-1041	REFLECTOMETER,FRQ
6625-01-329-8160	TS RADIO 2955R
6625-01-316-8664	METER 3586A
6625-01-374-4115	SPC ANA
6625-01-507-8725	MULTIMETER
6625-01-523-6392	CELLCORDER,BATTERY
6625-01-033-5050	PWR MTR, 436A
6625-01-496-1715	SENSOR, CURRENT
6625-01-245-3926	3701 OPT11 TEL TST
6625-01-308-6446	VID TESTSET FA9410
6625-01-032-6914	ANUSM 425 0SL
6625-01-450-7534	OSCILLOSCOPE
6625-01-482-3366	SIGNAL GENERATOR
6625-01-292-7689	TTS, AM44
6625-00-254-6671	GEN 8616A

NSN	Description
6625-01-308-4401	RF TEST SET FA9411
6625-01-320-0536	VOLTMETER, 45
6625-01-380-5252	TEL TST,4934A
6625-01-445-9080	TTS,5200-02ABCFGA1
6625-01-176-1269	CTR TMR 7250A
6625-01-304-3437	GENERATOR, SIGNAL
6625-01-389-8124	TEST SET,TELEPHONE
6625-01-436-2762	SCOPE METER 105B
6625-01-477-0908	WATTMETER
6625-01-522-9270	GENERATOR, SIGNAL
6625-01-530-8557	OSCILLOSCOPE
6625-01-187-7847	0SL 2235 OPT 01
6625-01-369-5901	SCOPEMETER
6625-01-464-7808	TRANSMISSION,TS
6625-01-476-6755	METER,SPEC SCALE
6625-00-867-4032	TST SFT1
6625-01-023-8026	MODULATOR
6625-01-392-0209	4934AOPT-001 TTS
6625-01-438-5312	ANALYZER, ELECTRIC
6625-01-237-5872	OHMMETER
6625-01-374-6668	OSCILLOSCOPE
6625-01-020-9995	TST TTS37BAQ
6625-01-165-7790	COUNTING UNIT, DIG
6625-01-299-0883	451 OPT P5 CNT
6625-01-304-2307	OSL ANUSM425MOD
6625-01-350-5125	ANALYZER,DIGITAL
6625-01-358-4903	CAL,FRQ. 585B
6625-01-364-7519	COUNTER,ELECTRONIC
6625-01-408-9378	TAS465 OSL
6625-01-420-0470	ANALYZER, SPECTRUM
6625-01-485-8276	ANALYZER, NETWORK
6625-00-135-0407	MUL 427A
6625-00-311-3342	GENERATOR,SIGNAL
6625-00-322-8684	MON FA8951
6625-00-330-6939	GENERATOR, SWEEP
6625-01-012-7669	ANA 3581A
6625-01-104-3151	OSL 465BOPT04 KC
6625-01-251-4775	MON COM 3000BMA
6625-01-257-0211	TEST SET BIT ERROR
6625-01-302-0578	FM-AM500AWOPT08
6625-01-304-2182	OSL LB0508A
6625-01-314-0616	XMT NOISE 4661
6625-01-314-0636	ANA IF 4671
6625-01-319-3930	GENERATOR, SIGNAL
6625-01-357-9937	CNT,ELT 1990 OPT41
6625-01-366-5029	TEST SET,RELAY

NSN	Description
6625-01-422-2342	OSCILLOSCOPE
6625-01-447-6261	TEST SET,ANTENNA
6625-01-470-9339	TEST SET,CABLE
6625-01-484-8826	ANALYZER,NETWORK
6625-01-517-5847	ANALYZER,WAN (NCR)
6625-00-003-5592	CABLE LOCATOR 2785
6625-00-113-6353	GEN 110B
6625-00-162-1624	TST FA8139
6625-00-162-1940	ANA 1568A
6625-00-291-8085	GENERATOR,NOISE
6625-00-311-3357	MON FA8901
6625-00-397-4179	OSL 475A OPT4
6625-00-872-3215	SIG GEN 8614A
6625-01-061-9115	GEN 110C
6625-01-111-4410	PLUG-IN UNIT,ELEC
6625-01-111-4411	PIU HP3737B
6625-01-158-3600	OSL LB0-522
6625-01-173-1306	MDR 1020T
6625-01-211-9577	OSL 2215MODWV
6625-01-262-3532	VOLTMETER
6625-01-304-7317	OSCILLOSCOPE,100MH
6625-01-311-2700	9035 CNT W|O RMT
6625-01-311-2714	TEST SET, K105-401
6625-01-313-1589	GEN FUNCTION 744
6625-01-313-4410	TST FA9491
6625-01-314-7711	CAL MDL 102
6625-01-331-3284	ANALYZER,PROTOCOL
6625-01-419-6706	FAULT FINDER,CBL
6625-01-447-2032	OSCILLOSCOPE,DIGIT
6625-01-448-7832	O-SCOPE
6625-01-449-3183	ANALYZER,DIGITAL
6625-01-467-9626	OSL TDS3052
6625-01-474-7915	O-SCOPE
6625-01-511-8080	TEST SET,SURGE
6625-01-530-9444	COUNTER,ELEC
6625-01-581-4225	ANALYZER, NETWORK
6625-01-141-1150	PROBE, TEST (NCR)