

SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS
OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, & 30

2. CONTRACT NO.	3. AWARD/EFFECTIVE DATE	4. ORDER NUMBER	1. REQUISITION NUMBER	PAGE OF
			5. SOLICITATION NUMBER	6. SOLICITATION ISSUE DATE

7. FOR SOLICITATION INFORMATION CALL:	a. NAME	b. TELEPHONE NUMBER (No collect calls)	8. OFFER DUE DATE/ LOCAL TIME
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9. ISSUED BY	CODE		10. THIS ACQUISITION IS <input type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> SET ASIDE: _____ % FOR:
		<input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> WOMEN-OWNED SMALL BUSINESS (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM NAICS: <input type="checkbox"/> HUBZONE SMALL BUSINESS <input type="checkbox"/> EDWOSB <input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS <input type="checkbox"/> 8 (A)	
		SIZE STANDARD:	

11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED <input type="checkbox"/> SEE SCHEDULE	12. DISCOUNT TERMS	13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) <input type="checkbox"/>	13b. RATING
		14. METHOD OF SOLICITATION <input type="checkbox"/> RFQ <input type="checkbox"/> IFB <input type="checkbox"/> RFP	

15. DELIVER TO	CODE		16. ADMINISTERED BY	CODE	
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17a. CONTRACTOR/OFFEROR.	CODE		FACILITY CODE		18a. PAYMENT WILL BE MADE BY	CODE	
TELEPHONE NO.							

17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER <input type="checkbox"/>	18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM
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19. ITEM NO.	20. SCHEDULE OF SUPPLIES/SERVICES	21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT
(Use Reverse and/or Attach Additional Sheets as Necessary)					

25. ACCOUNTING AND APPROPRIATION DATA	26. TOTAL AWARD AMOUNT (For Govt. Use Only)
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27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4. FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA	<input type="checkbox"/> ARE	<input type="checkbox"/> ARE NOT ATTACHED
27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA	<input type="checkbox"/> ARE	<input type="checkbox"/> ARE NOT ATTACHED

28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED	29. AWARD OF CONTRACT: REF. _____ OFFER DATED _____ . YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:
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30a. SIGNATURE OF OFFEROR/CONTRACTOR	31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)
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30b. NAME AND TITLE OF SIGNER (Type or print)	30c. DATE SIGNED	31b. NAME OF CONTRACTING OFFICER (Type or print)	31c. DATE SIGNED
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19. ITEM NO.	20. SCHEDULE OF SUPPLIES/SERVICES	21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT

32a. QUANTITY IN COLUMN 21 HAS BEEN

RECEIVED
 INSPECTED
 ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: _____

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE	32c. DATE	32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE
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32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE	32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE
32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE	

33. SHIP NUMBER	34. VOUCHER NUMBER	35. AMOUNT VERIFIED CORRECT FOR	36. PAYMENT <input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL	37. CHECK NUMBER		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;">PARTIAL</td> <td style="width: 50%; padding: 2px;">FINAL</td> </tr> </table>	PARTIAL	FINAL				
PARTIAL	FINAL					

38. S/R ACCOUNT NO.	39. S/R VOUCHER NUMBER	40. PAID BY
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41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT	42a. RECEIVED BY <i>(Print)</i>
41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER	42b. RECEIVED AT <i>(Location)</i>
41c. DATE	42c. DATE REC'D <i>(YY/MM/DD)</i>
	42d. TOTAL CONTAINERS

SCHEDULE Continued

ITEM NO.	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001	<p>MAXIMUM/MINIMUM TEMPERATURE DISPLAY UNIT NSN: 6685-01-491-5453 ASN: C451-N1 CLS RQN#: NW-WG3400-23-00265</p> <p>LCD TEMPERATURE DISPLAY UNIT FOR NATIONAL WEATHER SERVICE (NWS) MAXIMUM/MINIMUM TEMPERATURE SYSTEM (MMTS). THE LEGACY NAME FOR THE DISPLAY UNIT IS: NIMBUS. THE PROCUREMENT INCLUDES AN EXTERNAL AC/DC POWER SUPPLY.</p> <p>THIS ITEM SHALL BE IN ACCORDANCE WITH SPECIFICATION/ STATEMENT OF WORK (SOW) C451-SP001. THE SOW REFERENCES A BILL OF MATERIALS (BOM) FOR COMMERCIAL MICROCHIP, GOVERNMENT FURNISHED EQUIPMENT (GFE), AND LIQUID CRYSTAL DISPLAY (LCD) PARTS.</p> <p>THE NOAA/NWS WILL PROVIDE AS GFE A QUANTITY OF 250 EACH OF THE FOLLOWING THREE COMPONENTS (IDENTIFIED ON THE PARTS LIST) AS GOVERNMENT FURNISHED EQUIPMENT (GFE) DUE TO LIMITED SOURCE OF SUPPLY:</p> <ol style="list-style-type: none"> 1. LCD1 - 7-SEGMENT, 4-DIGIT, TRANSFLECTIVE 2. LCD2 - BACKLIGHT 3. PROGRAMMABLE SIGNAL PROCESSOR (DIGIKEY 568-1014-5-ND, PROGRAMMED BY NWS/NRC) <p>UNUSED GFE SHALL BE RETURNED TO THE GOVERNMENT NO LATER THAN 30 WORKING DAYS AFTER COMPLETION OF DELIVERY.</p> <p>THREE (3) FIRST ARTICLE UNITS SHALL BE DELIVERED WITHIN 5 MONTHS OF PURCHASE ORDER AWARD FOR INSPECTION AND ACCEPTANCE.</p> <p>THE GOVERNMENT WILL PROVIDE WRITTEN APPROVAL, AFTER WHICH TIME THE PRODUCTION ARTICLES MAY BE DELIVERED. NO PRODUCTION ARTICLES MAY BE DELIVERED UNTIL GOVERNMENT APPROVAL IS RECEIVED. THIS REQUIREMENT MAY BE WAIVED FOR CONTRACTORS WHO HAVE RECEIVED PREVIOUS APPROVAL FOR THIS ITEM. THE GOVERNMENT CONTACT FOR THIS ACTIVITY IS MIKE CLARK (301-427-9651), MIKE.CLARK@NOAA.GOV; OR TOM TRUNK (301-427-9335), THOMAS.TRUNK@NOAA.GOV.</p> <p>FIRST ARTICLES AND PRODUCTION UNITS SHALL BE SHIPPED TO: NATIONAL LOGISTICS AND RECONDITIONING CENTER 14200 MERRITT ROAD GRANDVIEW, MO 64030 ATTN: TRACYE GREGORY (816-823-1003)</p> <p>ITEMS DELIVERED UNDER THIS PURCHASE ORDER SHALL BE INDIVIDUALLY PACKAGED IN SHIPPING BOXES/CONTAINERS SUITABLE FOR</p>	250.00	EA	_____	_____

SCHEDULE Continued

ITEM NO.	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	<p>DELIVERY BY COMMON CARRIER, AND LABELED IN ACCORDANCE WITH THE "NATIONAL WEATHER SERVICE INSTRUCTIONS TO COMMERCIAL VENDORS FOR MARKING AND BAR CODING SUPPLIES FOR SHIPMENT TO THE NATIONAL LOGISTICS SUPPORT CENTER FOR ALL CONTRACTS".</p> <p>UPON REQUEST, THE GOVERNMENT WILL PROVIDE BARCODE LABELS FOR THE FIRST ARTICLE AND PRODUCTION ITEMS DELIVERED UNDER THIS ACQUISITION. GOVERNMENT POC TO OBTAIN LABELS IS MICHAEL CLARK.</p> <p>EARLIER DELIVERY AND PARTIAL SHIPMENTS ARE ACCEPTABLE AND ENCOURAGED AT NO ADDITIONAL EXPENSE TO THE GOVERNMENT.</p> <p>DELIVERY OF ALL PRODUCTION UNITS SHALL BE NO LATER THAN 45 WEEKS FROM DATE OF AWARD.</p> <p>INSPECTION AND ACCEPTANCE OF ALL MATERIAL SHALL BE PERFORMED AT THE NATIONAL RECONDITIONING CENTER, GRANDVIEW, MISSOURI 64030.</p>				

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CLAUSES

OFFEROR INSTRUCTIONS

Offeror Instructions

Faxed or mailed quotes will not be accepted. Quotes shall be e-mailed to shelley.neubert@noaa.gov

E-mailed quotes must be received in this office by the due date and time to be considered within the deadline.

Quoters must submit all questions concerning this solicitation by e-mail within 5 days of the issuance of this solicitation.

This is a firm fixed price purchase order.

The Buy American Statute applies to this procurement. The Buy American Statute gives preference to domestic end products over foreign products unless an exemption applies.

The evaluation procedures are low price technically acceptable. The government intends to make an award to the responsive responsible quoter(s) providing the best value to the government, price and non-price factors considered. Award will be made on the basis of the lowest evaluated price of proposals meeting or exceeding the acceptability standards for non-cost factors.

"Best value" means the expected outcome of an acquisition that, in the government's estimation, provides the greatest overall benefit in response to the requirement. The government reserves the right to make a comparative evaluation of quotes in determining best value in accordance with far 13.106-2(b)(3).

Contractors must be registered in the System For Award Management (SAM) at the time the quote is submitted. It is highly recommended if you are not currently registered in SAM that you start this process as soon as possible. You may register at <https://www.sam.gov>. There is no charge for registering in SAM.

The following information is to be returned:

- 1) Page 1 (complete blocks 17a, 30a, 30b, and 30c).
- 2) Page 3 (fill in your quote/prices and country of manufacture).
- 3) Confirmation you understand and will comply with the required marking and shipping instructions.
- 4) A determination if the company has or has not previously delivered acceptable units to the National Weather service in the past. If yes, please provide the most current purchase order number or quote number.
- 5) Your Unique Entity Identification (UEI) number (replaced DUNS). A UEI number is available at no charge through www.sam.gov.
- 6) Contractor representations and certifications shall be completed in the system for award management (www.sam.gov). Contractors shall provide a statement that they either are or are not registered and active in SAM.
- 7) If the solicitation NAICS code is not listed in the vendor's System for Award Management certifications and representations, the vendor shall certify with a statement whether they are or are not small business under the solicitation NAICS code.

- 8) Your response to CAR Clause 1352.209-74(C), Organizational Conflict Of Interest. Contractors shall provide a statement that they either do or do not have a conflict of interest.
- 9) As requested in CAR Clause 1352.213-70, Evaluation Utilizing SAP, provide your response to the factors used to evaluate quotes, to include the requested documentation to support each criterion. There are multiple documents needed to be in compliance with the clause. Please ensure to read the clause in full.
- 10) An e-mail address and telephone number where you can be reached for future correspondence.

Contractors who do not respond to items 1 through 10 may be considered non-compliant with the requirements of the solicitation and no further consideration shall be given for award.

Quotes in response to this solicitation shall be submitted electronically via email by the due date and time to the following government representative: shelly neubert, shelley.neubert@noaa.gov, 816-426-2066. It is the quoter's sole responsibility to ensure that any quote, to include any other email correspondence, transmitted to the government representative is received prior to the due date and time. Quoters are highly encouraged to contact the government representative prior to the solicitation close date and time to ensure the government receipt of the transmitted quote. Quotes received after the due date and time may be rendered ineligible for consideration or evaluation.

52.252-1 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (FEB 1998)

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this/these address(es):
<https://www.acquisition.gov/?q=browsefar>

(End of Provision)

<https://www.acquisition.gov/FAR/>

52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):
<https://www.acquisition.gov/?q=browsefar>

(End of Clause)

52.204-7 SYSTEM FOR AWARD MANAGEMENT (OCT 2018)
(Reference 52.204-7)

52.204-13 SYSTEM FOR AWARD MANAGEMENT MAINTENANCE (OCT 2018)
(Reference 52.204-13)

52.204-16 COMMERCIAL AND GOVERNMENT ENTITY CODE REPORTING (AUG 2020)
(Reference 52.204-16)

52.204-18 COMMERCIAL AND GOVERNMENT ENTITY CODE MAINTENANCE (AUG 2020)
(Reference 52.204-18)

52.204-24 REPRESENTATION REGARDING CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT (NOV 2021)

The Offeror shall not complete the representation at paragraph (d)(1) of this provision if the Offeror has represented that it "does not provide covered telecommunications equipment or services as a part of its offered products or services to the Government in the performance of any contract, subcontract, or other contractual instrument" in paragraph (c)(1) in the provision at 52.204-26, Covered Telecommunications Equipment or Services--Representation, or in paragraph (v)(2)(i) of the provision at 52.212-3, Offeror Representations and Certifications-Commercial Products and Commercial Services. The Offeror shall not complete the representation in paragraph (d)(2) of this provision if the Offeror has represented that it "does not use covered telecommunications equipment or services, or any equipment, system, or service that uses covered telecommunications equipment or services" in paragraph (c)(2) of the provision at 52.204-26, or in paragraph (v)(2)(ii) of the provision at 52.212-3.

(a) Definitions. As used in this provision-

Backhaul, covered telecommunications equipment or services, critical technology, interconnection arrangements, reasonable inquiry, roaming, and substantial or essential component have the meanings provided in the clause 52.204-25, Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment.

(b) Prohibition. (1) Section 889(a)(1)(A) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August

13, 2019, from procuring or obtaining, or extending or renewing a contract to procure or obtain, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. Nothing in the prohibition shall be construed to--

(i) Prohibit the head of an executive agency from procuring with an entity to provide a service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(ii) Cover telecommunications equipment that cannot route or redirect user data traffic or cannot permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(2) Section 889(a)(1)(B) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2020, from entering into a contract or extending or renewing a contract with an entity that uses any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. This prohibition applies to the use of covered telecommunications equipment or services, regardless of whether that use is in performance of work under a Federal contract. Nothing in the prohibition shall be construed to--

(i) Prohibit the head of an executive agency from procuring with an entity to provide a service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(ii) Cover telecommunications equipment that cannot route or redirect user data traffic or cannot permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(c) Procedures. The Offeror shall review the list of excluded parties in the System for Award Management (SAM) (<https://www.sam.gov>) for entities excluded from receiving federal awards for "covered telecommunications equipment or services."

(d) Representations. The Offeror represents that--

(1) It [] will, [] will not provide covered telecommunications equipment or services to the Government in the performance of any contract, subcontract or other contractual instrument resulting from this solicitation. The Offeror shall provide the additional disclosure information required at paragraph (e)(1) of this section if the Offeror responds "will" in paragraph (d)(1) of this section; and

(2) After conducting a reasonable inquiry, for purposes of this representation, the Offeror represents that--

It [] does, [] does not use covered telecommunications equipment or services, or use any equipment, system, or service that uses covered telecommunications equipment or services. The Offeror shall provide the additional disclosure information required at paragraph (e)(2) of this section if the Offeror responds "does" in paragraph (d)(2) of this section.

(e) Disclosures. (1) Disclosure for the representation in paragraph (d)(1) of this provision. If the Offeror has responded "will" in the representation in paragraph (d)(1) of this provision, the Offeror shall provide the following information as part of the offer:

(i) For covered equipment--

(A) The entity that produced the covered telecommunications equipment (include entity name, unique entity identifier, CAGE code, and whether the entity was the original equipment manufacturer (OEM) or a distributor, if known);

(B) A description of all covered telecommunications equipment offered (include brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); and

(C) Explanation of the proposed use of covered telecommunications equipment and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(1) of this provision.

(ii) For covered services--

(A) If the service is related to item maintenance: A description of all covered telecommunications services offered (include on the item being maintained: Brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); or

(B) If not associated with maintenance, the Product Service Code (PSC) of the service being provided; and explanation of the proposed use of covered telecommunications services and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(1) of this provision.

(2) Disclosure for the representation in paragraph (d)(2) of this provision. If the Offeror has responded "does" in the representation in paragraph (d)(2) of this provision, the Offeror shall provide the following information as part of the offer:

(i) For covered equipment--

(A) The entity that produced the covered telecommunications equipment (include entity name, unique entity identifier, CAGE code, and whether the entity was the OEM or a distributor, if known);

(B) A description of all covered telecommunications equipment offered (include brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); and

(C) Explanation of the proposed use of covered telecommunications equipment and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(2) of this provision.

(ii) For covered services--

(A) If the service is related to item maintenance: A description of all covered telecommunications services offered (include on the item being maintained: Brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); or

(B) If not associated with maintenance, the PSC of the service being provided; and explanation of the proposed use of covered telecommunications services and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(2) of this provision.

(End Of Provision)

52.204-26 COVERED TELECOMMUNICATIONS EQUIPMENT OR SERVICES--REPRESENTATION (OCT 2020)

(a) Definitions. As used in this provision, "covered telecommunications equipment or services" and "reasonable inquiry" have the meaning provided in the clause 52.204-25, Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment.

(b) Procedures. The Offeror shall review the list of excluded parties in the System for Award Management (SAM) (<https://www.sam.gov>) for entities excluded from receiving federal awards for "covered telecommunications equipment or services".

(c) Representations. (1) The Offeror represents that it [] does, [] does not provide covered telecommunications equipment or services as a part of its offered products or services to the Government in the performance of any contract, subcontract, or other contractual instrument.

(2) After conducting a reasonable inquiry for purposes of this representation, the offeror represents that it [] does, [] does not use covered telecommunications equipment or services, or any equipment, system, or service that uses covered telecommunications equipment or services.

(End Of Provision)

52.209-4 FIRST ARTICLE APPROVAL--GOVERNMENT TESTING (SEP 1989)

(a) The Contractor shall deliver three unit(s) of Lot/Item LCD Temperature Display Units within 5 Months calendar days from the date of this contract to the Government at NATIONAL LOGISTICS AND RECONDITIONING CENTER
14200 MERRITT ROAD
GRANDVIEW, MO 64030

ATTN: TRACYE GREGORY (816-823-1003) for first article tests. The shipping documentation shall contain this contract number and the Lot/Item identification. The characteristics that the first article must meet and the testing requirements are specified elsewhere in this contract.

(b) Within 10 working days calendar days after the Government receives the first article, the Contracting Officer shall notify the Contractor, in writing, of the conditional approval, approval, or disapproval of the first article. The notice of conditional approval or approval shall not relieve the Contractor from complying with all requirements of the specifications and all other terms and conditions of this contract. A notice of conditional approval shall state any further action required of the Contractor. A notice of disapproval shall cite reasons for the disapproval.

(c) If the first article is disapproved, the Contractor, upon Government request, shall submit an additional first article for testing. After each request, the Contractor shall make any necessary changes, modifications, or repairs to the first article or select another first article for testing. All costs related to these tests are to be borne by the Contractor, including any and all costs for additional tests following a disapproval. The Contractor shall furnish any additional first article to the Government under the terms and conditions and within the time specified by the Government. The Government shall act on this first article within the time limit specified in paragraph (b) of this clause. The Government reserves the right to require an equitable adjustment of the contract price for any extension of the delivery schedule or for any additional costs to the Government related to these tests.

(d) If the Contractor fails to deliver any first article on time, or the Contracting Officer disapproves any first article, the Contractor shall be deemed to have failed to make delivery within the meaning of the Default clause of this contract.

(e) Unless otherwise provided in the contract, the Contractor--

(1) May deliver the approved first article as a part of the contract quantity, provided it meets all contract requirements for acceptance and was not consumed or destroyed in testing; and

(2) Shall remove and dispose of any first article from the Government test facility at the Contractor's expense.

(f) If the Government does not act within the time specified in paragraph (b) or (c) of this clause, the Contracting Officer shall, upon timely written request from the Contractor, equitably adjust under the Changes clause of this contract the delivery or performance dates and/or the contract price, and any other contractual term affected by the delay.

(g) The Contractor is responsible for providing operating and maintenance instructions, spare parts support, and repair of the first article during any first article test.

(h) Before first article approval, the acquisition of materials or components for, or the commencement of production of, the balance of the contract quantity is at the sole risk of the Contractor. Before first article approval, the costs thereof shall not be allocable to this contract for

(1) progress payments, or

(2) termination settlements if the contract is terminated for the convenience of the Government.

(i) The Government may waive the requirement for first article approval test where supplies identical or similar to those called for in the schedule have been previously furnished by the Offeror/Contractor and have been accepted by the Government. The Offeror/Contractor may request a waiver.

(End of Clause)

52.212-1 INSTRUCTIONS TO OFFERORS--COMMERCIAL PRODUCTS AND COMMERCIAL SERVICES (NOV 2021)
(Reference 52.212-1)

52.212-3 OFFEROR REPRESENTATIONS AND CERTIFICATIONS--COMMERCIAL PRODUCTS AND COMMERCIAL SERVICES (DEC 2022)

The Offeror shall complete only paragraph (b) of this provision if the Offeror has completed the annual representations and certification electronically in the System for Award Management (SAM) accessed through <https://www.sam.gov>. If the Offeror has not completed the annual representations and certifications electronically, the Offeror shall complete only paragraphs (c) through (v) of this provision.

(a) Definitions. As used in this provision--

"Covered telecommunications equipment or services" has the meaning provided in the clause 52.204-25, Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment.

"Economically disadvantaged women-owned small business (EDWOSB) concern" means a small business concern that is at least 51 percent directly and unconditionally owned by, and the management and daily business operations of which are controlled by, one or more women who are citizens of the United States and who are economically disadvantaged in accordance with 13 CFR part 127, and the concern is certified by SBA or an approved third-party certifier in accordance with 13 CFR 127.300. It automatically qualifies as a women-owned small business eligible under the WOSB Program.

"Forced or indentured child labor" means all work or service

(1) Exacted from any person under the age of 18 under the menace of any penalty for its nonperformance and for which the worker does not offer himself voluntarily; or

(2) Performed by any person under the age of 18 pursuant to a contract the enforcement of which can be accomplished by process or penalties.

"Highest-level owner" means the entity that owns or controls an immediate owner of the offeror, or that owns or controls one or more entities that control an immediate owner of the offeror. No entity owns or exercises control of the highest level owner.

"Immediate owner" means an entity, other than the offeror, that has direct control of the offeror. Indicators of control include, but are not limited to, one or more of the following: ownership or interlocking management, identity of interests among family members, shared facilities and equipment, and the common use of employees.

"Inverted domestic corporation," means a foreign incorporated entity that meets the definition of an inverted domestic corporation under 6 U.S.C. 395(b), applied in accordance with the rules and definitions of 6 U.S.C. 395(c).

"Manufactured end product" means any end product in product and service codes (PSCs) 1000-9999, except

- (1) PSC 5510, Lumber and Related Basic Wood Materials;
- (2) Product or Service Group (PSG) 87, Agricultural Supplies;
- (3) PSG 88, Live Animals;
- (4) PSG 89, Subsistence;
- (5) PSC 9410, Crude Grades of Plant Materials;
- (6) PSC 9430, Miscellaneous Crude Animal Products, Inedible;
- (7) PSC 9440, Miscellaneous Crude Agricultural and Forestry Products;
- (8) PSC 9610, Ores;
- (9) PSC 9620, Minerals, Natural and Synthetic, and

(10) PSC 9630, Additive Metal Materials.

"Place of manufacture" means the place where an end product is assembled out of components, or otherwise made or processed from raw materials into the finished product that is to be provided to the Government. If a product is disassembled and reassembled, the place of reassembly is not the place of manufacture.

"Predecessor" means an entity that is replaced by a successor and includes any predecessors of the predecessor.

"Reasonable inquiry" has the meaning provided in the clause 52.204-25, Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment.

"Restricted business operations" means business operations in Sudan that include power production activities, mineral extraction activities, oil-related activities, or the production of military equipment, as those terms are defined in the Sudan Accountability and Divestment Act of 2007 (Pub. L. 110-174). Restricted business operations do not include business operations that the person (as that term is defined in Section 2 of the Sudan Accountability and Divestment Act of 2007) conducting the business can demonstrate-

(1) Are conducted under contract directly and exclusively with the regional government of southern Sudan;

(2) Are conducted pursuant to specific authorization from the Office of Foreign Assets Control in the Department of the Treasury, or are expressly exempted under Federal law from the requirement to be conducted under such authorization;

(3) Consist of providing goods or services to marginalized populations of Sudan;

(4) Consist of providing goods or services to an internationally recognized peacekeeping force or humanitarian organization;

(5) Consist of providing goods or services that are used only to promote health or education; or

(6) Have been voluntarily suspended.

"Sensitive technology"

(1) Means hardware, software, telecommunications equipment, or any other technology that is to be used specifically-

(i) To restrict the free flow of unbiased information in Iran; or

(ii) To disrupt, monitor, or otherwise restrict speech of the people of Iran; and

(2) Does not include information or informational materials the export of which the President does not have the authority to regulate or prohibit pursuant to section 203(b)(3) of the International Emergency Economic Powers Act (50 U.S.C. 1702(b)(3)).

"Service-disabled veteran-owned small business concern"

(1) Means a small business concern

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a service-disabled veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

"Small business concern"--

(1) Means a concern, including its affiliates, that is independently owned and operated, not dominant in its field of operation, and qualified as a small business under the criteria in 13 CFR part 121 and size standards in this solicitation.

(2) Affiliates, as used in this definition, means business concerns, one of whom directly or indirectly controls or has the power to control the others, or a third party or parties control or have the power to control the others. In determining whether affiliation exists, consideration is given to all appropriate factors including common ownership, common management, and contractual relationships. SBA determines affiliation based on the factors set forth at 13 CFR 121.103.

"Small disadvantaged business concern, consistent with 13 CFR 124.1002," means a small business concern under the size standard applicable to the acquisition, that--

(1) Is at least 51 percent unconditionally and directly owned (as defined at 13 CFR 124.105) by--

(i) One or more socially disadvantaged (as defined at 13 CFR 124.103) and economically disadvantaged (as defined at 13 CFR 124.104) individuals who are citizens of the United States; and

(ii) Each individual claiming economic disadvantage has a net worth not exceeding \$750,000 after taking into account the applicable exclusions set forth at 13 CFR 124.104(c)(2); and

(2) The management and daily business operations of which are controlled (as defined at 13 CFR 124.106) by individuals, who meet the criteria in paragraphs (1)(i) and (ii) of this definition.

"Subsidiary" means an entity in which more than 50 percent of the entity is owned

(1) Directly by a parent corporation; or

(2) Through another subsidiary of a parent corporation.

"Successor" means an entity that has replaced a predecessor by acquiring the assets and carrying out the affairs of the predecessor under a new name (often through acquisition or merger). The term "successor" does not include new offices/divisions of the same company or a company that only changes

its name. The extent of the responsibility of the successor for the liabilities of the predecessor may vary, depending on State law and specific circumstances.

"Veteran-owned small business concern" means a small business concern

(1) Not less than 51 percent of which is owned by one or more veterans(as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

"Women-owned small business (WOSB) concern eligible under the WOSB Program (in accordance with 13 CFR part 127)", means a small business concern that is at least 51 percent directly and unconditionally owned by, and the management and daily business operations of which are controlled by, one or more women who are citizens of the United States, and the concern is certified by SBA or an approved third-party certifier in accordance with 13 CFR 127.300.

"Women-owned small business concern" means a small business concern--

(1) That is at least 51 percent owned by one or more women; or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and

(2) Whose management and daily business operations are controlled by one or more women.

(b)(1) Annual Representations and Certifications. Any changes provided by the Offeror in paragraph (b)(2) of this provision do not automatically change the representations and certifications in SAM.

(2) The offeror has completed the annual representations and certifications electronically in SAM accessed through <http://www.sam.gov>. After reviewing SAM information, the Offeror verifies by submission of this offer that the representations and certifications currently posted electronically at FAR 52.212-3, Offeror Representations and Certifications--Commercial Products and Commercial Services, have been entered or updated in the last 12 months, are current, accurate, complete, and applicable to this solicitation (including the business size standard(s) applicable to the NAICS code(s) referenced for this solicitation), at the time this offer is submitted and are incorporated in this offer by reference (see FAR 4.1201), except for paragraphs _____.

[Offeror to identify the applicable paragraphs at (c) through (v) of this provision that the offeror has completed for the purposes of this solicitation only, if any.

These amended representation(s) and/or certification(s) are also incorporated in this offer and are current, accurate, and complete as of the date of this offer.

Any changes provided by the offeror are applicable to this solicitation only, and do not result in an update to the representations and certifications posted electronically on SAM.]

(c) Offerors must complete the following representations when the resulting contract is for supplies to be delivered or services to be performed in the United States or its outlying areas, or when the contracting officer has applied part 19 in accordance with 19.000(b)(1)(ii). Check all that apply.

(1) Small business concern. The offeror represents as part of its offer that--

(i) It is, is not a small business concern; or

(ii) It is, is not a small business joint venture that complies with the requirements of 13 CFR 121.103(h) and 13 CFR 125.8(a) and (b). [The offeror shall enter the name and unique entity identifier of each party to the joint venture: ____.]

(2) Veteran-owned small business concern. [Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.] The offeror represents as part of its offer that it is, is not a veteran-owned small business concern.

(3) Service-disabled veteran-owned small business concern. [Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (c)(2) of this provision.] The offeror represents as part of its offer that--

(i) It is, is not a service-disabled veteran-owned small business concern; or

(ii) It is, is not a joint venture that complies with the requirements of 13 CFR 125.18(b)(1) and (2). [The offeror shall enter the name and unique entity identifier of each party to the joint venture: ____.] Each service-disabled veteran-owned small business concern participating in the joint venture shall provide representation of its service-disabled veteran-owned small business concern status.

(4) Small disadvantaged business concern. [Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.]The offeror represents that it is, is not, a small disadvantaged business concern as defined in 13 CFR 124.1002.

(5) Women-owned small business concern. [Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.]The offeror represents that it is, is not a women-owned small business concern.

(6) WOSB joint venture eligible under the WOSB Program. The offeror represents that it is, is not a joint venture that complies with the requirements of 13 CFR 127.506(a) through (c). [The offeror shall enter the name and unique entity identifier of each party to the joint venture:____.]

(7) Economically disadvantaged women-owned small business (EDWOSB) joint venture. The offeror represents that it is, is not a joint venture that complies with the requirements of 13 CFR 127.506(a) through (c). [The offeror shall enter the name and unique entity identifier of each party to the joint venture:____.]

(8) Women-owned business concern (other than small business concern). [Complete only if the offeror is a women-owned business concern and did not represent itself as a small business concern

in paragraph (c)(1) of this provision.] The offeror represents that it [] is, a women-owned business concern.

(9) Tie bid priority for labor surplus area concerns. If this is an invitation for bid, small business offerors may identify the labor surplus areas in which costs to be incurred on account of manufacturing or production (by offeror or first-tier subcontractors) amount to more than 50 percent of the contract price:

(10) HUBZone small business concern. [Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.] The offeror represents, as part of its offer, that--

(i) It [] is, [] is not a HUBZone small business concern listed, on the date of this representation, as having been certified by SBA as a HUBZone small business concern in the Dynamic Small Business Search and SAM, and will attempt to maintain an employment rate of HUBZone residents of 35 percent of its employees during performance of a HUBZone contract (see 13 CFR 126.200(e)(1)); and

(ii) It [] is, [] is not a HUBZone joint venture that complies with the requirements of 13 CFR 126.616(a) through (c). [The offeror shall enter the name and unique entity identifier of each party to the joint venture:__.] Each HUBZone small business concern participating in the HUBZone joint venture shall provide representation of its HUBZone status.

(d) Representations required to implement provisions of Executive Order 11246 --

(1) Previous contracts and compliance. The offeror represents that --

(i) It [] has, [] has not, participated in a previous contract or subcontract subject to the Equal Opportunity clause of this solicitation; and

(ii) It [] has, [] has not, filed all required compliance reports.

(2) Affirmative Action Compliance. The offeror represents that --

(i) It [] has developed and has on file, [] has not developed and does not have on file, at each establishment, affirmative action programs required by rules and regulations of the Secretary of Labor(41 CFR parts 60-1 and 60-2), or

(ii) It [] has not previously had contracts subject to the written affirmative action programs requirement of the rules and regulations of the Secretary of Labor.

(e) Certification Regarding Payments to Influence Federal Transactions (31 U.S.C. 1352). (Applies only if the contract is expected to exceed \$150,000.) By submission of its offer, the offeror certifies to the best of its knowledge and belief that no Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress or an employee of a Member of Congress on his or her behalf in connection with the award of any resultant contract. If any registrants under the Lobbying Disclosure Act of 1995 have made a lobbying contact on behalf of the offeror with respect to this contract, the offeror shall complete and submit, with its offer, OMB Standard Form LLL, Disclosure of Lobbying Activities, to provide the name of the registrants. The offeror need not report regularly employed officers or employees of the offeror to whom payments of reasonable compensation were made.

(f) Buy American Certificate. (Applies only if the clause at Federal Acquisition Regulation (FAR) 52.225-1, Buy American-Supplies, is included in this solicitation.)

(1) (i) The Offeror certifies that each end product, except those listed in paragraph (f)(2) of this provision, is a domestic end product and that each domestic end product listed in paragraph (f)(3) of this provision contains a critical component.

(ii) The Offeror shall list as foreign end products those end products manufactured in the United States that do not qualify as domestic end products. For those foreign end products that do not consist wholly or predominantly of iron or steel or a combination of both, the Offeror shall also indicate whether these foreign end products exceed 55 percent domestic content, except for those that are COTS items. If the percentage of the domestic content is unknown, select "no".

(iii) The Offeror shall separately list the line item numbers of domestic end products that contain a critical component (see FAR 25.105).

(iv) The terms "commercially available off-the-shelf (COTS) item," "critical component," "domestic end product," "end product," "foreign end product," and "United States" are defined in the clause of this solicitation entitled "Buy American-Supplies."

(2) Foreign End Products:

Line item No.	Country of origin	Exceeds 55% domestic content (yes/no)

[List as necessary]

(3) Domestic end products containing a critical component:

Line Item No. ____

(4) The Government will evaluate offers in accordance with the policies and procedures of FAR part 25.

(g)

(1) Buy American -- Free Trade Agreements -- Israeli Trade Act Certificate. (Applies only if the clause at FAR 52.225-3, Buy American -- Free Trade Agreements -- Israeli Trade Act, is included in this solicitation.)

(i) (A) The Offeror certifies that each end product, except those listed in paragraph (g)(1)(ii) or (iii) of this provision, is a domestic end product and that each domestic end product listed in paragraph (g)(1)(iv) of this provision contains a critical component.

(B) The terms "Bahrainian, Moroccan, Omani, Panamanian, or "Peruvian end product," "commercially available off-the-shelf (COTS) item," "critical component," "domestic end product," "end product," "foreign end product," "Free Trade Agreement country," "Free Trade Agreement country end product," "Israeli end product," and "United States" are defined in the clause of this solicitation entitled "Buy American--Free Trade Agreements--Israeli Trade Act."

(ii) The Offeror certifies that the following supplies are Free Trade Agreement country end products (other than Bahrainian, Moroccan, Omani, Panamanian, or Peruvian end products) or Israeli end products as defined in the clause of this solicitation entitled "Buy American--Free Trade Agreements--Israeli Trade Act."

Line item No.	Country of origin

[List as necessary]

(iii) The Offeror shall list those supplies that are foreign end products (other than those listed in paragraph (g)(1)(ii) of this provision) as defined in the clause of this solicitation entitled "Buy American--Free Trade Agreements--Israeli Trade Act." The Offeror shall list as other foreign end products those end products manufactured in the United States that do not qualify as domestic end products. For those foreign end products that do not consist wholly or predominantly of iron or steel or a combination of both, the Offeror shall also indicate whether these foreign end products exceed 55 percent domestic content, except for those that are COTS items. If the percentage of the domestic content is unknown, select "no".

Other Foreign End Products:

Line item No.	Country of origin	Exceeds 55% domestic content (yes/no)

[List as necessary]

(iv) The Offeror shall list the line item numbers of domestic end products that contain a critical component (see FAR 25.105).

Line Item No. ____

(v) The Government will evaluate offers in accordance with the policies and procedures of FAR part 25.

(2) Buy American--Free Trade Agreements--Israeli Trade Act Certificate, Alternate II. If Alternate II to the clause at FAR 52.225-3 is included in this solicitation, substitute the following paragraph (g)(1)(ii) for paragraph (g)(1)(ii) of the basic provision:

(g)(1)(ii) The offeror certifies that the following supplies are Israeli end products as defined in the clause of this solicitation entitled "Buy American--Free Trade Agreements--Israeli Trade Act":
Israeli End Products:

Line item No.

[List as necessary]

(3) Buy American-Free Trade Agreements-Israeli Trade Act Certificate, Alternate III. If Alternate III to the clause at 52.225-3 is included in this solicitation, substitute the following paragraph (g)(1)(ii) for paragraph (g)(1)(ii) of the basic provision:

(g)(1)(ii) The offeror certifies that the following supplies are Free Trade Agreement country end products (other than Bahrainian, Korean, Moroccan, Omani, Panamanian, or Peruvian end products) or Israeli end products as defined in the clause of this solicitation entitled "Buy American-Free Trade Agreements-Israeli Trade Act": Free Trade Agreement Country End Products (Other than Bahrainian, Korean, Moroccan, Omani, Panamanian, or Peruvian End Products) or Israeli End Products:

Line Item No. Country of Origin

Line item No.	Country of origin

[List as necessary]

(4) Trade Agreements Certificate. (Applies only if the clause at FAR 52.225-5, Trade Agreements, is included in this solicitation.)

(i) The offeror certifies that each end product, except those listed in paragraph (g)(5)(ii) of this provision, is a U.S.-made or designated country end product as defined in the clause of this solicitation entitled "Trade Agreements."

(ii) The offeror shall list as other end products those end products that are not U.S.-made or designated country end products.

Other End Products:

Line item No.	Country of origin

[List as necessary]

(iii) The Government will evaluate offers in accordance with the policies and procedures of FAR Part 25. For line items covered by the WTO GPA, the Government will evaluate offers of U.S.-made or designated country end products without regard to the restrictions of the Buy American statute. The Government will consider for award only offers of U.S.-made or designated country end products unless the Contracting Officer determines that there are no offers for such products or that the offers for such products are insufficient to fulfill the requirements of the solicitation.

(h) Certification Regarding Responsibility Matters (Executive Order 12689). (Applies only if the contract value is expected to exceed the simplified acquisition threshold.) The offeror certifies, to the best of its knowledge and belief, that the offeror and/or any of its principals--

(1) Are, are not presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;

(2) Have, have not, within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a Federal, state or local government contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, violating Federal criminal tax laws, or receiving stolen property; and

(3) Are, are not presently indicted for, or otherwise criminally or civilly charged by a Government entity with, commission of any of these offenses enumerated in paragraph (h)(2) of this clause; and

(4) Have, have not, within a three-year period preceding this offer, been notified of any delinquent Federal taxes in an amount that exceeds the threshold at 9.104-5(a)(2) for which the liability remains unsatisfied.

(i) Taxes are considered delinquent if both of the following criteria apply:

(A) The tax liability is finally determined. The liability is finally determined if it has been assessed. A liability is not finally determined if there is a pending administrative or judicial challenge. In the case of a judicial challenge to the liability, the liability is not finally determined until all judicial appeal rights have been exhausted.

(B) The taxpayer is delinquent in making payment. A taxpayer is delinquent if the taxpayer has failed to pay the tax liability when full payment was due and required. A taxpayer is not delinquent in cases where enforced collection action is precluded.

(ii) Examples.

(A) The taxpayer has received a statutory notice of deficiency, under I.R.C. 6212, which entitles the taxpayer to seek Tax Court review of a proposed tax deficiency. This is not a delinquent tax because it is not a final tax liability. Should the taxpayer seek Tax Court review, this will not be a final tax liability until the taxpayer has exercised all judicial appeal rights.

(B) The IRS has filed a notice of Federal tax lien with respect to an assessed tax liability, and the taxpayer has been issued a notice under I.R.C. 6320 entitling the taxpayer to request a hearing with the IRS Office of Appeals contesting the lien filing, and to further appeal to the Tax Court if the IRS determines to sustain the lien filing. In the course of the hearing, the taxpayer is entitled to contest the underlying tax liability because the taxpayer has had no prior opportunity to contest the liability. This is not a delinquent tax because it is not a final tax liability. Should the taxpayer seek tax court review, this will not be a final tax liability until the taxpayer has exercised all judicial appeal rights.

(C) The taxpayer has entered into an installment agreement pursuant to I.R.C. 6159. The taxpayer is making timely payments and is in full compliance with the agreement terms. The taxpayer is not delinquent because the taxpayer is not currently required to make full payment.

(D) The taxpayer has filed for bankruptcy protection. The taxpayer is not delinquent because enforced collection action is stayed under 11 U.S.C. 362 (the Bankruptcy Code).

(i) Certification Regarding Knowledge of Child Labor for Listed End Products (Executive Order 13126). [The Contracting Officer must list in paragraph (i)(1) any end products being acquired under this solicitation that are included in the List of Products Requiring Contractor Certification as to Forced or Indentured Child Labor, unless excluded at 22.1503(b).]

(1) Listed End Product

Line item No.	Listed Countries of origin

[List as necessary]

(2) Certification. [If the Contracting Officer has identified end products and countries of origin in paragraph (i)(1) of this provision, then the offeror must certify to either (i)(2)(i) or (i)(2)(ii) by checking the appropriate block.]

(i) The offeror will not supply any end product listed in paragraph (i)(1) of this provision that was mined, produced, or manufactured in the corresponding country as listed for that product.

(ii) The offeror may supply an end product listed in paragraph (i)(1) of this provision that was mined, produced, or manufactured in the corresponding country as listed for that product. The offeror certifies that is has made a good faith effort to determine whether forced or indentured child labor was used to mine, produce, or manufacture any such end product furnished under this

contract. On the basis of those efforts, the offeror certifies that it is not aware of any such use of child labor.

(j) Place of manufacture. (Does not apply unless the solicitation is predominantly for the acquisition of manufactured end products.) For statistical purposes only, the offeror shall indicate whether the place of manufacture of the end products it expects to provide in response to this solicitation is predominantly-

(1) In the United States (Check this box if the total anticipated price of offered end products manufactured in the United States exceeds the total anticipated price of offered end products manufactured outside the United States); or

(2) Outside the United States.

(k) Certificates regarding exemptions from the application of the Service Contract Labor Standards. (Certification by the offeror as to its compliance with respect to the contract also constitutes its certification as to compliance by its subcontractor if it subcontracts out the exempt services.) [The contracting officer is to check a box to indicate if paragraph (k)(1) or (k)(2) applies.]

(1) Maintenance, calibration, or repair of certain equipment as described in FAR 22.1003-4(c) (1). The offeror does does not certify that-

(i) The items of equipment to be serviced under this contract are used regularly for other than Governmental purposes and are sold or traded by the offeror (or subcontractor in the case of an exempt subcontract) in substantial quantities to the general public in the course of normal business operations;

(ii) The services will be furnished at prices which are, or are based on, established catalog or market prices (see FAR 22.1003-4(c)(2)(ii)) for the maintenance, calibration, or repair of such equipment; and

(iii) The compensation (wage and fringe benefits) plan for all service employees performing work under the contract will be the same as that used for these employees and equivalent employees servicing the same equipment of commercial customers.

(2) Certain services as described in FAR 22.1003-4(d)(1). The offeror does does not certify that-

(i) The services under the contract are offered and sold regularly to non-Governmental customers, and are provided by the offeror (or subcontractor in the case of an exempt subcontract) to the general public in substantial quantities in the course of normal business operations;

(ii) The contract services will be furnished at prices that are, or are based on, established catalog or market prices (see FAR 22.1003-4(d)(2)(iii));

(iii) Each service employee who will perform the services under the contract will spend only a small portion of his or her time (a monthly average of less than 20 percent of the available hours on an annualized basis, or less than 20 percent of available hours during the contract period if the contract period is less than a month) servicing the Government contract; and

(iv) The compensation (wage and fringe benefits) plan for all service employees performing work under the contract is the same as that used for these employees and equivalent employees servicing commercial customers.

(3) If paragraph (k)(1) or (k)(2) of this clause applies-

(i) If the offeror does not certify to the conditions in paragraph (k)(1) or (k)(2) and the Contracting Officer did not attach a Service Contract Labor Standards wage determination to the solicitation, the offeror shall notify the Contracting Officer as soon as possible; and

(ii) The Contracting Officer may not make an award to the offeror if the offeror fails to execute the certification in paragraph (k)(1) or (k)(2) of this clause or to contact the Contracting Officer as required in paragraph (k)(3)(i) of this clause.

(1) Taxpayer identification number (TIN) (26 U.S.C. 6109, 31 U.S.C. 7701). (Not applicable if the offeror is required to provide this information to the SAM to be eligible for award.)

(1) All offerors must submit the information required in paragraphs (1)(3) through (1)(5) of this provision to comply with debt collection requirements of 31 U.S.C. 7701(c) and 3325(d), reporting requirements of 26 U.S.C. 6041, 6041A, and 6050M, and implementing regulations issued by the Internal Revenue Service (IRS).

(2) The TIN may be used by the government to collect and report on any delinquent amounts arising out of the offeror's relationship with the Government (31 U.S.C. 7701(c)(3)). If the resulting contract is subject to the payment reporting requirements described in FAR 4.904, the TIN provided hereunder may be matched with IRS records to verify the accuracy of the offeror's TIN.

(3) Taxpayer Identification Number (TIN).

TIN: _____.

TIN has been applied for.

TIN is not required because:

Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not have income effectively connected with the conduct of a trade or business in the United States and does not have an office or place of business or a fiscal paying agent in the United States;

Offeror is an agency or instrumentality of a foreign government;

Offeror is an agency or instrumentality of the Federal Government;

- (4) Type of organization.
- Sole proprietorship;
 - Partnership;
 - Corporate entity (not tax-exempt);
 - Corporate entity (tax-exempt);
 - Government entity (Federal, State, or local);
 - Foreign government;
 - International organization per 26 CFR 1.6049-4;
 - Other _____.

- (5) Common parent.
- Offeror is not owned or controlled by a common parent:
 - Name and TIN of common parent:
- Name _____
- TIN _____

(m) Restricted business operations in Sudan. By submission of its offer, the offeror certifies that the offeror does not conduct any restricted business operations in Sudan.

(n) Prohibition on Contracting with Inverted Domestic Corporations-

(1) Government agencies are not permitted to use appropriated (or otherwise made available) funds for contracts with either an inverted domestic corporation, or a subsidiary of an inverted domestic corporation, unless the exception at 9.108-2(b) applies or the requirement is waived in accordance with the procedures at 9.108-4.

(2) Representation. The Offeror represents that--

- (i) It is, is not an inverted domestic corporation; and
- (ii) It is, is not a subsidiary of an inverted domestic corporation.

(o) Prohibition on contracting with entities engaging in certain activities or transactions relating to Iran.

(1) The offeror shall email questions concerning sensitive technology to the Department of State at CISADA106@state.gov.

(2) Representation and Certifications. Unless a waiver is granted or an exception applies as provided in paragraph (o)(3) of this provision, by submission of its offer, the offeror-

(i) Represents, to the best of its knowledge and belief, that the offeror does not export any sensitive technology to the government of Iran or any entities or individuals owned or controlled by, or acting on behalf or at the direction of, the government of Iran;

(ii) Certifies that the offeror, or any person owned or controlled by the offeror, does not engage in any activities for which sanctions may be imposed under section 5 of the Iran Sanctions Act; and

(iii) Certifies that the offeror, and any person owned or controlled by the offeror, does not knowingly engage in any transaction that exceeds the threshold at FAR 25.703-2(a)(2) with Iran's Revolutionary Guard Corps or any of its officials, agents, or affiliates, the property and interests in property of which are blocked pursuant to the International Emergency Economic Powers Act (et seq.) (see OFAC's Specially Designated Nationals and Blocked Persons List at <https://www.treasury.gov/resource-center/sanctions/SDN-List/Pages/default.aspx>).

(3) The representation and certification requirements of paragraph (o)(2) of this provision do not apply if-

(i) This solicitation includes a trade agreements certification(e.g., 52.212-3(g) or a comparable agency provision); and

(ii) The offeror has certified that all the offered products to be supplied are designated country end products.

(p) Ownership or Control of Offeror. (Applies in all solicitations when there is a requirement to be registered in SAM or a requirement to have a unique entity identifier in the solicitation.

(1) The Offeror represents that it has or does not have an immediate owner. If the Offeror has more than one immediate owner (such as a joint venture), then the Offeror shall respond to paragraph (2) and if applicable, paragraph (3) of this provision for each participant in the joint venture.

(2) If the Offeror indicates "has" in paragraph (p)(1) of this provision, enter the following information:

Immediate owner CAGE
code: _____

Immediate owner legal
name: _____

(Do not use a "doing business as" name)

Is the immediate owner owned or controlled by another entity:

Yes or No.

(3) If the Offeror indicates "yes" in paragraph (p)(2) of this provision, indicating that the immediate owner is owned or controlled by another entity, then enter the following information:

Highest level owner CAGE
code: _____

Highest level owner legal

name: _____

(Do not use a "doing business as" name)

(q) Representation by Corporations Regarding Delinquent Tax Liability or a Felony Conviction under any Federal Law.

(1) As required by sections 744 and 745 of Division E of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235), and similar provisions, if contained in subsequent appropriations acts, the Government will not enter into a contract with any corporation that -

(i) Has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability, where the awarding agency is aware of the unpaid tax liability, unless and agency has considered suspension or debarment of the corporation and made a determination that suspension or debarment is not necessary to protect the interests of the Government; or

(ii) Was convicted of a felony criminal violation under any Federal law within the preceding 24 months, where the awarding agency is aware of the conviction, unless an agency has considered suspension or debarment of the corporation and made a determination that this action is not necessary to protect the interests of the Government.

(2) The Offeror represents that--

(i) It is is not a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability; and

(ii) It is is not a corporation that was convicted of a felony criminal violation under a Federal law within the preceding 24 months.

(r) Predecessor of Offeror. (Applies in all solicitations that include the provision at 52.204-16, Commercial and Government Entity Code Reporting.)

(1) The Offeror represents that it is or is not a successor to a predecessor that held a Federal contract or grant within the last three years.

(2) If the Offeror has indicated "is" in paragraph (r)(1) of this provision, enter the following information for all predecessors that held a Federal contract or grant within the last three years (if more than one predecessor, list in reverse chronological order):

Predecessor CAGE code: ____ (or mark "Unknown").

Predecessor legal name: ____.

(Do not use a "doing business as" name).

(t) Public Disclosure of Greenhouse Gas Emissions and Reduction Goals. Applies in all solicitations that require offerors to register in SAM (12.301(d)(1)).

(1) This representation shall be completed if the Offeror received \$7.5 million or more in contract awards in the prior Federal fiscal year. The representation is optional if the Offeror received less than \$7.5 million in Federal contract awards in the prior Federal fiscal year.

(2) Representation. [Offeror to check applicable block(s) in paragraph (t)(2)(i) and (ii)].

(i) The Offeror (itself or through its immediate owner or highest-level owner) does, does not publicly disclose greenhouse gas emissions, i.e., makes available on a publicly accessible website the results of a greenhouse gas inventory, performed in accordance with an accounting standard with publicly available and consistently applied criteria, such as the Greenhouse Gas Protocol Corporate Standard.

(ii) The Offeror (itself or through its immediate owner or highest-level owner) does, does not publicly disclose a quantitative greenhouse gas emissions reduction goal, i.e., make available on a publicly accessible website a target to reduce absolute emissions or emissions intensity by a specific quantity or percentage.

(iii) A publicly accessible website includes the Offeror's own website or a recognized, third-party greenhouse gas emissions reporting program.

(3) If the Offeror checked "does" in paragraphs (t)(2)(i) or (t)(2)(ii) of this provision, respectively, the Offeror shall provide the publicly accessible website(s) where greenhouse gas emissions and/or reduction goals are reported:_____.

(u)(1) In accordance with section 743 of Division E, Title VII, of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235) and its successor provisions in subsequent appropriations acts (and as extended in continuing resolutions), Government agencies are not permitted to use appropriated (or otherwise made available) funds for contracts with an entity that requires employees or subcontractors of such entity seeking to report waste, fraud, or abuse to sign internal confidentiality agreements or statements prohibiting or otherwise restricting such employees or subcontractors from lawfully reporting such waste, fraud, or abuse to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive such information.

(2) The prohibition in paragraph (u)(1) of this provision does not contravene requirements applicable to Standard Form 312 (Classified Information Nondisclosure Agreement), Form 4414

(Sensitive Compartmented Information Nondisclosure Agreement), or any other form issued by a Federal department or agency governing the nondisclosure of classified information.

(3) Representation. By submission of its offer, the Offeror represents that it will not require its employees or subcontractors to sign or comply with internal confidentiality agreements or statements prohibiting or otherwise restricting such employees or subcontractors from lawfully reporting waste, fraud, or abuse related to the performance of a Government contract to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive such information (e.g., agency Office of the Inspector General).

(v) Covered Telecommunications Equipment or Services--Representation. Section 889(a)(1)(A) and section 889 (a)(1)(B) of Public Law 115-232.

(1) The Offeror shall review the list of excluded parties in the System for Award Management (SAM) (<https://www.sam.gov>) for entities excluded from receiving federal awards for "covered telecommunications equipment or services".

(2) The Offeror represents that--

(i) It [] does, [] does not provide covered telecommunications equipment or services as a part of its offered products or services to the Government in the performance of any contract, subcontract, or other contractual instrument.

(ii) After conducting a reasonable inquiry for purposes of this representation, that it [] does, [] does not use covered telecommunications equipment or services, or any equipment, system, or service that uses covered telecommunications equipment or services.

(End Of Provision)

52.212-4 CONTRACT TERMS AND CONDITIONS--COMMERCIAL PRODUCTS AND COMMERCIAL SERVICES (DEC 2022)
(Reference 52.212-4)

52.212-5 CONTRACT TERMS AND CONDITIONS REQUIRED TO IMPLEMENT STATUTES OR EXECUTIVE ORDERS--COMMERCIAL PRODUCTS AND COMMERCIAL SERVICES (DEC 2022)

(a) The Contractor shall comply with the following Federal Acquisition Regulation (FAR) clauses, which are incorporated in this contract by reference, to implement provisions of law or Executive orders applicable to acquisitions of commercial products and commercial services:

(1) 52.203-19, Prohibition on Requiring Certain Internal Confidentiality Agreements or Statements (JAN 2017) (section 743 of Division E, Title VII, of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235) and its successor provisions in subsequent appropriations acts (and as extended in continuing resolutions)).

(2) 52.204-23, Prohibition on Contracting for Hardware, Software, and Services Developed or Provided by Kaspersky Lab and Other Covered Entities (NOV 2021) (Section 1634 of Pub. L. 115-91).

(3) 52.204-25, Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment. (NOV 2021) (Section 889(a)(1)(A) of Pub. L. 115-232).

(4) 52.209-10, Prohibition on Contracting with Inverted Domestic Corporations (NOV 2015).

(5) 52.233-3, Protest After Award (AUG 1996) (31 U.S.C. 3553).

(6) 52.233-4, Applicable Law for Breach of Contract Claim (OCT 2004)(Public Laws 108-77 and 108-78 (19 U.S.C. 3805 note)).

(b) The Contractor shall comply with the FAR clauses in this paragraph (b) that the Contracting Officer has indicated as being incorporated in this contract by reference to implement provisions of law or Executive orders applicable to acquisitions of commercial products and commercial services:

[Contracting Officer check as appropriate.]

(1) 52.203-6, Restrictions on Subcontractor Sales to the Government (JUN 2020), with Alternate I (NOV 2021)(41 U.S.C. 4704 and 10 U.S.C. 4655).

(2) 52.203-13, Contractor Code of Business Ethics and Conduct (NOV 2021) (41 U.S.C. 3509).

(3) 52.203-15, Whistleblower Protections under the American Recovery and Reinvestment Act of 2009 (JUN 2010) (Section 1553 of Pub. L. 111-5). (Applies to contracts funded by the American Recovery and Reinvestment Act of 2009.)

XX (4) 52.204-10, Reporting Executive Compensation and First-Tier Subcontract Awards (JUN 2020) (Pub. L. 109-282) (31 U.S.C. 6101 note).

(5) [Reserved]

(6) 52.204-14, Service Contract Reporting Requirements (OCT 2016) (Pub. L. 111-117, section 743 of Div. C).

(7) 52.204-15, Service Contract Reporting Requirements for Indefinite-Delivery Contracts (OCT 2016) (Pub. L. 111-117, section 743 of Div. C).

XX (8) 52.209-6, Protecting the Government's Interest When Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment. (NOV 2021) (31 U.S.C. 6101 note).

(9) 52.209-9, Updates of Publicly Available Information Regarding Responsibility Matters (OCT 2018) (41 U.S.C. 2313).

(10) [Reserved]

(11) 52.219-3, Notice of HUBZone Set-Aside or Sole-Source Award (OCT 2022) (15 U.S.C. 657a).

(12) 52.219-4, Notice of Price Evaluation Preference for HUBZone Small Business Concerns (OCT 2022) (if the offeror elects to waive the preference, it shall so indicate in its offer) (15 U.S.C. 657a).

(13) [Reserved]

XX (14)(i) 52.219-6, Notice of Total Small Business Set-Aside (NOV 2020)) (15 U.S.C. 644).

(ii) Alternate I (MAR 2020) of 52.219-6.

(iii) Alternate II (NOV 2011) of 52.219-6.

(15)(i) 52.219-7, Notice of Partial Small Business Set-Aside (NOV 2020)) (15 U.S.C. 644).

(ii) Alternate I (MAR 2020)) of 52.219-7.

(iii) Alternate II (MAR 2004) of 52.219-7.

(16) 52.219-8, Utilization of Small Business Concerns (OCT 2022) (15 U.S.C. 637(d)(2) and (3)).

(17)(i) 52.219-9, Small Business Subcontracting Plan (OCT 2022) (15 U.S.C. 637(d)(4)).

(ii) Alternate I (JAN 2017) of 52.219-9.

(iii) Alternate II (NOV 2016) of 52.219-9.

(iv) Alternate III (JUN 2020) of 52.219-9.

(v) Alternate IV (SEP 2021) of 52.219-9.

(18) (i) 52.219-13, Notice of Set-Aside of Orders (MAR 2020) (15 U.S.C. 644(r)).

(ii) Alternate I (MAR 2020) of 52.219-13.

(19) 52.219-14, Limitations on Subcontracting (OCT 2022) (15 U.S.C. 657s).

(20) 52.219-16, Liquidated Damages-Subcontracting Plan (SEP 2021) (15 U.S.C. 637(d)(4)(F)(i)).

(21) 52.219-27, Notice of Service-Disabled Veteran-Owned Small Business Set-Aside (OCT 2022)

(15 U.S.C. 657f).

XX (22) (i) 52.219-28, Post Award Small Business Program Rerepresentation (OCT 2022) (15 U.S.C. 632(a)(2)).

(ii) Alternate I (MAR 2020) of 52.219-28.

(23) 52.219-29, Notice of Set-Aside for, or Sole Source Award to, Economically Disadvantaged Women-Owned Small Business Concerns (OCT 2022) (15 U.S.C. 637(m)).

(24) 52.219-30, Notice of Set-Aside for, or Sole Source Award to, Women-Owned Small Business Concerns Eligible Under the Women-Owned Small Business Program (OCT 2022) (15 U.S.C. 637(m)).

(25) 52.219-32, Orders Issued Directly Under Small Business Reserves (MAR 2020) (15 U.S.C. 644(r)).

(26) 52.219-33, Nonmanufacturer Rule (SEP 2021) (15 U.S.C. 637(a)(17)).

XX (27) 52.222-3, Convict Labor (JUN 2003) (E.O. 11755).

XX (28) 52.222-19, Child Labor--Cooperation with Authorities and Remedies (DEC 2022) (E.O. 13126).

XX (29) 52.222-21, Prohibition of Segregated Facilities (APR 2015).

XX (30) (i) 52.222-26, Equal Opportunity (SEP 2016) (E.O. 11246).

(ii) Alternate I (FEB 1999) of 52.222-26.

(31) (i) 52.222-35, Equal Opportunity for Veterans (JUN 2020)(38 U.S.C. 4212).

(ii) Alternate I (JUL 2014) of 52.222-35.

XX (32) (i) 52.222-36, Equal Opportunity for Workers with Disabilities (JUN 2020) (29 U.S.C. 793).

(ii) Alternate I (JUL 2014) of 52.222-36.

(33) 52.222-37, Employment Reports on Veterans (JUN 2020) (38 U.S.C. 4212).

(34) 52.222-40, Notification of Employee Rights Under the National Labor Relations Act (DEC 2010) (E.O. 13496).

XX (35)(i) 52.222-50, Combating Trafficking in Persons (NOV 2021) (22 U.S.C. chapter 78 and E.O. 13627).

(ii) Alternate I (MAR 2015) of 52.222-50 (22 U.S.C. chapter 78 and E.O. 13627).

(36) 52.222-54, Employment Eligibility Verification (MAY 2022). (E. O. 12989). (Not applicable to the acquisition of commercially available off-the-shelf items or certain other types of commercial products or commercial services as prescribed in FAR 22.1803.)

(37) (i) 52.223-9, Estimate of Percentage of Recovered Material Content for EPA-Designated Items (MAY 2008) (42 U.S.C.6962(c)(3)(A)(ii)). (Not applicable to the acquisition of commercially available off-the-shelf items.)

(ii) Alternate I (MAY 2008) of 52.223-9 (42 U.S.C. 6962(i)(2)(C)). (Not applicable to the acquisition of commercially available off-the-shelf items.)

(38) 52.223-11, Ozone-Depleting Substances and High Global Warming Potential Hydrofluorocarbons (JUN, 2016) (E.O. 13693).

(39) 52.223-12, Maintenance, Service, Repair, or Disposal of Refrigeration Equipment and Air Conditioners (JUN, 2016) (E.O. 13693).

(40) (i) 52.223-13, Acquisition of EPEAT(R) -Registered Imaging Equipment(JUN 2014) (E.O.s 13423 and 13514).

(ii) Alternate I (OCT 2015) of 52.223-13.

(41) (i) 52.223-14, Acquisition of EPEAT(R) -Registered Television (JUN 2014) (E.O.s 13423 and 13514).

(ii) Alternate I (JUN 2014) of 52.223-14.

(42) 52.223-15, Energy Efficiency in Energy-Consuming Products(MAY 2020) (42 U.S.C. 8259b).

(43) (i) 52.223-16, Acquisition of EPEAT(R)-Registered Personal Computer Products (OCT 2015) (E.O.s 13423 and 13514).

(ii) Alternate I (JUN 2014) of 52.223-16.

XX (44) 52.223-18, Encouraging Contractor Policies to Ban Text Messaging While Driving (JUN 2020) (E.O. 13513).

(45) 52.223-20, Aerosols (JUN, 2016) (E.O. 13693).

(46) 52.223-21, Foams (JUN, 2016) (E.O. 13693).

(47) (i) 52.224-3, Privacy Training (JAN 2017) (5 U.S.C. 552a).

(ii) Alternate I (JAN 2017) of 52.224-3.

(48) (i) 52.225-1, Buy American--Supplies (OCT 2022) (41 U.S.C. chapter 83).

(ii) Alternate I (OCT 2022) of 52.225-1.

(49) (i) 52.225-3, Buy American--Free Trade Agreements--Israeli Trade Act (DEC 2022) (19 U.S.C. 3301 note, 19 U.S.C. 2112 note, 19 U.S.C. 3805 note, 19 U.S.C. 4001 note, 19 U.S.C. chapter 29 (sections 4501-4732), Public Law 103-182, 108-77, 108-78, 108-286, 108-302, 109-53, 109-169, 109-283, 110-138, 112-41, 112-42, and 112-43).

(ii) Alternate I [Reserved].

XX (iii) Alternate II (DEC 2022) of 52.225-3.

(iv) Alternate III (JAN 2021) of 52.225-3.

(v) Alternate IV (OCT 2022) of 52.225-3.

(50) 52.225-5, Trade Agreements (DEC 2022) (19 U.S.C. 2501, et seq., 19 U.S.C. 3301 note).

XX (51) 52.225-13, Restrictions on Certain Foreign Purchases (FEB 2021) (E.O.'s, proclamations, and statutes administered by the Office of Foreign Assets Control of the Department of the Treasury).

(52) 52.225-26, Contractors Performing Private Security Functions Outside the United States (OCT 2016) (Section 862, as amended, of the National Defense Authorization Act for Fiscal Year 2008; 10 U.S.C. Subtitle A, Part V, Subpart G Note).

(53) 52.226-4, Notice of Disaster or Emergency Area Set-Aside (NOV 2007) (42 U.S.C. 5150).

(54) 52.226-5, Restrictions on Subcontracting Outside Disaster or Emergency Area (NOV 2007) (42 U.S.C. 5150).

(55) 52.229-12, Tax on Certain Foreign Procurements (FEB 2021).

(56) 52.232-29, Terms for Financing of Purchases of Commercial Products and Commercial Services (NOV 2021) (41 U.S.C.4505, 10 U.S.C. 3805).

(57) 52.232-30, Installment Payments for Commercial Products and Commercial Services (NOV 2021) (41 U.S.C. 4505, 10 U.S.C. 3805).

XX (58) 52.232-33, Payment by Electronic Funds Transfer--System for Award Management (OCT 2018) (31 U.S.C. 3332).

(59) 52.232-34, Payment by Electronic Funds Transfer - Other Than System for Award Management (JUL 2013) (31 U.S.C. 3332).

(60) 52.232-36, Payment by Third Party (MAY 2014) (31 U.S.C. 3332).

(61) 52.239-1, Privacy or Security Safeguards (AUG 1996) (5 U.S.C. 552a).

(62) 52.242-5, Payments to Small Business Subcontractors (JAN 2017)(15 U.S.C. 637(d)(13)).

(63)(i) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (NOV 2021) (46 U.S.C. 55305 and 10 U.S.C. 2631).

(ii) Alternate I (APR 2003) of 52.247-64.

(iii) Alternate II (NOV 2021) of 52.247-64.

(c) The Contractor shall comply with the FAR clauses in this paragraph (c), applicable to commercial services, that the Contracting Officer has indicated as being incorporated in this contract by reference to implement provisions of law or Executive orders applicable to acquisitions of commercial products and commercial services:

[Contracting Officer check as appropriate.]

(1) 52.222-41, Service Contract Labor Standards (AUG 2018) (41 U.S.C. chapter 67).

(2) 52.222-42, Statement of Equivalent Rates for Federal Hires(MAY 2014) (29 U.S.C. 206 and 41 U.S.C. chapter 67).

(3) 52.222-43, Fair Labor Standards Act and Service Contract Labor Standards -Price Adjustment (Multiple Year and Option Contracts) (AUG 2018)(29 U.S.C. 206 and 41 U.S.C. chapter 67).

(4)52.222-44, Fair Labor Standards Act and Service Contract Labor Standards--Price Adjustment (MAY 2014) (29 U.S.C 206 and 41 U.S.C. chapter 67).

(5)52.222-51, Exemption from Application of the Service Contract Labor Standards to Contracts for Maintenance, Calibration, or Repair of Certain Equipment--Requirements (MAY 2014) (41 U.S.C. chapter 67).

(6) 52.222-53, Exemption from Application of the Service Contract Labor Standards to Contracts for Certain Services--Requirements (MAY 2014) (41 U.S.C. chapter 67).

(7) 52.222-55, Minimum Wages for Contractor Workers Under Executive Order 14026 (JAN 2022).

(8) 52.222-62, Paid Sick Leave Under Executive Order 13706 (JAN 2022) (E.O. 13706).

(9) 52.226-6, Promoting Excess Food Donation to Nonprofit Organizations (JUN 2020) (42 U.S.C. 1792).

(d) Comptroller General Examination of Record. The Contractor shall comply with the provisions of this paragraph (d) if this contract was awarded using other than sealed bid, is in excess of the simplified acquisition threshold, as defined in FAR 2.101, on the date of award of this contract, and does not contain the clause at 52.215-2, Audit and Records-Negotiation.

(1) The Comptroller General of the United States, or an authorized representative of the Comptroller General, shall have access to and right to examine any of the Contractor's directly pertinent records involving transactions related to this contract.

(2) The Contractor shall make available at its offices at all reasonable times the records, materials, and other evidence for examination, audit, or reproduction, until 3 years after final payment under this contract or for any shorter period specified in FAR subpart 4.7, Contractor Records Retention, of the other clauses of this contract. If this contract is completely or partially terminated, the records relating to the work terminated shall be made available for 3 years after any resulting final termination settlement. Records relating to appeals under the disputes clause or to litigation or the settlement of claims arising under or relating to this contract shall be made available until such appeals, litigation, or claims are finally resolved.

(3) As used in this clause, records include books, documents, accounting procedures and practices, and other data, regardless of type and regardless of form. This does not require the Contractor to create or maintain any record that the Contractor does not maintain in the ordinary course of business or pursuant to a provision of law.

(e)

(1) Notwithstanding the requirements of the clauses in paragraphs (a), (b), (c), and (d) of this clause, the Contractor is not required to flow down any FAR clause, other than those in this paragraph (e)(1), in a subcontract for commercial products or commercial services. Unless otherwise indicated below, the extent of the flow down shall be as required by the clause-

(i) 52.203-13, Contractor Code of Business Ethics and Conduct (Nov 2021) (41 U.S.C. 3509).

(ii) 52.203-19, Prohibition on Requiring Certain Internal Confidentiality Agreements or Statements (Jan 2017) (section 743 of Division E, Title VII, of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235) and its successor provisions in subsequent appropriations acts (and as extended in continuing resolutions)).

(iii) 52.204-23, Prohibition on Contracting for Hardware, Software, and Services Developed or Provided by Kaspersky Lab and Other Covered Entities (Nov 2021) (Section 1634 of Pub. L. 115-91).

(iv) 52.204-25, Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment. (Nov 2021) (Section 889(a)(1)(A) of Pub. L. 115-232).

(v) 52.219-8, Utilization of Small Business Concerns (Oct 2022) (15 U.S.C. 637(d)(2) and (3)), in all subcontracts that offer further subcontracting opportunities. If the subcontract (except subcontracts to small business concerns) exceeds the applicable threshold specified in FAR 19.702(a) on the date of subcontract award, the subcontractor must include 52.219-8 in lower tier subcontracts that offer subcontracting opportunities.

(vi) 52.222-21, Prohibition of Segregated Facilities (Apr 2015).

(vii) 52.222-26, Equal Opportunity (Sep 2015) (E.O.11246).

(viii) 52.222-35, Equal Opportunity for Veterans (Jun 2020) (38 U.S.C. 4212).

(ix) 52.222-36, Equal Opportunity for Workers with Disabilities (Jun 2020) (29 U.S.C. 793).

(x) 52.222-37, Employment Reports on Veterans (Jun 2020) (38 U.S.C. 4212).

(xi) 52.222-40, Notification of Employee Rights Under the National Labor Relations Act (Dec 2010) (E.O. 13496). Flow down required in accordance with paragraph (f) of FAR clause 52.222-40.

(xii) 52.222-41, Service Contract Labor Standards (Aug 2018) (41 U.S.C. chapter 67).

(xiii)

(A) 52.222-50, Combating Trafficking in Persons (Nov 2021) (22 U.S.C. chapter 78 and E.O 13627).

(B) Alternate I (Mar 2015) of 52.222-50 (22 U.S.C. chapter 78 and E.O. 13627).

(xiv) 52.222-51, Exemption from Application of the Service Contract Labor Standards to Contracts for Maintenance, Calibration, or Repair of Certain Equipment-Requirements (May 2014) (41 U.S.C. chapter 67).

(xv) 52.222-53, Exemption from Application of the Service Contract Labor Standards to Contracts for Certain Services-Requirements (May 2014) (41 U.S.C. chapter 67).

(xvi) 52.222-54, Employment Eligibility Verification (May 2022) (E.O. 12989).

(xvii) 52.222-55, Minimum Wages for Contractor Workers Under Executive Order 14026 (Jan 2022).

(xviii) 52.222-62, Paid Sick Leave Under Executive Order 13706 (Jan 2022) (E.O. 13706).

(xix)

(A) 52.224-3, Privacy Training (Jan 2017) (5 U.S.C. 552a).

(B) Alternate I (Jan 2017) of 52.224-3.

(xx) 52.225-26, Contractors Performing Private Security Functions Outside the United States (Oct 2016) (Section 862, as amended, of the National Defense Authorization Act for Fiscal Year 2008; 10 U.S.C. 2302 Note).

(xxi) 52.226-6, Promoting Excess Food Donation to Nonprofit Organizations (Jun 2020) (42 U.S.C. 1792). Flow down required in accordance with paragraph (e) of FAR clause 52.226-6.

(xxii) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (Nov 2021) (46 U.S.C. 55305 and 10 U.S.C. 2631). Flow down required in accordance with paragraph (d) of FAR clause 52.247-64.

(2) While not required, the Contractor may include in its subcontracts for commercial products and commercial services a minimal number of additional clauses necessary to satisfy its contractual obligations.

(End Of Clause)

52.232-40 PROVIDING ACCELERATED PAYMENTS TO SMALL BUSINESS SUBCONTRACTORS (NOV 2021)

(a) Upon receipt of accelerated payments from the Government, the Contractor shall make accelerated payments to its small business subcontractors under this contract, to the maximum extent practicable and prior to when such payment is otherwise required under the applicable contract or subcontract, after receipt of a proper invoice and all other required documentation from the small business subcontractor.

(b) The acceleration of payments under this clause does not provide any new rights under the Prompt Payment Act.

(c) Include the substance of this clause, including this paragraph (c), in all subcontracts with small business concerns, including subcontracts with small business concerns for the acquisition of commercial products or commercial services.

(End Of Clause)

52.245-1 GOVERNMENT PROPERTY (SEP 2021)

(Reference 52.245-1)

1352.201-70 CONTRACTING OFFICER'S AUTHORITY (APR 2010)

The Contracting Officer is the only person authorized to make or approve any changes in any of the requirements of this contract, and, notwithstanding any provisions contained elsewhere in this contract, the said authority remains solely in the Contracting Officer. In the event the contractor makes any changes at the direction of any person other than the Contracting Officer, the change will be considered to have been made without authority and no adjustment will be made in the contract terms and conditions, including price.

(End of clause)

1352.209-73 COMPLIANCE WITH THE LAWS (APR 2010)

The contractor shall comply with all applicable laws, rules and regulations which deal with or relate to performance in accord with the terms of the contract.

(End of clause)

1352.209-74 ORGANIZATIONAL CONFLICT OF INTEREST (APR 2010)

(a) Purpose. The purpose of this clause is to ensure that the contractor and its subcontractors:
(1) Are not biased because of their financial, contractual, organizational, or other interests which relate to the work under this contract, and

(2) Do not obtain any unfair competitive advantage over other parties by virtue of their performance of this contract.

(b) Scope. The restrictions described herein shall apply to performance or participation by the contractor, its parents, affiliates, divisions and subsidiaries, and successors in interest (hereinafter collectively referred to as "contractor") in the activities covered by this clause as a prime contractor, subcontractor, co-sponsor, joint venturer, consultant, or in any similar capacity. For the purpose of this clause, affiliation occurs when a business concern is controlled by or has the power to control another or when a third party has the power to control both.

(c) Warrant and Disclosure. The warrant and disclosure requirements of this paragraph apply with full force to both the contractor and all subcontractors. The contractor warrants that, to the best of the contractor's knowledge and belief, there are no relevant facts or circumstances which would give rise to an organizational conflict of interest, as defined in FAR Subpart 9.5, and that the contractor has disclosed all relevant information regarding any actual or potential conflict. The contractor agrees it shall make an immediate and full disclosure, in writing, to the Contracting Officer of any potential or actual organizational conflict of interest or the existence of any facts that may cause a reasonably prudent person to question the contractor's impartiality because of the appearance or existence of bias or an unfair competitive advantage. Such disclosure shall

include a description of the actions the contractor has taken or proposes to take in order to avoid, neutralize, or mitigate any resulting conflict of interest.

(d) Remedies. The Contracting Officer may terminate this contract for convenience, in whole or in part, if the Contracting Officer deems such termination necessary to avoid, neutralize or mitigate an actual or apparent organizational conflict of interest. If the contractor fails to disclose facts pertaining to the existence of a potential or actual organizational conflict of interest or misrepresents relevant information to the Contracting Officer, the Government may terminate the contract for default, suspend or debar the contractor from Government contracting, or pursue such other remedies as may be permitted by law or this contract.

(e) Subcontracts. The contractor shall include a clause substantially similar to this clause, including paragraphs (f) and (g), in any subcontract or consultant agreement at any tier expected to exceed the simplified acquisition threshold. The terms "contract," "contractor," and "Contracting Officer" shall be appropriately modified to preserve the Government's rights.

(f) Prime Contractor Responsibilities. The contractor shall obtain from its subcontractors or consultants the disclosure required in FAR Part 9.507-1, and shall determine in writing whether the interests disclosed present an actual, or significant potential for, an organizational conflict of interest. The contractor shall identify and avoid, neutralize, or mitigate any subcontractor organizational conflict prior to award of the contract to the satisfaction of the Contracting Officer. If the subcontractor's organizational conflict cannot be avoided, neutralized, or mitigated, the contractor must obtain the written approval of the Contracting Officer prior to entering into the subcontract. If the contractor becomes aware of a subcontractor's potential or actual organizational conflict of interest after contract award, the contractor agrees that the Contractor may be required to eliminate the subcontractor from its team, at the contractor's own risk.

(g) Waiver. The parties recognize that this clause has potential effects which will survive the performance of this contract and that it is impossible to foresee each circumstance to which it might be applied in the future. Accordingly, the contractor may at any time seek a waiver from the Head of the Contracting Activity by submitting such waiver request to the Contracting Officer, including a full written description of the requested waiver and the reasons in support thereof.

(End of clause)

1352.213-70 Evaluation utilizing simplified acquisition procedures.

The Government will issue an order resulting from this request for quotation to the responsible offeror whose quotation results in the best value to the Government, considering both price and non-price factors. The following factors will be used to evaluate quotations:

(1) Technical Approach and Capability. The offeror's approach to performing contract requirements and its capability to successfully perform the contract will be evaluated. The contractor shall provide:

- a. Confirmation to obtain the required parts.
- b. Confirmation of ability to meet the delivery schedule.

(2) Past Performance. The offeror's past performance on related contracts will be evaluated to determine, as appropriate, successful performance of contract requirements, quality and timeliness of delivery of goods and services, cost management, communications between contracting parties, proactive management and customer satisfaction. The contractor shall provide:

- a. a list of at least two but no more than three contacts, including phone numbers, of past performance references that you have successfully accomplished services similar to size and scope of those listed in the statement of work.

(3) Price.

(End of clause)

1352.233-70 AGENCY PROTESTS (APR 2010)

(a) An agency protest may be filed with either: (1) the contracting officer, or (2) at a level above the contracting officer, with the appropriate agency Protest Decision Authority. See 64 Fed. Reg. 16,651 (April 6, 1999)

(b) Agency protests filed with the Contracting Officer shall be sent to the following address: Steven Prado, steven.m.prado@noaa.gov

(c) Agency protests filed with the agency Protest Decision Authority shall be sent to the following address: US Dept of Commerce, Office of General Counsel, Contract Law Division Room 5893, Herbert C. Hoover Bldg, 14th St and Constitution Ave NW, Washington DC 20230.

(d) A complete copy of all agency protests, including all attachments, shall be served upon the Contract Law Division of the Office of the General Counsel within one day of filing a protest with either the Contracting Officer or the Protest Decision Authority.

(e) Service upon the Contract Law Division shall be made as follows:

U.S. Department of Commerce
Office of the General Counsel
Chief, Contract Law Division
Room 5893
Herbert C. Hoover Building
14th Street and Constitution Avenue, N.W.
Washington, D.C. 20230.
FAX: (202) 482-5858

(End of clause)

1352.233-71 GAO AND COURT OF FEDERAL CLAIMS PROTESTS (APR 2010)

(a) A protest may be filed with either the Government Accountability Office (GAO) or the Court of Federal Claims unless an agency protest has been filed.

(b) A complete copy of all GAO or Court of Federal Claims protests, including all attachments, shall be served upon (i) the Contracting Officer, and (ii) the Contract Law Division of the Office of the General Counsel, within one day of filing a protest with either GAO or the Court of Federal Claims.

(c) Service upon the Contract Law Division shall be made as follows:

U.S. Department of Commerce
Office of the General Counsel
Chief, Contract Law Division
Room 5893
Herbert C. Hoover Building
14th Street and Constitution Avenue, N.W.
Washington, D.C. 20230.
FAX: (202) 482-5858

(End of clause)

1352.245-70 GOVERNMENT FURNISHED PROPERTY (APR 2010)

The Government will provide the following item(s) of Government property to the contractor . The contractor shall be accountable for, and have stewardship of, the property in the performance of this contract. This property shall be used and maintained by the contractor in accordance with provisions of the "Government Property" clause included in this contract.

Item No. LCD1 -7-SEGMENT, 4-DIGIT, TRANSFLECTIVE; LCD2 - BACKLIGHT;
PROGRAMMABLE SIGNAL PROCESSOR (DIGIKEY 568-1014-5-ND, PROGRAMMED BY NWS/NRC)
Description
Quantity 250 EACH
Delivery Date
Property/Tag Number (if applicable)

(End of clause)

CONTRACTOR ACCESS TO NOAA FACILITIES (SEPT 2017)

- (a)(1) The performance of this contract requires employees of the prime contractor or its subcontractors, affiliates, consultants, or team members ("contractor employees") to have access to and to the extent authorized, mobility within, a NOAA facility.
- (2) NOAA may close and or otherwise deny contractor employees access to a NOAA facility for a portion of a business day or longer for various reasons including, but not limited, to the following events:
- (i) Federal public holidays for federal employees in accordance with 5 U.S.C. 6103;
 - (ii) Fires, floods, earthquakes, and unusually severe weather, including but not limited to snow storms, tornadoes, and hurricanes;
 - (iii) Occupational safety or health hazards;
 - (iv) Lapse in Appropriations; or
 - (v) Federal Statute, Executive Order, Presidential Proclamation, or any other unforeseen reason.
- (3) In such events, the contractor employees may be denied access to a NOAA facility that is ordinarily available for the contractor to perform work or make delivery, as required by the contract.
- (b) In all instances where contractors are denied access or required to vacate a NOAA facility, in part or in whole, the contractor shall be responsible to ensure contractor personnel working under the contract comply. If the circumstances permit, the contracting officer will provide direction to the contractor, either directly or through the Contracting Officer's Representative (COR), which could include continuing on-site performance during the NOAA facility closure period; however, if Government oversight is required and is not available, on-site performance shall not be allowed. In the absence of such direction, the contractor shall exercise sound judgment to minimize unnecessary contract costs and performance impacts, for example, performing required work off-site if possible or reassigning personnel to other activities if appropriate.
- (c) The contractor shall be responsible for monitoring the Office of Personnel Management at www.opm.gov, the local radio, television stations, NOAA web sites, and other communication channels. Once the facility is accessible, the contractor shall resume contract performance as required by the contract.
- (d) For the period that NOAA facilities were not accessible to contractors who required access in order to perform the services, the contracting officer mayâ-#
- (1) Adjust the contract performance or delivery schedule for a period equivalent to the period the NOAA facility was not accessible;
 - (2) Forego the work; or
 - (3) Reschedule the work by mutual agreement of the parties.
- (e) Notification procedures of a NOAA facility closure, including contractor denial of access, are as follows:
- (1) The contractor shall be responsible for notification of its employees of the NOAA facility closure to include denial of access to the NOAA facility. The dismissal of NOAA employees in accordance with statute and regulations providing for such dismissals shall not, in itself, equate to a NOAA facility closure in which contractors are denied access. Moreover, the leave status of NOAA employees shall not be conveyed or imputed to contractor personnel. Accordingly, unless a NOAA facility is closed and the contractor is denied access to the facility, the contractor shall continue performance in accordance with the contract.
 - (2) Access to Government facilities and resources, including equipment and systems, will be limited and personnel necessary to administer contract performance may not be available. Generally, supply and service contracts that are funded beyond the date of the lapse in appropriation and do not require access to Government facilities, active administration by Government personnel or the use of government resources in a manner that would cause the government to incur additional obligations during the lapse in appropriation may continue. If a delivery date for a contract falls during the period of a lapse in appropriations, Government personnel may not be available to receive delivery. Contractors are directed to consult with a contracting officer before attempting to make a delivery. Contracting officers will be available throughout the lapse in appropriation period to provide guidance.

Once OMB guidance is given, CORs, in consultation with the contracting officer, will notify those contractors that are deemed by the Program Office to be performing excepted work and identify the contractor personnel requiring access to NOAA facilities. CORs will also coordinate with directly with facility management or physical security personnel at respective locations to ensure that the names of contractor personnel requiring access to government facilities during the lapse in appropriations are provided to physical security personnel.

Contractors who are not designated as performing excepted work are not allowed access to Government facilities or to utilize government resources in a manner that would incur any additional obligation of funding on behalf of the government during the lapse in appropriation.

(3) Unless otherwise specified within the contract award, contractors requiring access to NOAA facilities outside normal business hours or outside the normal workweek shall submit a written request in writing through the COR to the contracting officer. The written request shall provide justification supporting the required access and be submitted hours/days (contracting officer insert number of days. If blank, 72 hours applies) before access to the NOAA facility is needed.

(End of solicitation and contract language)

1330-52.242-70 SUBMITTAL OF INVOICES (FEB 2011)

The contractor shall prepare and submit an invoice to the designated official for approval with a copy to the contracting officer for information. All invoices shall be submitted by the 10th day of the subsequent month.

THE DESIGNATED GOVERNMENT OFFICIAL RESPONSIBLE FOR ACCEPTANCE AND APPROVAL OF INVOICES SHALL BE AS SHOWN ON PAGE 3 OF THE PURCHASE ORDER.

To constitute a proper invoice, the contractor's invoice shall be prepared in accordance with, and contain all elements specified in FAR 52.212-4, paragraph (g), entitled, "Invoice."

If the invoice does not comply with FAR 52.212-4(g), the designated government official shall return the invoice to the contractor within seven days after the date the invoice was received with a statement as to the reasons why it is not a proper invoice.

1330-52.243-70 REQUESTS FOR EQUITABLE ADJUSTMENT (OCT 2017)

(a) The amount of any request for equitable adjustment to contract terms shall accurately reflect the contract adjustment for which the Contractor believes the Government is liable. The request shall include only costs for performing the change. All indirect costs included in the request shall be properly allocable to the change in accordance with applicable acquisition regulations.

(b) Any request for equitable adjustment to contract terms that exceeds the simplified acquisition threshold shall bear, at the time of submission, the following certificate executed by an individual authorized to certify the request on behalf of the Contractor:

I certify that the request is made in good faith, and that the supporting data are accurate and complete to the best of my knowledge and belief.

(Official's Name)

(Title)

(c) The certification in paragraph (b) of this solicitation and contract language requires full disclosure of all relevant facts, including:

(1) Certified cost or pricing data, if required, in accordance with subsection 15.403-4 of the Federal Acquisition Regulation (FAR); and

(2) Data other than certified cost or pricing data, in accordance with subsection 15.403-3 of the FAR, including actual cost data and data to support any estimated costs, even if certified cost or pricing data are not required.

(d) The certification requirement in paragraph (b) of this solicitation and contract language does not apply to:

(1) Requests for routine contract payments; for example, requests for payment for accepted supplies and services, routine vouchers under a cost-reimbursement type contract, or progress payment invoices; or

(2) Final adjustments under an incentive provision of the contract.

(End of solicitation and contract language)

1330-52.270-304 NOAA ACQUISITION AND GRANTS OFFICE OMBUDSMAN (OCT 2022)

(a) The NOAA Acquisition and Grants Office (AGO) Ombudsman is available to organizations to promote responsible and meaningful exchanges of information. Generally, the purpose of these exchanges will be to:

(1) Allow contractors to better prepare for and propose on business opportunities.

(2) Advise as to technologies and solutions within the marketplace that the Government may not be aware of, or is not fully benefiting from.

(3) Identify constraints in transparency and process.

(b) The AGO Ombudsman will objectively, reasonably, and responsibly collaborate with parties and recommend fair, impartial, and constructive solutions to the matters presented to him/her. Further, the AGO Ombudsman will maintain the reasonable and responsible confidentiality of the source of a concern, when such a request has been formally made by an authorized officer of an organization seeking to do business with, or already doing business with NOAA.

(c) Before consulting with the AGO Ombudsman, interested parties must first address their concerns, issues, disagreements, and/or recommendations with the respective contracting officer for resolution. However, direct access to the AGO Ombudsman may be sought when an interested party questions the objectivity or equity of a contracting officer's decision, or when there is a bona fide reason to believe that reasonable, responsible, and objective consideration will not be received from an assigned contracting officer.

(d) There are several constraints to the scope of the AGO Ombudsman's authority, for instance:

(1) Consulting with the AGO Ombudsman does not alter or postpone the timelines of any formal process (e.g., protests, claims, debriefings, employee employer actions, activities involving A76 competition performance decisions, judicial or congressional hearings, or proposal, amendment, modification or deliverable due dates, etc.).

(2) The AGO Ombudsman cannot participate in the evaluation of proposals, source selection processes, or the adjudication of protests or formal contract disputes.

(3) The AGO Ombudsman is not authorized to generate or alter laws, judicial decisions, rules, policies, or formal guidance.

(4) The AGO Ombudsman is not authorized to develop or alter opportunity announcements, solicitations, contracts, or their terms or conditions.

(5) The AGO Ombudsman cannot overrule the authorized decisions or determinations of the contracting officer.

(6) The AGO Ombudsman has no authority to render a decision that binds AGO, NOAA, the Department of Commerce, or the U.S. Government.

(7) The AGO Ombudsman is not NOAA's agent relative to the service of magistrate or judicial process and cannot be used to extend service of process to another party (whether federal, public, or a private entity).

(e) After review and analysis of a filed concern or recommendation, the AGO Ombudsman may refer the interested party to another more suitable federal official for consideration. Moreover, concerns, disagreements, and/or recommendations that cannot be resolved by the AGO Ombudsman will need to be pursued through more formal venues.

(f) The AGO Ombudsman is not to be contacted to request copies of forms and/or documents under the purview of a contracting officer. Such documents include Requests for Information, solicitations, amendments, contracts, modifications, or conference materials.

(g) Questions regarding items (a) through (f) within this language shall be directed to ago.ombudsman@noaa.gov.

(End of solicitation and contract language)

**NOAA Solicitation No.
Statement of Work**

Specification No. C451-SP001
January 18, 2023

**NATIONAL WEATHER SERVICE
ENGINEERING DIVISION**

Specification for

NIMBUS DIGITAL THERMOMETER
DEPARTMENT OF COMMERCE
NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION
National Weather Service
Silver Spring, Maryland 20910

NIMBUS DIGITAL THERMOMETER

1. INTRODUCTION

1.1 Background. This specification describes the requirements for the construction, performance, and testing of a Nimbus Digital Thermometer. The Nimbus Digital Thermometer is part of a Maximum/Minimum Temperature System that:

- 1) collect, process, and display ambient temperature data in real time;
- 2) store the maximum and minimum temperatures until reset;
- 3) store the hourly current temperature and daily max and min in a 35 day memory;
- 4) display the maximum, minimum, and ambient temperatures.

1.2 Scope. The scope of this specification is limited to the Nimbus Digital Thermometer. Each deliverable unit will be built-to-print and tested for compliance with this specification. The contractor shall submit three preproduction units to the Government for acceptance testing. All preproduction and production units shall meet the requirements of the Burn-in Test and Factory Acceptance Test at the Contractor's site before being submitted to the Government for inspection. The Contractor shall submit to the Government, prior to the delivery of the preproduction units, any redlined drawings used to fabricate the preproduction units. The Government will conduct engineering functional tests, temperature accuracy tests, physical configuration audits, and environmental tests on the preproduction units. The Government will authorize the Contractor to begin production of the units once the preproduction units have been accepted. The production units will be accepted based upon their meeting the requirements of the Government Quality Assurance Programs specified herein.

2. APPLICABLE DOCUMENT

2.1 General. The following documents of the exact issue shown form a part of this specification to the extent specified herein. In the event of conflict between this specification and any document referenced herein, this specification shall take precedent. In addition, the Contractor shall notify the Government Contracting Office, in writing of each such conflict.

2.1.1 Government Documents

Military (referenced in Drawings)

MIL-HDBK-454 General Guidelines for Electronic Equipment, 28 April 1995; will be provided by NOAA upon request; Please notify the Government Contact Point (GCP) of the contract.

The present source of Military Specifications and Standards is:

DODSSP
Standardization Document Order Desk
700 Robbins Ave., Bldg. 4D
Philadelphia, PA 19111-5094
(215)697-2179; (Fax) (215)697-1462

National Weather Service Documents

A copy of the following shall be provided electronically.

Document	Title	Main File	Gerber Files	Supplementary Files
C451-A200-DR001	Nimbus Base Unit Front Panel	C451-A200-DR001.pdf		
C451-A200-DR002	Nimbus Base Unit Front Panel Overlay	C451-A200-DR002.pdf		
C451-A200-DR003	Nimbus Base Unit Rear Panel	C451-A200-DR003.pdf		
C451-A200-DR004	Nimbus Base Unit Enclosure Modification	C451-A200-DR004.pdf		
C451-A200-Combined Drawings	Nimbus Base Unit Enclosure – Panels, Overlay, and Mod.	C451-A200-DR001-02-03-04.pdf		
C451-A300-DR001	Nimbus Base Unit Motherboard Assembly	C451-A300-DR001.pdf		
C451-A300-DR002	Nimbus Base Unit Motherboard Schematic	C451-A300-DR002A.pdf, C451-A300-DR002B.pdf		
C451-A300-DR003	Nimbus Base Unit Motherboard Drill Drawing	C451-A300-DR003.pdf	C451-A300-DR003.pho, C451-A300-DR003.rep	C451-A300-DR003.drl, C451-A300-DR003NC.rep, C451-A300-DR003.lst
C451-A300-DR004	Nimbus Base Unit Motherboard Copper Layer (Top)	C451-A300-DR004.pdf	C451-A300-DR004.pho, C451-A300-DR004.rep	
C451-A300-DR005	Nimbus Base Unit Motherboard Copper Layer (Bottom)	C451-A300-DR005.pdf	C451-A300-DR005.pho, C451-A300-DR005.rep	
C451-A300-DR006	Nimbus Base Unit Motherboard Solder Mask (Top)	C451-A300-DR006.pdf	C451-A300-DR006.pho, C451-A300-DR006.rep	
C451-A300-DR007	Nimbus Base Unit Motherboard Solder Mask (Bottom)	C451-A300-DR007.pdf	C451-A300-DR007.pho, C451-A300-DR007.rep	
C451-A300-DR008	Nimbus Base Unit Motherboard Paste Mask (Top)	C451-A300-DR008.pdf	C451-A300-DR008.pho, C451-A300-DR008.rep	
C451-A300-DR009	Nimbus Base Unit Motherboard Silk Screen (Top)	C451-A300-DR009.pdf	C451-A300-DR009.pho, C451-A300-DR009.rep	

C451-A400-DR001	Nimbus Base Unit Display Board Assembly	C451-A400-DR001.pdf		
C451-A400-DR002	Nimbus Base Unit Display Board Schematic	C451-A400-DR002.pdf		
C451-A400-DR003	Nimbus Base Unit Display Board Drill Drawing	C451-A400-DR003.pdf	C451-A400-DR003.pho, C451-A400-DR003.rep	C451-A400-DR003.drl, C451-A400-DR003NC.rep, C451-A400-DR003.lst
C451-A400-DR004	Nimbus Base Unit Display Board Copper Layer (Top)	C451-A400-DR004.pdf	C451-A400-DR004.pho, C451-A400-DR004.rep	
C451-A400-DR005	Nimbus Base Unit Display Board Copper Layer (Bottom)	C451-A400-DR005.pdf	C451-A400-DR005.pho, C451-A400-DR005.rep	
C451-A400-DR006	Nimbus Base Unit Display Board Solder Mask (Top)	C451-A400-DR006.pdf	C451-A400-DR006.pho C451-A400-DR006.rep	
C451-A400-DR007	Nimbus Base Unit Display Board Solder Mask (Bottom)	C451-A400-DR007.pdf	C451-A400-DR007.pho, C451-A400-DR007.rep	
C451-A400-DR008	Nimbus Base Unit Display Board Paste Mask (Top)	C451-A400-DR008.pdf	C451-A400-DR008.pho, C451-A400-DR008.rep	
C451-A400-DR009	Nimbus Base Unit Display Board Silk Screen (Top)	C451-A400-DR009.pdf	C451-A400-DR009.pho, C451-A400-DR009.rep	
C451-N1-ROM	Nimbus Base Unit Microprocessor ROM Program *	C451-N1-ROM	<i>There is no document associated with this part.</i>	<i>There is no document associated with this part.</i>
C451-N1-MAN	Nimbus Base Unit Instruction Booklet	C451-N1- MAN N.doc		C451-N1-MAN-cover.doc
WS-N-SD001	Standard Nameplate	WS-N-SD001. pdf		

* Note: The C451-N1-ROM, refers to the programmable microprocessor chip. It is Government Furnished Equipment (GFE) and has a manufacturer's part number P87C54SBPN (Rochester Electronics). The microchip is programmed by the National Weather Service (NWS), National Reconditioning Center (NRC) in Grandview, Missouri, and then provided to the contractor.

3. REQUIREMENTS

3.1 General. The Nimbus Digital Thermometer is a part of a modular, stand-alone system used to collect, process, store, and display temperature data. The system has a temperature range of -75 to +150 degrees Fahrenheit.

3.1.1 Environmental. The Nimbus Digital Thermometer will be located indoors and will be subjected to the environmental conditions listed in Table 1.

3.1.2 Power Requirements. The Nimbus Digital Thermometer shall operate on commercial power 117 volts AC (VAC), +10%/-15% at 60 Hertz +/-5 Hertz. In the event a power outage occurs, a backup battery shall store the maximum and minimum temperatures for a period up to two weeks. The batteries shall be alkaline and a battery shall be supplied with each unit. The supplied battery shall not be installed within the unit, but supplied separately in the unit box. The battery shall be either individually wrapped in plastic or have a anti-short plastic clip installed across the terminals.

3.1.3 Accuracy and Performance. The Nimbus Digital Thermometer is subject to the accuracy and performance specifications contained in Table 2.

3.2 Specific Requirements. The Nimbus Digital Thermometer shall consist of the Nimbus Base Unit, a wall mounted AC to DC power supply, a 9 volt Alkaline battery and a copy of the instruction booklet (C451-N1-MAN). It is acceptable to reproduce the instruction booklet in black and white, and to use booklet style binding with stapled, folded pages. The above 4 items shall be cushioned and packaged in a box suitable for individual shipment by common carrier.

3.2.1 Nimbus Base Unit. The Nimbus Base Unit shall be encased in a black colored plastic enclosure and incorporates an LCD display that is readable from greater than three feet. The unit shall display in degrees Fahrenheit.

3.2.1.1 Mechanical. All parts lists, and schematics (drawings C451-A200-DR001 through C451-A200-DR004) necessary to reproduce the hardware packaging of the Nimbus Base Unit will be provided by National Weather Service. A cross-reference list of acceptable CAGE codes to manufacturers of Nimbus Digital Thermometer parts will be provided with the drawings. The front panel (C451-A200-DR001/DR002) shall include controls for a reset function, memory on-off function, memory read function, and minimum/maximum temperature display. The rear panel (C451-A200-DR003) shall include a DC power receptacle, a 9-pin RS-232 serial connector, and the sensor bulkhead-type connector. The bottom of the enclosure shall be modified as shown in drawing C451-A200-DR004 to equip the unit with two back rubber feet and two front tilting feet.

3.2.1.2 Electrical. All parts lists, schematics (drawings C451-A300-DR001 through C451-A300-DR009 and C451-A400-DR001 through C451-A400-DR009), drill files, and photoplotter files necessary to reproduce all printed circuit boards will be provided by National Weather Service. A programmable signal processor, identified in the Bill of Materials (BOM)

with the manufacturer part number P87C54SBPN, shall be programmed by the Government and shall be provided as Government Furnished Equipment (GFE). In addition, the parts referenced as LCD1 and LCD2 in drawing C451-A400-DR001 shall also be provided as GFE.

A cross-reference list of acceptable CAGE codes to manufacturers of Nimbus Digital Thermometer parts will be provided with the drawings. Equivalent parts of the same type, grade, and performance may be substituted without notification to the Government Contact Point (GCP). Substitution of any non-equivalent part requires GCP approval. Requests for substitution of a non-equivalent part shall be in writing, identify the part in question and supply data sheets of the requested part desired to be used. Electronic submission of these requests is preferred.

All components and integrated circuits shall be soldered directly to the printed circuit boards with the exception of the 8051 microprocessor and the RS232 transceiver. A machined pin integrated circuit socket shall be used to allow easy removal of both the microprocessor and the transceiver. All soldering shall be in accordance with guideline 5 of MIL-HDBK-454. A nonrosin based flux shall be used to fulfill the solder flux requirement. There shall not be any conformal coating on the printed wiring boards.

3.2.1.3 Controls. The front panel of the Nimbus Base Unit includes a four-digit LED display and three momentary switches to control the displayed temperature data. In the normal operating mode (Memory switch set to "OFF") the ambient temperature shall be displayed continuously. Pressing a switch labeled "Recall" shall display the maximum or minimum temperature registered since the last reset operation. Releasing the "Recall" switch shall return to a continuous display of ambient temperature. A manual reset shall also be provided for setting the maximum and minimum temperatures to the ambient temperature.

When the Memory switch is set to "ON", the daily maximum and minimum temperatures shall be recalled with the use of the "Recall" switch. The display shall advance in the following sequence with each press of the "Recall" switch: number of days back, maximum temperature, time at which maximum temperature occurred, minimum temperature, and time at which minimum temperature occurred for each day up to day thirty-four. After the memory for day thirty-four has been retrieved, subsequent presses of the "Recall" switch shall start with the temperatures from day zero and repeat the cycle.

When the Memory switch is set to "ON", the ambient temperatures recorded into memory at the beginning of every hour shall be recalled by pressing the "Read" switch. The display shall show the time of the last hourly reading and the ambient temperature at that time. The display shall advance in one of three ways: one hour back from the reading on the display with each press of the "Read" switch, one day back from the reading on the display with each press of the "Recall" switch, and one day forward from the reading on the display with each press of the "Clear" switch.

3.2.1.4 Display and Error Conditions. The four-digit LED display shows the temperature data, and also the status of the instrument under certain conditions. These conditions may be used as part of the factory tests.

1. The message "E1E.1" is displayed on power-up and is used to flag any power interrupts.

2. The message "E2E.2" is displayed upon successful manual reset of the maximum and minimum temperatures to the ambient temperature.
3. The message "E3E.3" is displayed upon successfully entering time set mode.
4. An open sensor (or temperature less than -75.0 °F) is indicated by a display of "-99.9". A shorted sensor (or temperature greater than +150.0 °F) is flagged by a display of "255.5".
5. The most significant digit in the display flashes "L" to indicate whenever the battery capacity is low.
6. The display is blank (except for the decimal point) when the Memory switch is set to "ON".

3.2.1.5 Software/Firmware. The Nimbus Digital Thermometer and its various functions are controlled by software contained in Read Only Memory (ROM) that is part of the 8051 microprocessor. The binary ROM control program (C451-N1-ROM) will be provided by the National Weather Service to the Contractor for all preproduction and production units.

When the unit is connected to a computer with a 9-pin null modem serial cable and a terminal emulation program configured for the COM port with settings of 9600 baud, eight (8) data bits, even parity, one (1) stop bit, and no flow control, it will respond to the **ati** command as follows:

Nimbus Digital Thermometer
 PL Series
 2.00
 1/15/03
 300, 1200, 2400, 9600, 19200
 National Weather Service
 Instrument
 C451-N1

3.3 Miscellaneous Requirements. Listed below are miscellaneous requirements that apply to this specification.

3.3.1 Nameplates. Nameplates shall be permanently affixed to the bottom of the Nimbus Digital Thermometer for each delivered unit. Nameplates shall conform to Type 2 of the National Weather Service drawing WS-N-SD001. The starting serial number for the preproduction and production units shall be NWS0000001.

3.3.2 Drawing Updates. The Contractor shall review the NWS drawings for acceptability and shall notify the Government of acceptability within five working days of contract award. If, during execution of this contract, the Contractor identifies or proposes modifications to the NWS drawing package, the proposed modification(s) shall be transmitted to the Government for

approval. The Government shall evaluate and provide comments (including approval) within five working days of receipt of proposed modifications.

In addition, the Contractor shall provide redlined drawings that include all modifications and part changes in the fabrication of the units. The redlined drawing notation for all electronic parts shall include manufacturer name and commercial part number.

3.3.3 Warranty. All deliverable items under this specification shall be warranted against faulty components, materials, and workmanship for a period of one year after final acceptance. Should any failure or fault develop in the warranty period, the defective item(s) shall be replaced with satisfactory item(s) by the Contractor, F.O.B., point of delivery, without further expense to the Government. The NWS Depot National Reconditioning Center, NRC, in Grandview, MO, will be the NWS warranty location and agent for the Government. None of the provisions of this paragraph shall affect the Government's rights under the latent defects clause.

3.3.4 Factory Acceptance Test. The Contractor shall design a Factory Acceptance Test (FAT) procedure to test all Nimbus Digital Thermometers prior to submitting any unit for Government inspection (see 4.2). The FAT must be submitted to and approved by the GCP prior to being used for any preacceptance testing.

3.3.5 Reporting Requirements. The Contractor shall submit a written monthly progress report to the GCP giving the current status of the project. Should any problems arise, the GCP should be notified in writing within five working days.

3.3.6 Obsolete Parts. If a part specified in the drawings becomes obsolete, the Contractor shall notify the GCP in writing within five working days and suggest an equivalent substitute for the obsolete part. Upon notification, the Government will either approve the substitute part suggested by the Contractor or specify a different part to replace the obsolete part.

3.3.7 Workmanship and Defects. MIL-HDBK-454 guideline 9 as it applies to the requirements of this specification establishes some of the conditions for determining nonacceptable workmanship and defects but is not intended to be all inclusive. Evidence of any one or a combination of defects or nonacceptable workmanship listed in guideline 9 of MIL-HDBK-454 shall be considered cause for rejection by the Government Contact Point (GCP).

3.4 Preproduction Nimbus Digital Thermometers. Three preproduction Nimbus Digital Thermometers shall be fabricated by the Contractor and submitted to the Government for acceptance testing prior to the fabrication of the production units. The Contractor shall perform a Burn-in test (see 4.3) and a pre-approved FAT (see 3.3.4) on all preproduction units. The preproduction units shall meet all the requirements of the Burn-in test and the FAT prior to being submitted to the Government for acceptance testing (see 4.2). During acceptance testing by the Government, the preproduction units shall meet or exceed all the requirements of this specification (see 4.4 and 4.4.1). The preproduction units are subject to the first article testing requirements in the contract.

3.5 Production Nimbus Digital Thermometers. Production units of the Nimbus Digital

Thermometers shall be fabricated by the Contractor and submitted to the Government for acceptance testing (see 4.5). The Contractor shall perform a Burn-in test (see 4.3) and a pre-approved Factory Acceptance Test (see 3.3.4) on all production units. The production units shall meet all the requirements of the Burn-in test and the FAT prior to being submitted to the Government for acceptance testing (see 4.2).

4. QUALITY ASSURANCE PROVISIONS

4.1 General. Government acceptance of the Nimbus Digital Thermometer shall be contingent upon the unit successfully passing all tests associated with the Contractor's and the Government's Quality Assurance (Q/A) Programs. The Q/A provisions follow a logical sequence providing thorough testing of preproduction units prior to production release followed by limited testing of production units to demonstrate compliant operation in the absence of infant-mortality.

4.2 Preacceptance Testing. Prior to presenting any unit for Government inspection, the Contractor shall first submit the unit to his own Quality Control Organization for testing and acceptance. These tests shall be designed to demonstrate that the unit performs in accordance with the requirements of this specification. The Contractor shall provide to the Government documentation with each unit describing the tests to which the unit was submitted and the results of the tests, or the Contractor shall provide certification with each unit that it has passed his Quality Control testing.

4.3 Five Day Burn-in Test. All preproduction and production units shall undergo a five day burn-in test at the Contractor's facility to eliminate circuit infant-mortality. Each unit shall operate for five consecutive 24 hour periods at ambient temperatures while connected to a sensor substitution precision resistor of nominal 20K ohms. At least fifty 20K ohms precision resistors with connector plugs will be provided by the National Weather Service to the Contractor for burn-in test purposes. The unit shall be monitored at least once each day to verify that the nominal test value of "77.1" is displayed, see table 3 for the limits of acceptable range for use with various resistors. Any abnormalities shall be logged and brought to the immediate attention of the Government's Point of Contact (GCP). If failures occur during the five day run, the Contractor shall interrupt the test for the affected unit(s) and make appropriate repairs. Identification of the failure, a description of the repair required, the unit serial number, and acceptance by the factory QC after the repair, shall be documented and forwarded to the GCP for review and approval. After GCP approval the test on that unit shall continue for an additional minimum of 48 hours beyond the scheduled 5 day test.

4.4 Preproduction Nimbus Digital Thermometers. The preproduction units shall demonstrate that the units are fully compliant with all the requirements of this specification. Three complete Nimbus Digital Thermometers shall be submitted to the contract delivery address. The units shall undergo a thirty day test. If all units perform in accordance with this specification, the units will be accepted and authorization will be granted by NWS to begin production. Should any preproduction unit deviate from this specification, authorization to initiate production will be postponed until proper corrective measures have been undertaken by the Contractor. Once corrected, the faulty unit(s) shall be retested to the satisfaction of the GCP.

4.4.1 Acceptance of Preproduction Units. Acceptance of the three preproduction Nimbus Digital Thermometers shall be based upon temperature indication accuracy and correct functional operation, as specified in section 3.3.3 and 3.3.4, and upon verification of specified materials and parts used. Indicated temperature accuracy will be verified by using precision resistors as sensor substitutes with values from Table 3. The Government will perform a Physical Configuration Audit (PCA) to verify that specified materials and parts were used to fabricate the preproduction units. The Government may subject each preproduction unit to environmental tests using Table 1.

4.5 Government Acceptance. Final acceptance of production Nimbus Digital Thermometers will be based on each unit being safely delivered to its final destination and meeting the Government's Quality Assurance Programs. The Contractor shall provide a signed written statement attesting that the materials and part numbers used to fabricate the production units are the same as those used in fabricating the accepted preproduction units. Safe delivery will be defined as a unit arriving undamaged and meeting all requirements contained in this specification. All Government Furnished Equipment that has not been consumed during production and/or testing shall be returned to the Government.

5. PREPARATION FOR DELIVERY PACKAGING

5.1 Packaging. Each deliverable Nimbus Digital Thermometers shall be individually packaged in a unit shipping container. These unit shipping containers shall be packaged into exterior shipping packages in accordance with Appendix A. See Clause D.1 for **PACKAGING AND MARKING** instructions as well as National Stock Number (NSN) and Agency Stock Number (ASN).

5.2 Preservation and Packaging. Preservation and packaging shall afford protection against corrosion, deterioration and physical damage during shipment, handling, indeterminate storage and worldwide redistribution.

5.3 Packing. Packing shall afford adequate protection during shipment, handling, indeterminate storage and worldwide redistribution.

5.4 Marking. Unit and exterior shipping containers shall be labeled in accordance with Appendix A.

TABLE 1
INDOOR ENVIRONMENT

ENVIRONMENTAL CONDITIONS	OPERATIONAL ENVIRONMENT LIMIT	NON-OPERATIONAL ENVIRONMENT LIMIT
High Temperature	50 °F per NWS Standard Environmental Criteria and Test Procedures, 10/84 for High Temperature (p.17, para. 3.0)	Same as Operational
Low Temperature	10 °C per NWS Standard Environmental Criteria and Test Procedures, 10/84 for Low Temperature, p.21, para. 3.0	-20 °C per NWS Standard Environmental Criteria and Test Procedures, 10/84 for Low Temperature, p.21, para. 3.0
Humidity	30 °C at 96% R.H. per NWS Standard Environmental Criteria and Test Procedures, 10/84 for Humidity, p.28, para. 3.0	Same as Operational
Altitude	To 10,000 feet per NWS Standard Environmental Criteria and Test Procedures, 10/84 for Low Pressure, p.41, para. 3.0	Same as Operational
Static Discharge	Per NWS Transient Susceptibility Standard, 6/78 for controlled environment per para. 4.4. and 4.4.2 (7000 v-Figure 6)	Same as Operational
High/Low AC Power Line Voltage Variations	115 VAC, +10%/-15% compliant; slowly or rapidly changing	115 VAC, +/-30% non-compliant; slowly or rapidly changing
High/Low AC Power Line Frequency Variations	60 Hz, +/-5.0 Hz; slowly or rapidly changing	N/A
Transportation Shock	22 inches per NWS Standard Environmental Criteria and Test Procedures, 10/84 for Transportation Shock, p.44, para. 3.0	

TABLE 2
ACCURACY & PERFORMANCE SPECIFICATIONS

Measurement Range:	-56.0 °F to +122.0 °F
Measurement Accuracy:	+/- 0.5 °F variation from a known Standard, traceable to National Institute of Standards and Technology (NIST)
Measurement Readability:	Unit can distinguish changes as small as 0.1 °F

Table 3
Resistor Values and Acceptable Temperature Range

<u>Precision Resistor Value in ohms +/- 1%</u>	<u>Acceptable Range for Temperature Displayed in °F</u>
1,240,000	-56.5 to -54.7
649,000	-39.9 to -38.5
261,000	-13.6 to -12.5
20,000	+76.5 to +77.6
14,000	+91.5 to +92.7
10,200	+105.4 to +106.8
7,500	+119.5 to +121.0

APPENDIX A

Packaging and Marking Instructions

MARKING FOR SHIPMENT

INSTRUCTIONS TO COMMERCIAL VENDORS FOR MARKING AND BAR CODING SUPPLIES FOR SHIPMENT TO THE NATIONAL LOGISTICS SUPPORT CENTER, GRANDVIEW, MISSOURI

1.0 Basic Requirements.

1.1 Product and contract/purchase order information markings shall be placed on containers for items delivered to the National Logistics Support Center (NLSC). These markings shall contain information and be placed in accordance with requirements of MIL-STD-129M, Marking for Shipment and Storage, and MIL-STD-1189B, Standard Department of Defense Bar Code Symbology, with exceptions allowed as described below, or as contained in the contract or ordering document. The cited Military Standards are available from the following source:

Defense Printing Service Detachment Office
Department of the Navy
700 Robbins Avenue
Philadelphia, PA 19111-5094.

1.2 Telephone orders for these documents may be placed at 215-697-2179. The information provided below is a synopsis of those MIL-STD requirements deemed important to logistics management requirements at the National Logistics Support Center. Note that bar code requirements are applicable unless they are specifically identified as excluded in the contract or purchase order.

2.0 General Description of Requirements.

2.1 The MIL-STDs contain requirements for content and placement of markings on containers of items delivered under contract or purchase order. These requirements include text markings of product, contract and vendor information, as well as select bar coded information.

2.2 Marking requirements differ for exterior containers and other levels of packing--unit packs, intermediate containers. An exterior container is defined as a container designed to protect unit packs and intermediate containers and their

contents during shipment and storage. It can be a unit pack or an intermediate container, or contain a combination of unit packs and intermediate containers. An exterior container may or may not be used as a shipping container. An intermediate container is defined as a wrap, box, or bundle containing unit packs of identical items. A container which meets the definition as an intermediate container, but which is used as a shipping container, shall be marked as an exterior container. Any container which includes two or more National Stock Numbers shall be marked as an exterior container.

2.3 Different purchase orders or contracts shall not be consolidated in a single container or pallet.

3.0 TEXT INFORMATION. Text information shall include product identification and contractor information. These two types of information are described separately below, for each of the possible types of containers.

3.1 Identification Markings on Unit Packs, Intermediate Containers, and Unpacked Items. In the order listed below, the following information is required unless specifically exempted in the procurement contract or order, or shown as optional:

- a. NSN (National Stock Number). NSN to include spaces or dashes and any prefix or suffix shown in the contract or requisition;
- b. CAGE code and part number (PN). The letters "CAGE" and either "PN" or "P/N" shall be used to identify this information. The PN specified in the contract (if any) shall be used; if none is specified, the PN of the actual manufacturer or the PN assigned by the company awarded the contract. No PN is required if none is assigned to the item;
- c. Item Description or nomenclature. A short description of the product identified by the NSN. If specified in the contract or procurement document, the Agency Stock Number shall be shown on the next line(s), for example:

ASN: F100-3A3A1

- d. Quantity (QTY) and Unit of Issue (UI). The quantity

is the number of units of issue in the marked unit pack or intermediate container. The unit of issue is the standard or basic quantity indicated in the procurement contract or order as the minimum quantity issued, e.g., quart, liter, dozen, foot, meter, each, gross, etc. A nondefinitive UI shall be accompanied by a quantitative expression:

1 ROLL (100 FT)

- e. Contract number or Purchase Order number, and line item number;
- f. Shelf-life Markings. When shelf-life markings are specified in the contract, purchase order, purchase description, specifications, material standards, and other procurement documents, they shall include the shelf life expiration date, and be shown below the product description information on unit packs, intermediate containers, and unpacked items;
- g. Hazardous Material Identification. This information shall be included in accordance with MIL-STD-129M, and standards referenced therein. A Material Safety Data Sheet (MSDS) shall be included with each shipment; and
- h. Serial Number. An item assigned a serial number shall have that number applied to the unit pack and to the intermediate container preceded by the abbreviation "SER NO". The serial number data shall be shown directly below the product identification markings. When unit packs bearing consecutive serial numbers are packed in an intermediate container, only the first and last numbers in the series shall be shown. When not in sequence, each number shall be listed on the container. When there is inadequate space on the container for the marking of multiple serial numbers, a list of serial numbers shall be included. One copy of the serial number list shall be placed inside the container and one copy shall be placed in the packing list envelope. The identification-marked side of the container shall be marked "SERIAL NUMBER LIST INSIDE".

Figure 1 illustrates the content and placement of product identification markings on unit pack and intermediate containers.

3.2 Identification and Contract Markings on Exterior Containers. When necessary, due to a number of varying NSN's being shipped on the same contract at the same time, an exterior container may be required to consolidate several different unit packs and/or intermediate containers. In addition, an intermediate container may be utilized as a shipping container, and shall be marked as an exterior container. The following identification and contract information shall be marked on exterior containers in the order listed.

3.2.1 Exterior Containers Containing a Quantity of a Single NSN. If the exterior container contains one or more unit packs or one or more intermediate packs of the same NSN, the exterior container shall be marked with the following product description and contract information:

Identification Information: The following information is required:

- a. National Stock Number (NSN). Provide NSNs in the manner described in 3.1 above;
- b. CAGE code and PN. Provide in the manner described in 3.1 above;
- c. Item description or nomenclature. If specified in the contract or procurement document, the Agency Stock Number shall be shown on the next line, for example:

ASN: F100-3A3A1
- d. Quantity and UI. Provide as described in 3.1. The quantity should reflect the total number of units of issue packed in the exterior container;
- e. Gross weight and cube. The capital letters "WT" and "CU" shall precede the gross weight and cube numerals. If no units of measure of weight or cube are shown, it will be assumed that the values are expressed in pounds and cubic feet. The gross weight shall be expressed in pounds, rounded up to the nearest pound. The cube shall be calculated from the overall length, width, and

height dimensions of the exterior shipping container. Irregular, cylindrical, or round items shall be considered to be rectangular solids. The cube shall be expressed in cubic feet, expressed in decimals rounded up to the nearest tenth of a cubic foot. If metric units are used to show weight or cube, the units must be included after the value, for example, WT 5.2 KG CU 3.4 LITER;

- f. Shelf-Life Markings. When shelf-life markings are specified in the contract, purchase order, purchase description, specifications, material standards, and other procurement documents, they shall include the shelf life expiration date, and be shown below the product description information on exterior containers. NOTE: Any inspection/test date and other shelf-life markings, when required, shall be applied below the identification markings and as specified in MIL-STD-129M;
- g. Hazardous Material Markings. All required hazardous material markings shall be shown on the exterior container. For information on the additional marking and labeling requirements for hazardous materials, see MIL-STD-129M and other standards referenced therein; and
- h. Serial Number. Items assigned a serial number shall have that number applied, either in text format or bar coded, to the exterior container, preceded by the abbreviation "SER NO". The numbers shall be shown directly below the above product identification markings. When unit packs bearing consecutive serial numbers are packed in an exterior container, only the first and last numbers in the series shall be shown. When not in sequence, each number shall be listed on the container. When there is inadequate space on the container for the marking of multiple serial numbers, a list of serial numbers shall be included with the shipment. One copy of the serial number list shall be placed inside the container and one copy shall be placed in the packing list envelope. The identification-marked side of the container shall be marked "SERIAL

NUMBER LIST INSIDE".

Contract Information: The following information is required:

- a. Contract or purchase order number, and line item number. Where applicable, also include delivery order number, modification number, or lot number; and
- b. Name and address of the Contractor (including nine-digit zip code). The street address is optional. When supplies are shipped from a subcontractor, only the name and address of the company awarded the contract shall be used.

Figure 2 illustrates the content and placement of identification and contract markings on exterior containers which contain a quantity of a single NSN.

3.2.2 Exterior Containers of multiple NSN's. When containers of items include more than a single NSN, the container shall be marked with the following information, in the order listed, as shown on the next page:

Identification Information: The following information is required:

- a. Multipack. Include on the first line the word "MULTIPACK". If the contained items are in support of a system identified in the order or contract, the system shall be identified on this line, e.g., "MULTIPACK FOR NEXRAD SYSTEM";
- b. Gross weight and cube;
- c. Shelf-Life Markings. In addition to any shelf-life markings, the words "CONTAINS SHELF-LIFE ITEMS" shall be placed on the next line(s);
- d. Warranty information. The words "WARRANTED ITEMS INSIDE" shall be placed on the next line if contained items are covered by a warranty;

e. Hazardous Material Identification. These markings, as specified in MIL-STD-129M and references contained therein, shall be placed on multi-pack containers;

f. Other special markings. Caution markings shall be applied as required (e.g., FRAGILE, arrows, hazardous warning labels, electrostatic discharge sensitive devices, etc.); and

g. Serial Numbers. Items assigned a serial number shall have that number applied to the exterior container, preceded by the abbreviation "SER NO". The numbers shall be shown directly below the product identification markings listed in the previous paragraphs. When unit packs bearing consecutive serial numbers are packed in an exterior container, only the first and last numbers in the series shall be shown. When not in sequence, each number shall be listed on the container. When there is inadequate space on the container for the marking of multiple serial numbers, a list of serial numbers shall be included with the shipment. One copy of the serial number list shall be placed inside the container and one copy shall be placed in the packing list envelope. The identification-marked side of the container shall be marked "SERIAL NUMBER LIST INSIDE".

Contract Information: The following information is required:

a. Contract or purchase order number, and line item number. Where applicable, also include delivery order number, modification number, or lot number; and

b. Name and address of the Contractor (including nine-digit zip code). The street address is optional. When supplies are shipped from a subcontractor, only the name and address of the company awarded the contract shall be used.

4.0 SHIPPING LABEL MARKINGS.

4.1 Shipping address markings or shipping labels shall be in accordance with accepted carrier practices and DOT regulations, or as otherwise prescribed in the contract or order. Address marking requirements of MIL-STD-129M are NOT included as part of requirements for shipment to NLSC, except that the Standard shall serve as guidance for placement of shipping labels on containers.

4.2 When multiple shipping containers are included in a shipment, the markings on each container shall include the serialized container number and the total number of containers in the shipment, e.g., 1 of 5.

4.3 All shipments to the National Logistics Support Center shall be made to the following address:

DOC/NOAA
National Logistics Support Center
14200 Merritt Road
Grandview, MO 64030
(816) 926-7994

5.0 BAR CODE MARKINGS. Unless otherwise specified in the contract or order, bar code markings are required on all containers and loose or unpacked items. Bar codes are to be of Code 3 of 9 symbology, generally of medium density (3.0 to 9.4 Characters Per Inch). The extended 3 of 9 character set is NOT to be utilized. All bar codes and the human readable interpretation (HRI) shall meet the specifications contained in MIL-STD-1189B, Standard Department of Defense Bar Code Symbology. The HRI shall be an exact interpretation of the bar code data and shall not contain spaces or dashes or start/stop characters. The preferred location for the HRI is below the bar code markings, while the optional location is above the bar code markings.

5.1 Unit Packs and Intermediate Containers.

5.1.1 Unit packs and intermediate containers shall contain a bar code of the National Stock Number (NSN). This bar code shall consist of the basic 13 data characters. Prefixes and suffixes to the stock number, as well as spaces and dashes, shall not be bar coded. The HRI shall include only the 13 basic data characters. Dashes, spaces or start/stop characters shall

not be shown in the HRI.

5.1.2 When a requirement for bar coded serial numbers is specified in the procurement contract or order, an item assigned a serial number shall have the bar coded serial number applied to the unit pack and to the intermediate container. The bar codes shall be located directly below the product identification markings preceded by the abbreviation "SER NO". The letters "SER NO" shall not be bar coded. When more than five serial-numbered items are in an intermediate container, two serial number lists shall be provided. One list, which is to be placed inside the container, shall contain a bar code for each serialized item. The second list shall be placed in the packing list envelope; bar coding of the second serial number list is optional. The words "SERIAL NUMBER LIST INSIDE" shall be marked on the product identification-marked side of the container.

Figure 3 illustrates the marking placement and bar code requirements for unit packs and intermediate containers.

5.2 External Containers.

5.2.1 Information to be bar coded on exterior containers which contain a single NSN shall include:

- a. National Stock Number (NSN). The NSN shall be bar coded as specified above;
- b. Contract/Delivery Order or Purchase Order number. The bar coded contract/delivery order or order number shall consist of up to 15 characters, as prescribed in the contract or order;
- c. Commercial and Government Entity (CAGE) code of the company awarded the contract. The CAGE code shall consist of 5 characters; and
- d. Contract Line Item Number (CLIN). When used, the CLIN shall consist of 6 characters, including zero fillers placed to the left of the number (e.g., 0001AB).

NOTE: For exterior containers containing more than a single NSN, such as multipacks, bar code markings on the exterior container shall be limited to the contract or order number. However, unit packs and intermediate containers which are included in the

exterior container shall be bar coded as described in 5.1.

5.2.2 HRI information shall be preferably shown under the bar code, and shall include only the bar coded data characters; start/stop characters shall not be shown.

5.2.3 In addition, when a requirement for bar coded serial numbers is specified in the procurement contract or order, all items assigned a serial number shall have the bar coded serial number applied to the exterior container. The bar codes shall be located directly below the product identification markings and be preceded by the abbreviation "SER NO"; the letters "SER NO" shall not be bar coded. When more than five serial-numbered items are contained in an exterior container, two serial number lists shall be provided. The first list, which is to be placed inside the container, shall contain a bar code for each serialized item. The second list shall be placed in the packing list envelope; bar coding of the second serial number list is optional. The words "SERIAL NUMBER LIST INSIDE" shall marked on the product identification-marked side of the container.

Figure 4 illustrates the placement of markings and bar code requirements for external containers.

Figure 5 illustrates the layout format acceptable for bar code markings on exterior containers.

6.0 MARKINGS AND MARKING MATERIALS.

6.1 Markings shall be by stenciling, stamping, machine printing, or labeling (using preprinted labels). In addition, hand printing may be used on packs and containers for marking any of the following: serial numbers, quantity per pack, date of pack, total pieces, and weight and cube. Hand printing must be clear and legible. Abbreviations associated with these markings, such as "SER NO", "WT", and "CU", may also be hand printed.

6.2 The lettering for all markings on all sizes of containers shall be in capital letters of equal height, shall be clearly legible, and shall be proportionate to the available marking space on the container. When marking space permits, stenciled or pre-printed markings shall be not less than one-fourth of an inch nor more than 1 inch in height. Unless otherwise specified in the procurement or contract document, identification,

contract data, and address markings shall be not less than .095 inch.

6.3 If labels for exterior containers are not inherently waterproof, they shall be waterproofed by coating the entire outer surface of the label with a transparent, waterproofing material, such as spar varnish, acrylic coating compound, or other protective coating. Transparent tape may also be applied over markings to provide waterproof protection; however, readability of bar codes must be assured for this type of waterproof protection.

6.4 Paper labels shall be made of sized white paper stock having a smooth finish and a minimum basis weight of 20 pounds. Labels shall be of a water-resistant grade of paper, film, fabric, or plastic and shall be coated on the unprinted side with a water-insoluble, homogeneous, pressure-sensitive, permanent type adhesive. The adhesive shall adhere to metal, plastic, or fiberboard surfaces under high and low temperatures associated with expected shipping and warehousing conditions. Labels shall have a finish capable of withstanding normal handling during shipment and storage and shall be suitable for printing and writing on with ink without feathering or spreading. The applied label must remain securely in position under anticipated conditions of handling, shipment and storage.

7.0 PACKING SLIP DOCUMENTATION.

7.1 Each stand alone container (defined as the outermost container of a shipment) shall be individually marked with a packing slip. Additionally, all stand alone packages shall contain an internal packing slip to insure proper documentation in the event of loss of the external packing slip. Each packing slip shall be marked within the following information:

- a. National Stock Number;
- b. CAGE code and PN;
- c. Item Description or Nomenclature;
- d. Agency Stock Number, if identified in the contract or order;
- e. Quantity in the container and Unit of Issue;
- f. Contract or Purchase Order Number and Line Item Number. (Where applicable, include delivery order number.);
- g. Shelf-Life Expiration Date;
- h. Hazardous Material Identification;

- i. Serial Number(s), if warranty tracking or specialized control of stock is required; and
- j. Container number and total number of containers included in the shipment (e.g., 1 of 5).

7.2 If desired, the contract or purchase order number and CAGE code may be marked in the heading of the packing slip in order to avoid repetition.

7.3 The packing slip shall be securely attached to the end or side of the container, and sealed in a waterproof container conforming to MIL-PPP-E540, Class 1. They shall be secured to the exterior of the palletized load or containers in the most protected location with tape, or pressure sensitive adhesive backing applied to containers other than wood. On wood containers, tacks or staples shall be used.

8.0 Pallet Requirements. Shipments shall be palletized to the maximum extent practical. When a shipment is palletized, the pallet size must be 44 inches by 44 inches. The maximum stacking height shall not exceed 48 inches. The shipment shall be palletized in numerical container order, shrink-wrapped and double strapped with metal or nylon straps across both directions.

EXTERIOR CONTAINER

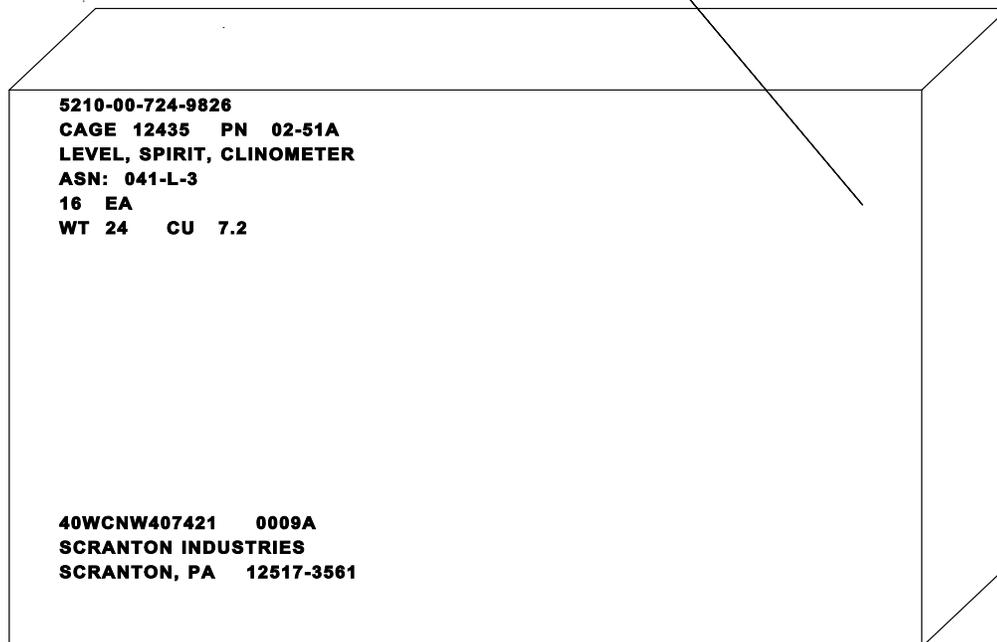


Figure Typical exterior container text markings.

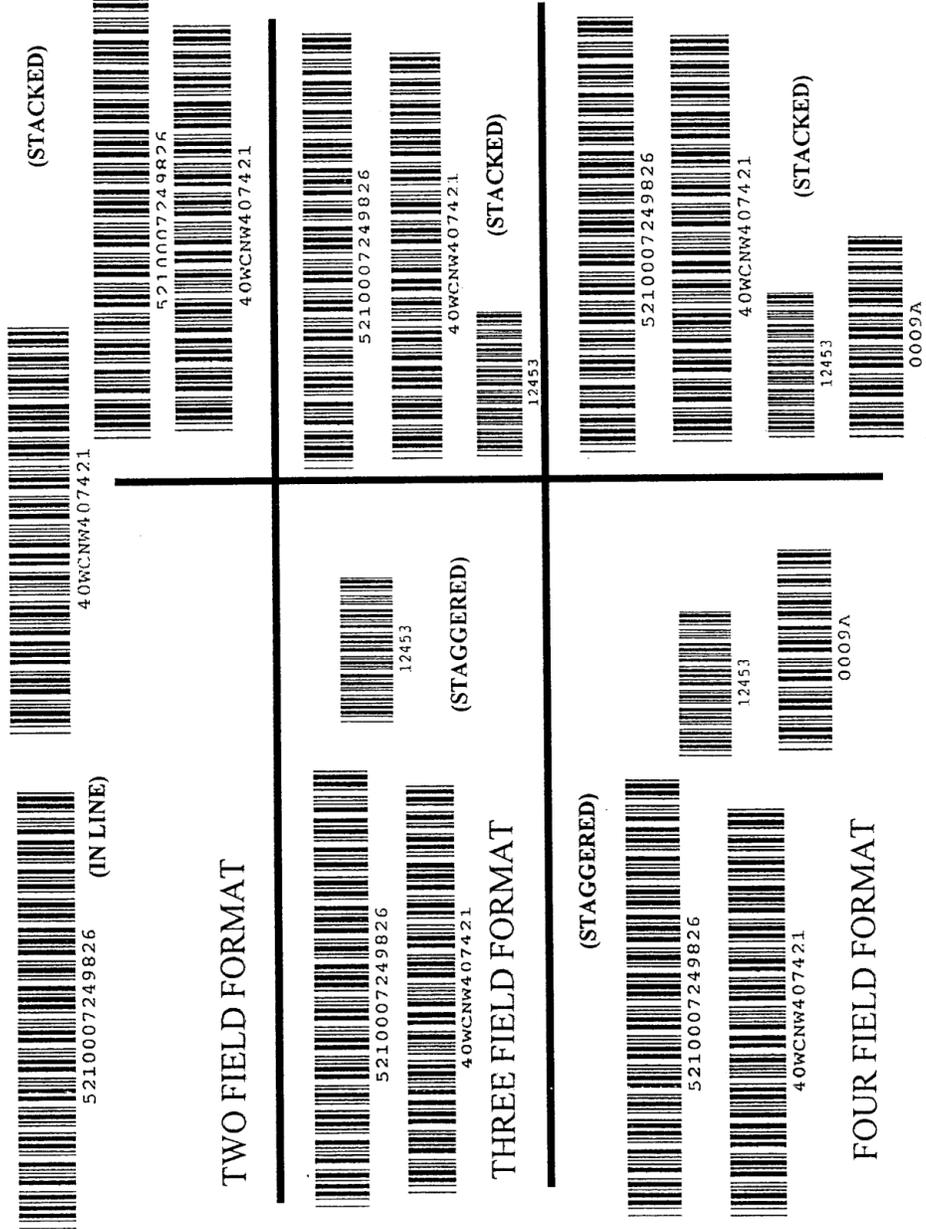


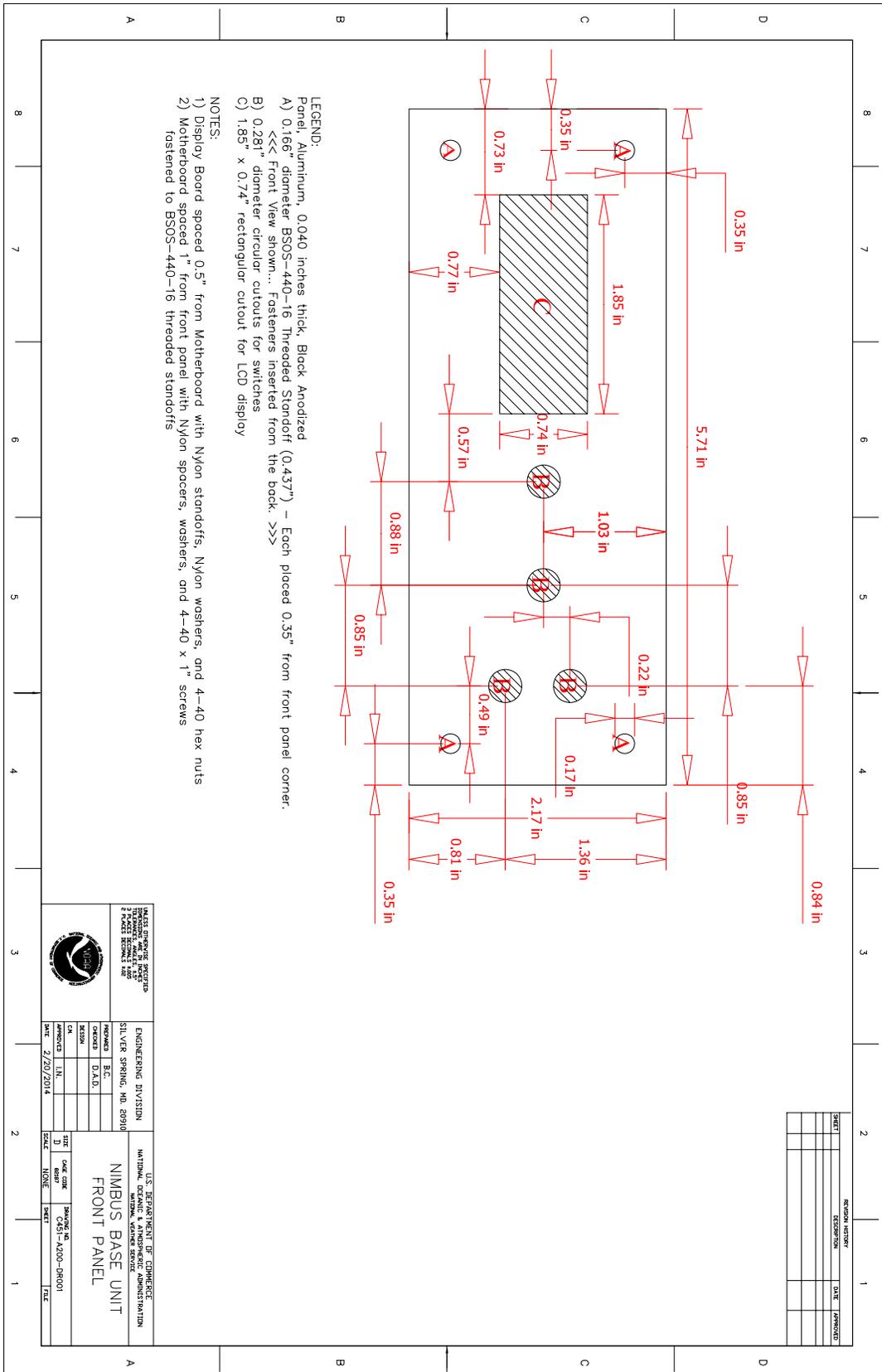
Figure 5. Acceptable bar code layout formats for exterior containers.

NOAA Solicitation No.

Specification No. C451-SP001
March 20, 2019

NOAA Solicitation No.

Specification No. C451-SP001
March 20, 2019

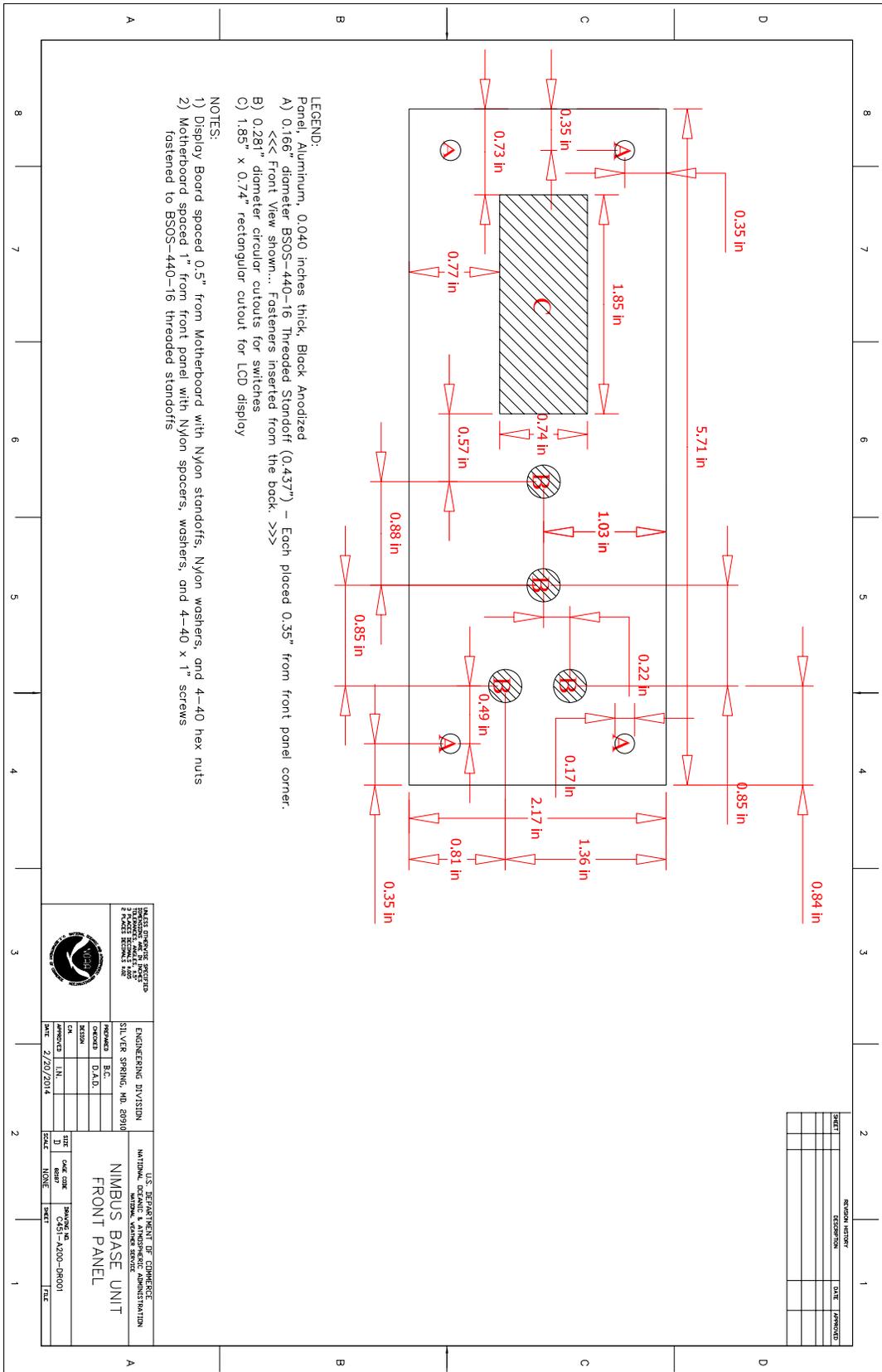


LEGEND:
 Panel: Aluminum, 0.040 inches thick, Black Anodized
 A) 0.166" diameter BSOS-440-16 Threaded Standoff (0.437") - Each placed 0.35" from front panel corner.
 <<< Front View shown... Fasteners inserted from the back. >>>
 B) 0.281" diameter circular cutouts for switches
 C) 1.85" x 0.74" rectangular cutout for LCD display

NOTES:
 1) Display Board spaced 0.5" from Motherboard with Nylon standoffs, Nylon washers, and 4-40 hex nuts
 2) Motherboard spaced 1" from front panel with Nylon spacers, washers, and 4-40 x 1" screws fastened to BSOS-440-16 threaded standoffs

REVISION HISTORY	
NO.	DATE

	VITA VEHICLE INTEGRATED TECHNOLOGIES 2700 S. RAYBURN AVENUE SUITE 100 DENVER, CO 80231	ENGINEERING DIVISION SILVER SPRING, MD 20910	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION METRO, VEHICLE SERVICE
	PROJECT NO. 1305M223QNWVG0039 SHEET NO. 1 DATE: 2/20/2014	DESIGNED BY: B.C. CHECKED BY: D.A.L. DRAWN BY: J.L.N. DATE: 2/20/2014	TITLE: NIMBUS BASE UNIT FRONT PANEL SHEET NO. 1 PROJECT NO. 1305M223QNWVG0039

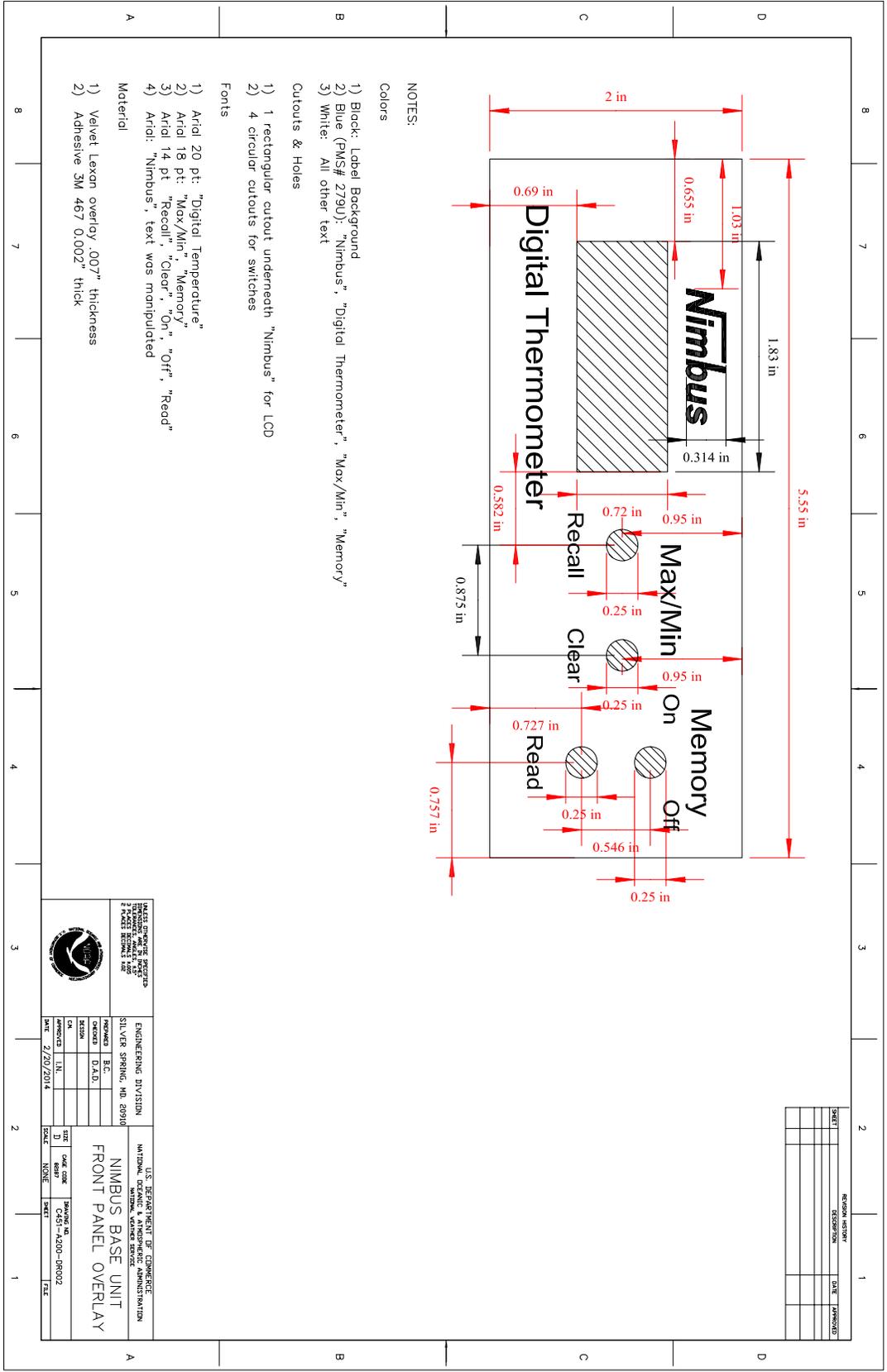


LEGEND:
 Panel: Aluminum, 0.040 inches thick, Black Anodized
 A) 0.166" diameter BSOS-440-16 Threaded Standoff (0.437") - Each placed 0.35" from front panel corner.
 <<< Front View shown... Fasteners inserted from the back. >>>
 B) 0.281" diameter circular cutouts for switches
 C) 1.85" x 0.74" rectangular cutout for LCD display

NOTES:
 1) Display Board spaced 0.5" from Motherboard with Nylon standoffs, Nylon washers, and 4-40 hex nuts
 2) Motherboard spaced 1" from front panel with Nylon spacers, washers, and 4-40 x 1" screws

		VITA VIRTUAL INTEGRATED TECHNOLOGIES 2700 WEST BROADWAY, SUITE 100 DENVER, CO 80202-3178	
ENGINEERING DIVISION SILVER SPRING, MD 20910		U.S. DEPARTMENT OF COMMERCE NATIONAL BUREAU OF STANDARDS METROLOGICAL SERVICES	
DESIGNED BY CHECKED BY DATE: 2/20/2014	DRAWN BY DATE:	SIZE SCALE SHEET NO. 1 SHEET TOTAL 1	PROJECT NO. A200-09001 TITLE NIMBUS BASE UNIT FRONT PANEL

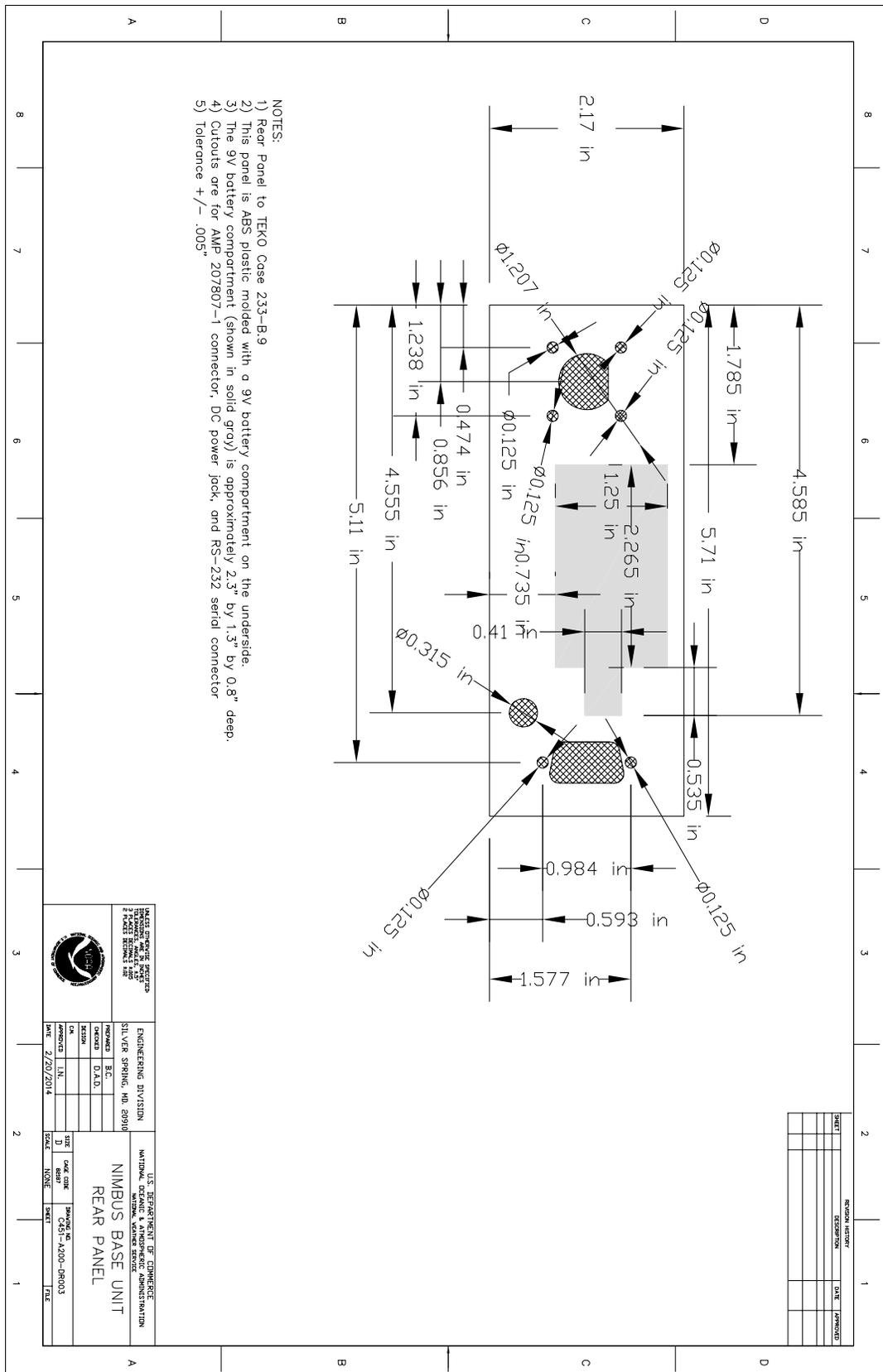
REVISION HISTORY		DATE	APPROVED
SHEET	DESCRIPTION		



- NOTES:**
- Colors**
- 1) Black: Label Background
 - 2) Blue (PMS# 279U): "Nimbus", "Digital Thermometer", "Max/Min", "Memory"
 - 3) White: All other text
- Cutouts & Holes**
- 1) 1 rectangular cutout underneath "Nimbus" for LCD
 - 2) 4 circular cutouts for switches
- Fonts**
- 1) Arial 20 pt: "Digital Temperature"
 - 2) Arial 18 pt: "Max/Min", "Memory"
 - 3) Arial 14 pt: "Recall", "Clear", "On", "Off", "Read"
 - 4) Arial: "Nimbus", text was manipulated
- Material**
- 1) Velvet Lexan overlay .007" thickness
 - 2) Adhesive 3M 467 0.002" thick

		NIMBUS ENGINEERING INC. 2700 WEST 10TH AVENUE DENVER, CO 80202-1100 303.733.8800	
ENGINEERING DIVISION SILVER SPRING, MO 63910	APPROVED: B.C. CHECKED: D.A.L. DESIGNED: J.L.N. DATE: 2/20/2014	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION METEOROLOGICAL SERVICE	
NIMBUS BASE UNIT FRONT PANEL OVERLAY		SHEET NO. 1 OF 1	PROJECT NO. 2010-DR002 DATE

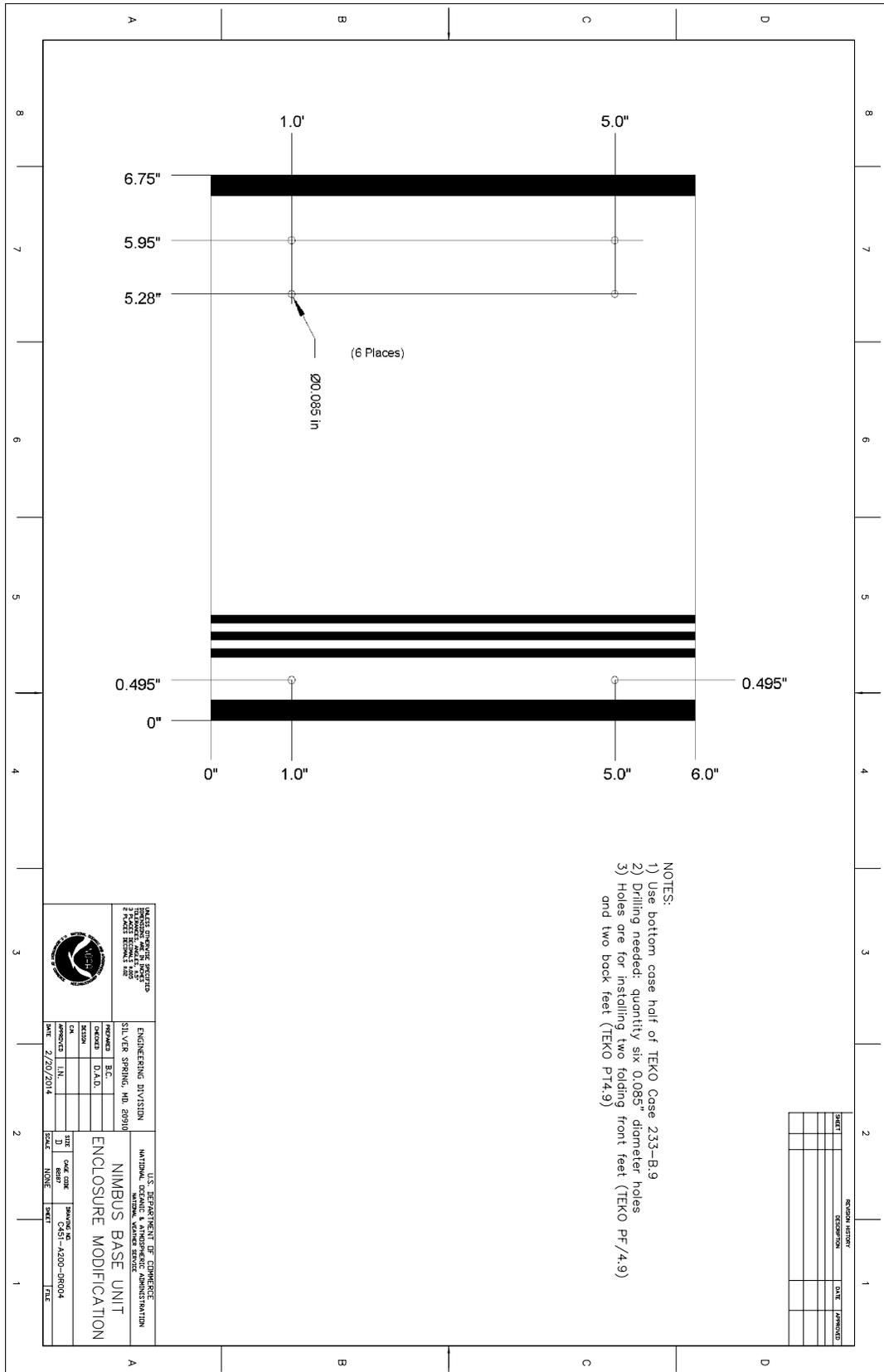
REVISION HISTORY	
NO.	DATE



- NOTES:
- 1) Rear Panel to TEKO Case 233-B9
 - 2) This panel is ABS plastic molded with a 9V battery compartment on the underside.
 - 3) The 9V battery compartment (shown in solid gray) is approximately 2.3" by 1.3" by 0.8" deep.
 - 4) Cutouts are for AMP 207807-1 connector, DC power jack, and RS-232 serial connector
 - 5) Tolerance +/- .005

REVISION HISTORY	
NO.	DATE

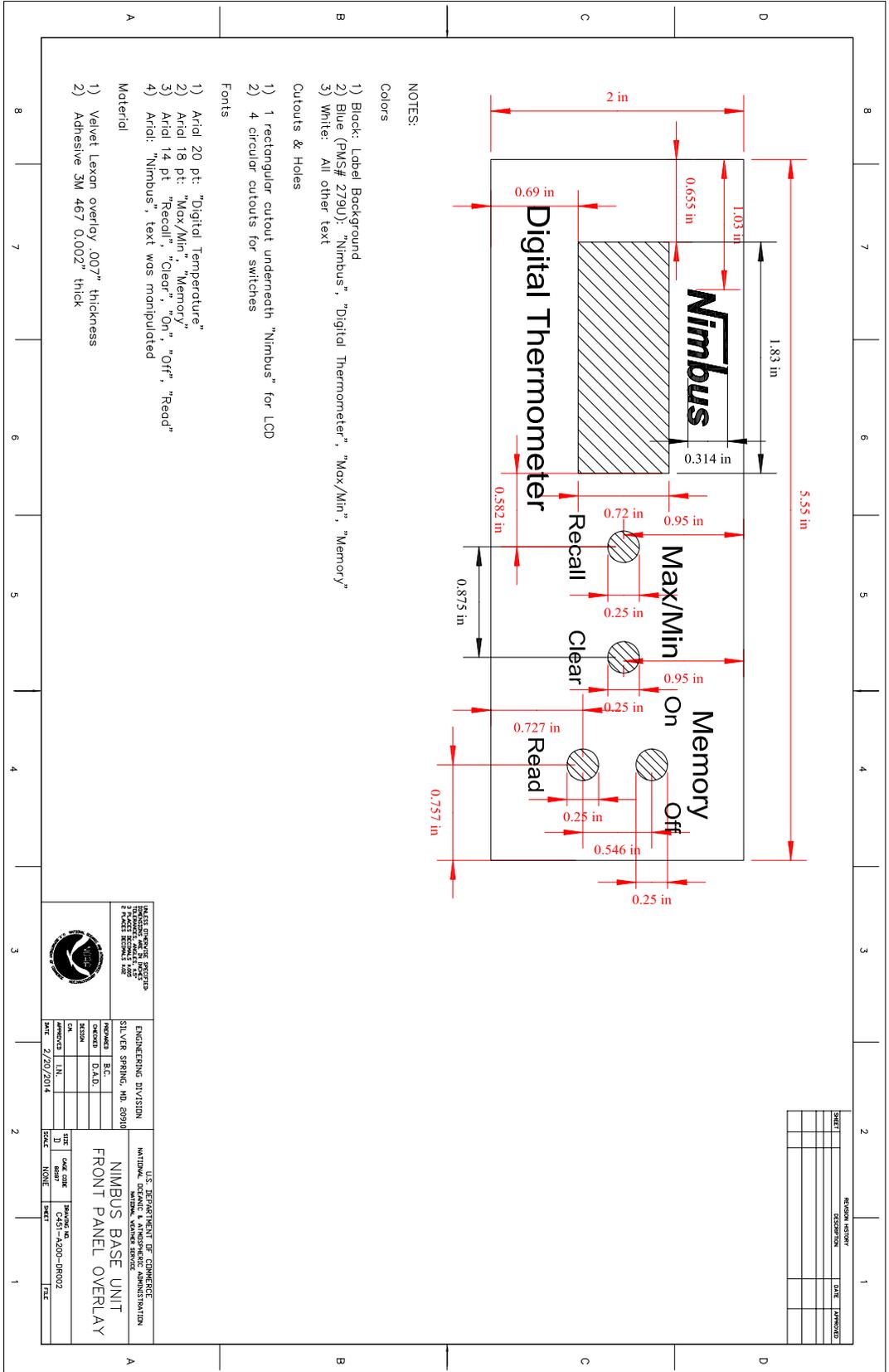
		UNITED STATES GOVERNMENT NATIONAL BUREAU OF STANDARDS 4300 RESISTANCE DRIVE GAITHERSBURG, MD 20884-8591	
ENGINEERING DIVISION SILVER SPRING, MD 20910		U.S. DEPARTMENT OF COMMERCE NATIONAL BUREAU OF STANDARDS METROLOGICAL ADMINISTRATION 10300 LITTLE PATENT PIKE GAITHERSBURG, MD 20884-8591	
APPROVED B.C.	CHECKED D.A.L.	SIZE 1/8"	SHEET NO. 1
DATE 2/20/2014	DRAWN I.L.N.	SCALE NONE	SHEET NO. 1



- NOTES:
- 1) Use bottom case half of TEKO Case 233-B-9
 - 2) Drilling needed: quantity six 0.085" diameter holes
 - 3) Holes are for installing two folding front feet (TEKO PF/4.9) and two back feet (TEKO PT4.9)

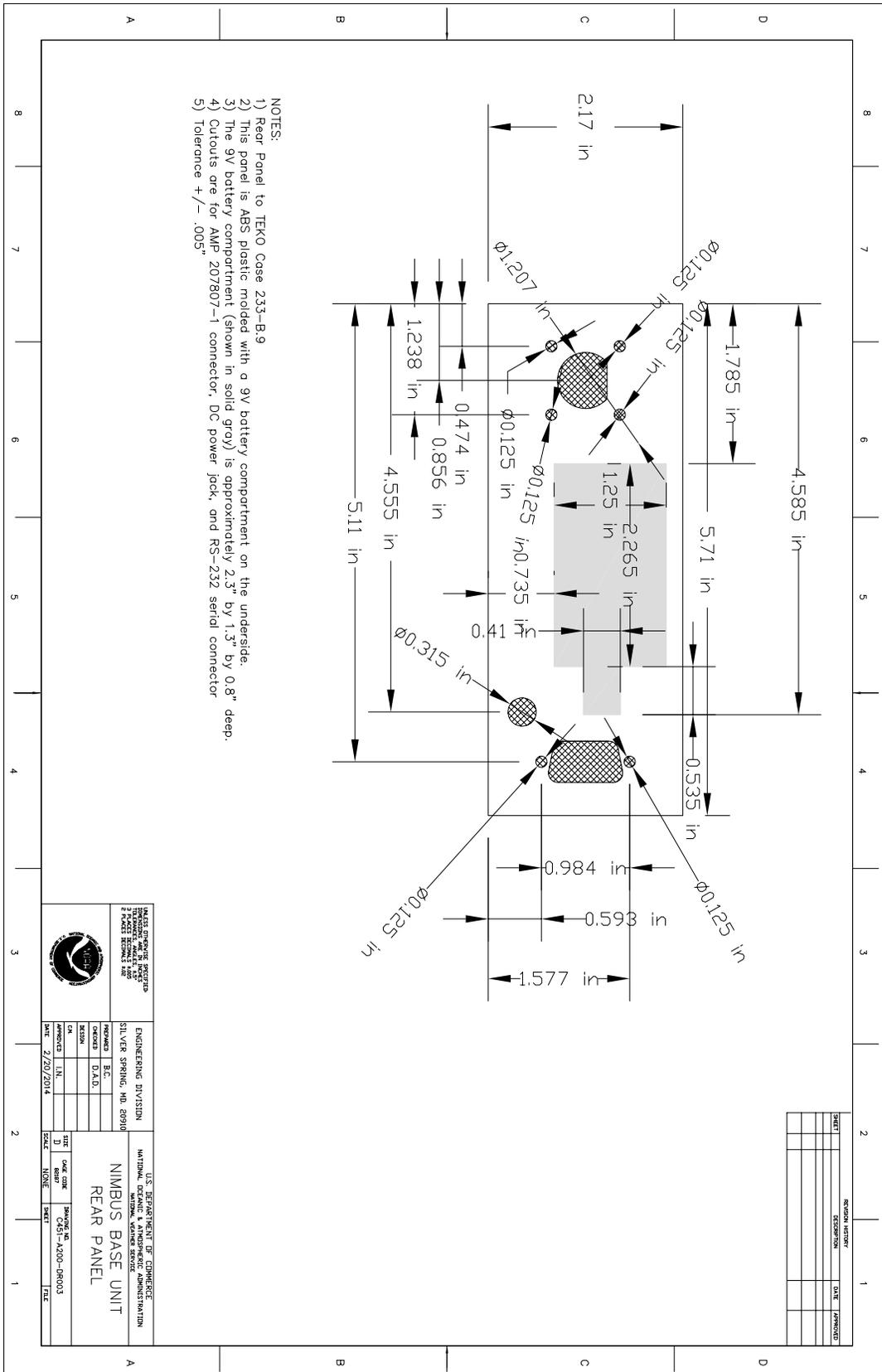
REVISION HISTORY		DATE	APPROVED
NO.	DESCRIPTION		

		UNITED STATES GOVERNMENT NATIONAL DEFENSE SCIENCE & ENGINEERING 2700 BROADWAY, 10TH FLOOR WASHINGTON, D.C. 20304-6145	
ENGINEERING DIVISION SILVER SPRING, MD. 20910		U.S. DEPARTMENT OF COMMERCE NATIONAL DEFENSE & AERONAUTICS ADMINISTRATION NATIONAL DEFENSE SCIENCE & ENGINEERING	
APPROVED BY: _____ CHECKED BY: _____ DESIGNER: _____ DATE: 2/20/2014	DRAWN BY: _____ DATE: _____	NIMBUS BASE UNIT ENCLOSURE MODIFICATION	
SIZE: _____ SCALE: _____		DRAWING NO.: _____ PART NO.: _____	



- NOTES:
- Colors
- 1) Black: Label Background
 - 2) Blue (PMS# 279U): "Nimbus", "Digital Thermometer", "Max/Min", "Memory"
 - 3) White: All other text
- Cutouts & Holes
- 1) 1 rectangular cutout underneath "Nimbus" for LCD
 - 2) 4 circular cutouts for switches
- Fonts
- 1) Arial 20 pt: "Digital Temperature"
 - 2) Arial 18 pt: "Max/Min", "Memory"
 - 3) Arial 14 pt: "Recall", "Clear", "On", "Off", "Read"
 - 4) Arial: "Nimbus", text was manipulated
- Material
- 1) Velvet Lexan overlay .007" thickness
 - 2) Adhesive 3M 467 0.002" thick

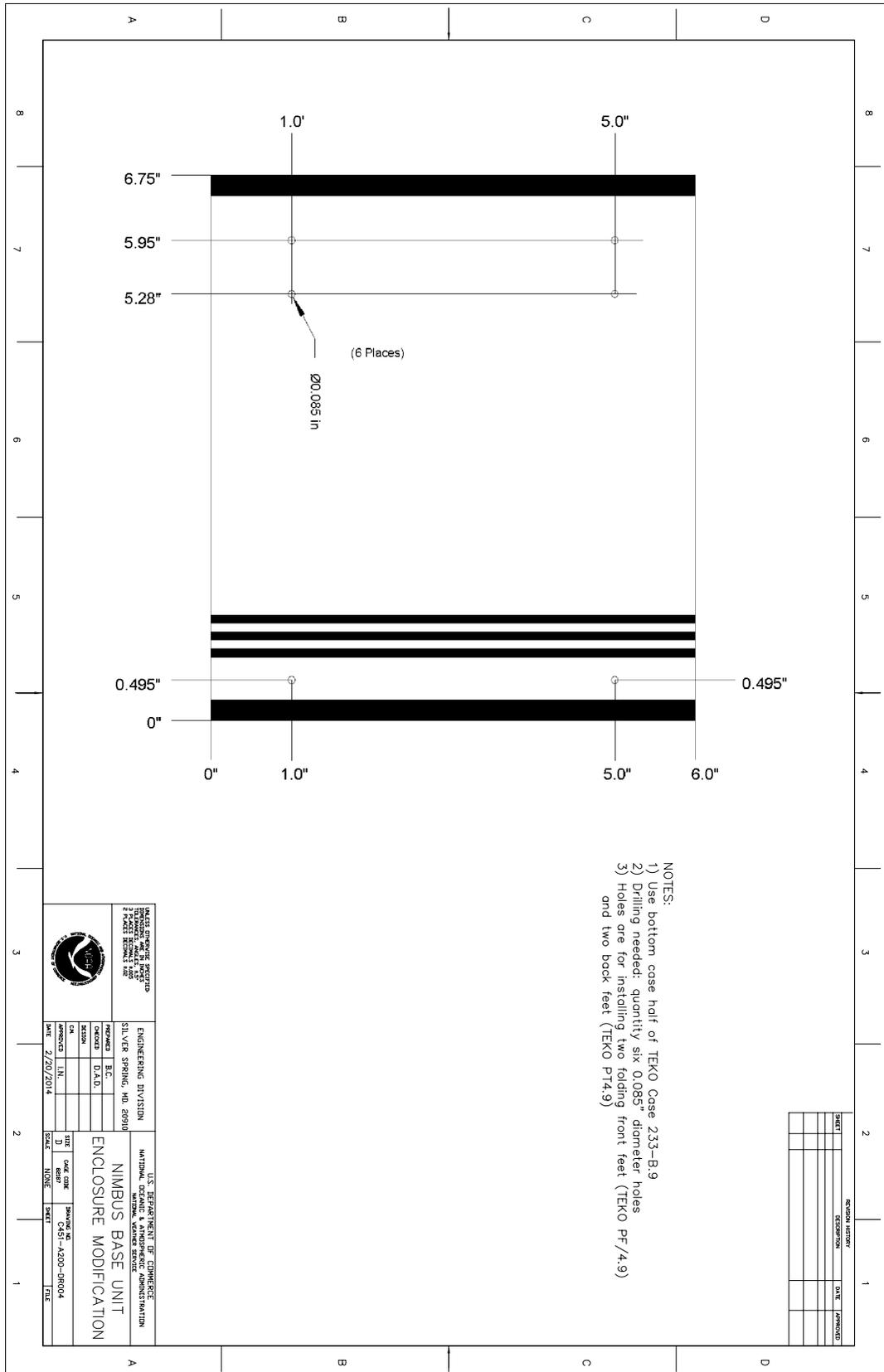
		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION SILVER SPRING, MD 20910	
PROJECT NO. 279014 DRAWING NO. 279014-001 DATE 2/20/2014	ENGINEERING DIVISION DESIGNED BY B.C. CHECKED BY D.A.L. APPROVED BY L.N.	DRAWING NO. 279014-001 DATE 2/20/2014	PROJECT NO. 279014 DRAWING NO. 279014-001 DATE 2/20/2014



- NOTES:
- 1) Rear Panel to TEKO Case 233-B9
 - 2) This panel is ABS plastic molded with a 9V battery compartment on the underside.
 - 3) The 9V battery compartment (shown in solid gray) is approximately 2.3" by 1.3" by 0.8" deep.
 - 4) Cutouts are for AMP 207807-1 connector, DC power jack, and RS-232 serial connector
 - 5) Tolerance +/- .005

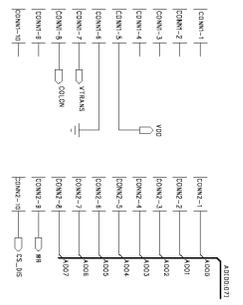
REVISION HISTORY	
NO.	DATE

	MANUFACTURED BY SILVER SPRING, MD 20910	U.S. DEPARTMENT OF COMMERCE NATIONAL BUREAU OF STANDARDS NATIONAL DETAIL & ANNOTATED ADMINISTRATION WASHINGTON, DC 20540
	ENGINEERING DIVISION APPROVED BY: [Signature]	CHECKED BY: [Signature]
NIMBUS BASE UNIT REAR PANEL		
SIZE: [Blank] SCALE: [Blank]	SHEET NO: [Blank]	TOTAL SHEETS: [Blank]

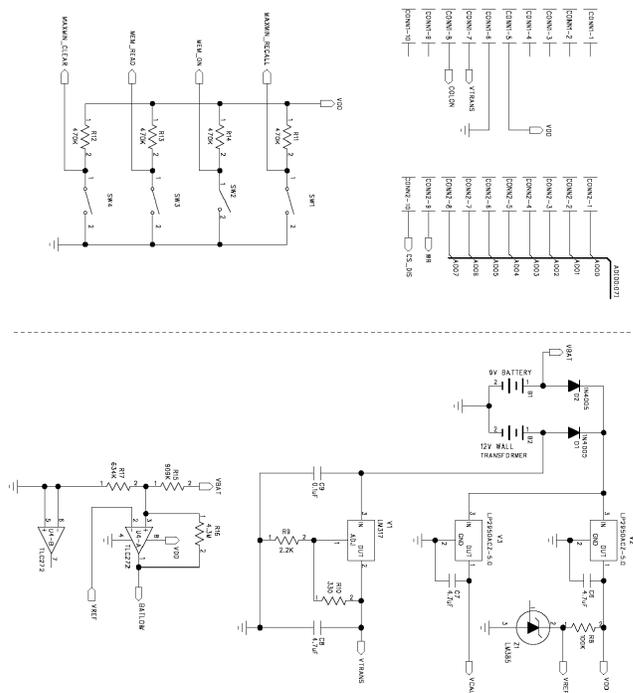


REVISION HISTORY		DATE	APPROVED
SHEET	1		

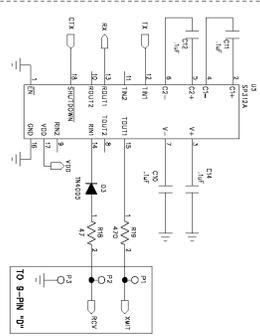
SWITCHES & CONNECTORS



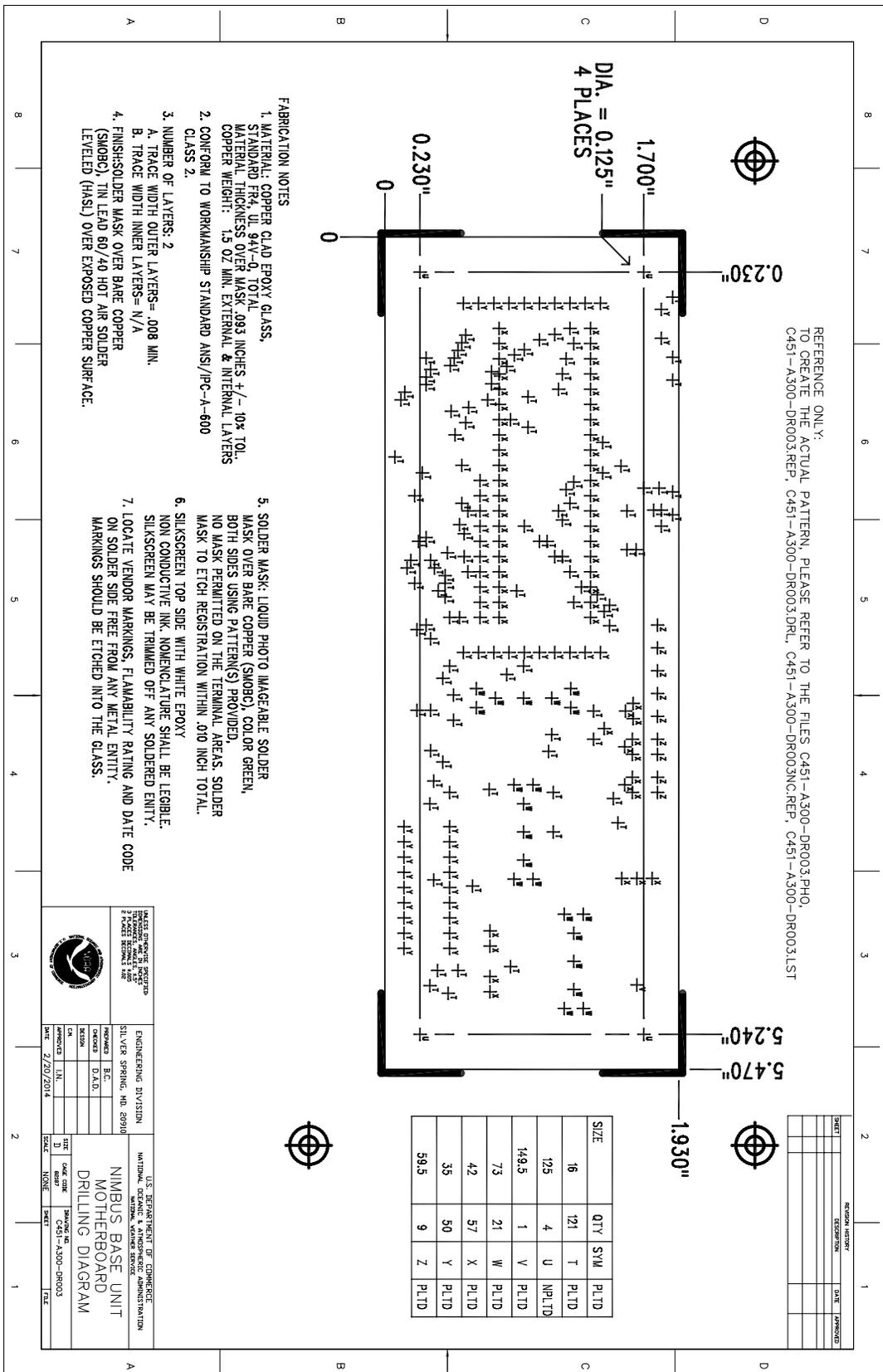
POWER



RS232



		UNITED STATES GOVERNMENT NATIONAL BUREAU OF STANDARDS 4300 RESISTANCE DRIVE GAITHERSBURG, MD 20878-1205 301-975-3000	
ENGINEERING DIVISION SILVER SPRING, MD 20910		U.S. DEPARTMENT OF COMMERCE NATIONAL BUREAU OF STANDARDS NATIONAL METROLOGICAL ADMINISTRATION MONTPELIER, VERMONT 05603	
APPROVED B.C.	CHECKED D.A.L.	DRAWN I.L.N.	DATE 2/20/2014
NIMBUS BASE UNIT MOTHERBOARD SCHEMATIC		SIZE 1/8"	SHEET NO. 1 OF 2
U.S. GOVERNMENT PRINTING OFFICE: 2010 O 300-0902		SCALE NONE	FILE

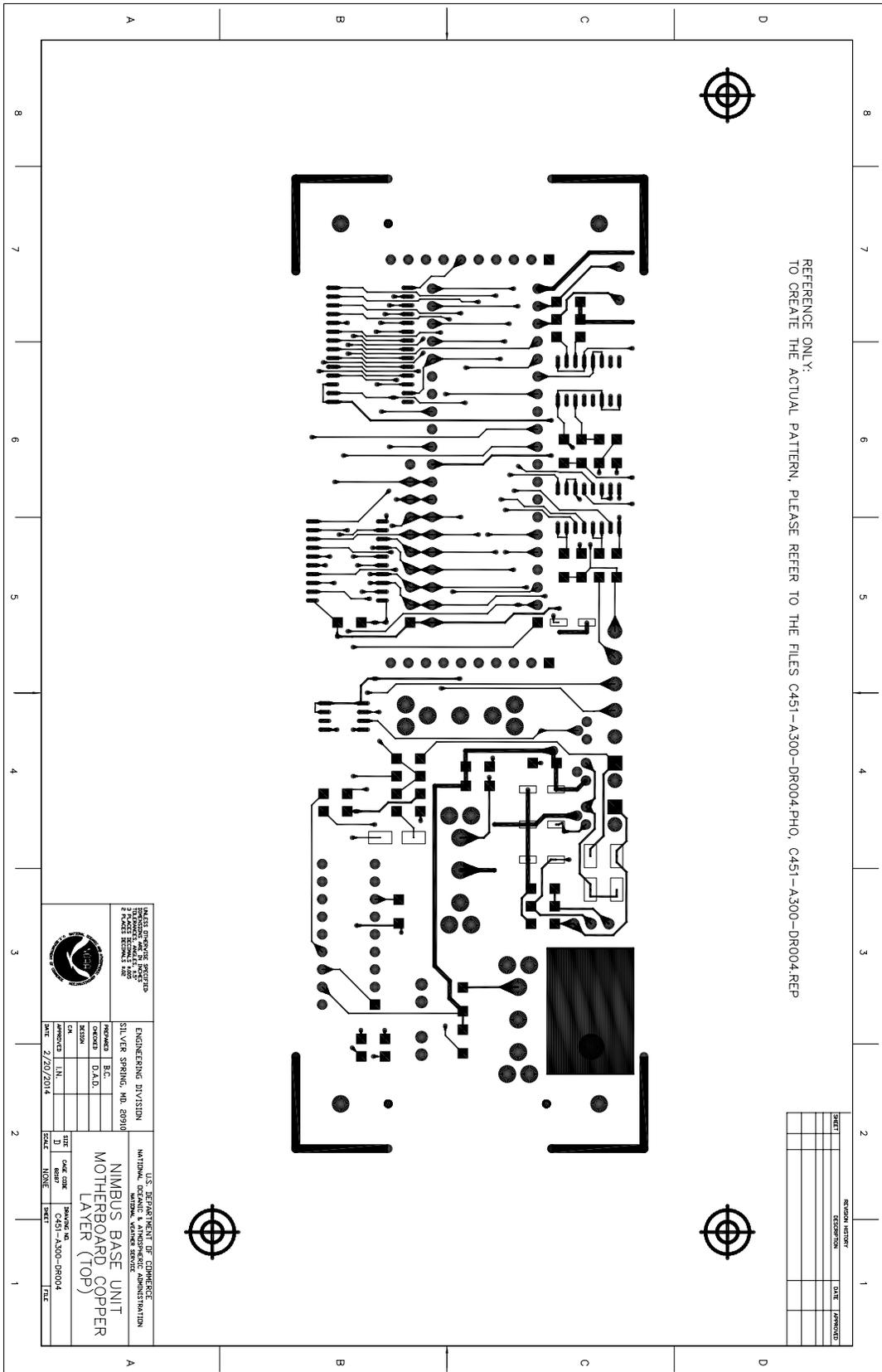


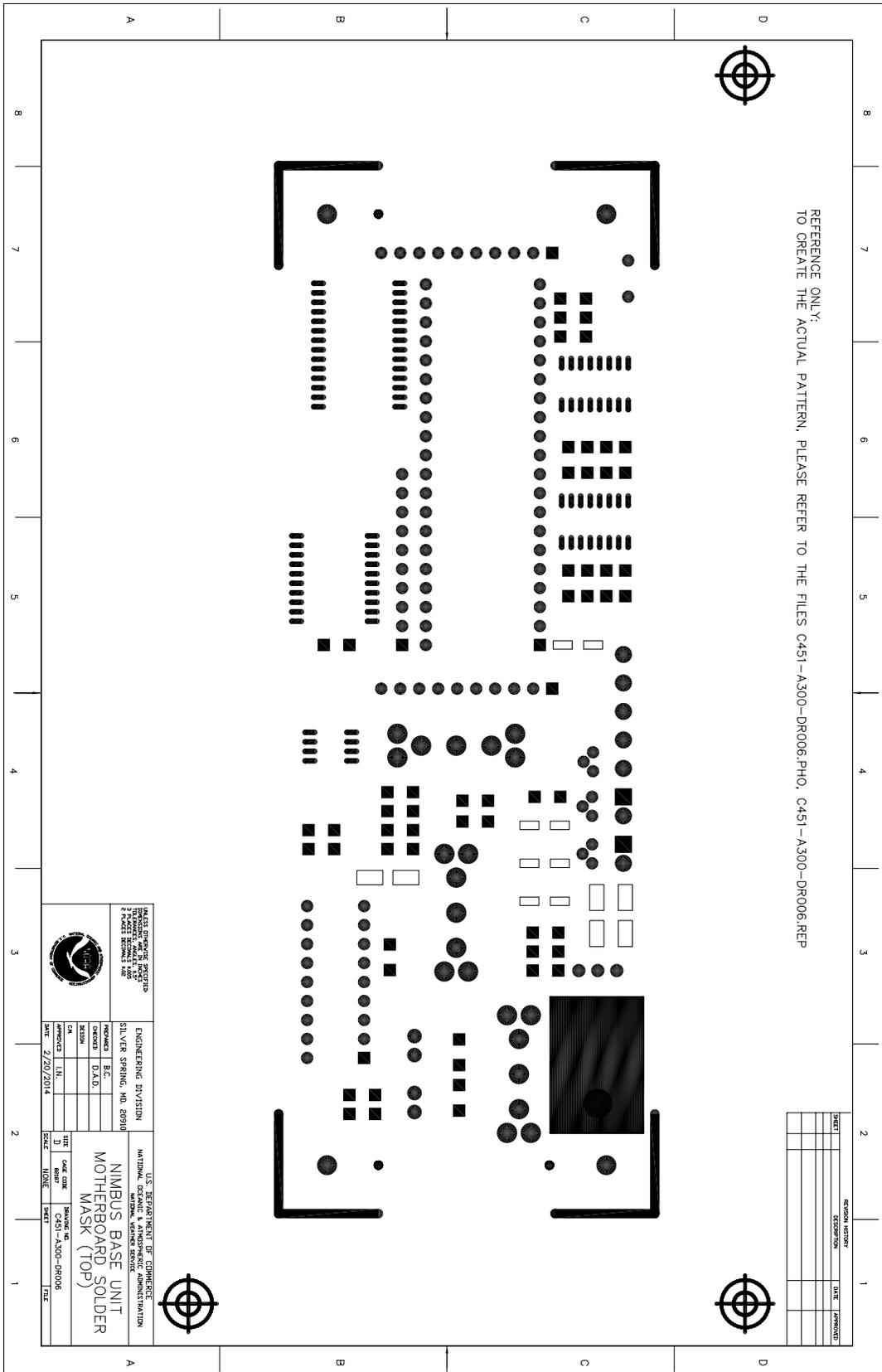
REFERENCE ONLY:
 TO CREATE THE ACTUAL PATTERN, PLEASE REFER TO THE FILES C451-A300-DR003.PHO,
 C451-A300-DR003.REP, C451-A300-DR003.DRL, C451-A300-DR003NC.REP, C451-A300-DR003.LST

SIZE	QTY	SYM	PLTD
16	121	T	PLTD
125	4	U	NPLTD
149.5	1	V	PLTD
73	21	W	PLTD
42	57	X	PLTD
35	50	Y	PLTD
59.5	9	Z	PLTD

- FABRICATION NOTES**
- MATERIAL: COPPER CLAD EPOXY GLASS, STANDARD FR4, UL 94V-0, TOTAL MATERIAL THICKNESS OVER MASK .093 INCHES +/- .002 TOL. COPPER WEIGHT: 1.5 OZ MIN. EXTERNAL & INTERNAL LAYERS CONFORM TO WORKMANSHIP STANDARD AMS/IPC-A-600 CLASS 2.
 - NUMBER OF LAYERS: 2
 - TRACE WIDTH OUTER LAYERS=.008 MIN.
 - TRACE WIDTH INNER LAYERS= N/A
 - FINISH/SOLDER MASK OVER BARE COPPER (SM09C), TIN LEAD 60/40 HOT AIR SOLDER (LEVELD) (HASL) OVER EXPOSED COPPER SURFACE.
 - SOLDER MASK: LIQUID PHOTO IMAGEABLE SOLDER MASK OVER BARE COPPER (SM09C), COLOR GREEN, BOTH SIDES USING PATTERN(S) PROVIDED. NO MASK PERMITTED ON THE TERMINAL AREAS. SOLDER MASK TO ETCH REGISTRATION WITHIN .010 INCH TOTAL.
 - SILKSCREEN TOP SIDE WITH WHITE EPOXY. NON CONDUCTIVE INK. NOMENCLATURE SHALL BE LEGIBLE. SILKSCREEN MAY BE TRIMMED OFF ANY SOLDERED ENTITY.
 - LOCATE VENDOR MARKINGS, FLAMABILITY RATING AND DATE CODE ON SOLDER SIDE FREE FROM ANY METAL ENTITY. MARKINGS SHOULD BE ETCHED INTO THE GLASS.

		U.S. DEPARTMENT OF COMMERCE NATIONAL BUREAU OF STANDARDS NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY	
PROJECT ENGINEER SILVER SPRING, MD 20910	ENGINEERING DIVISION	CHECKED DATE: 2/20/2014	NIMBUS BASE UNIT MOTHERBOARD DRILLING DIAGRAM

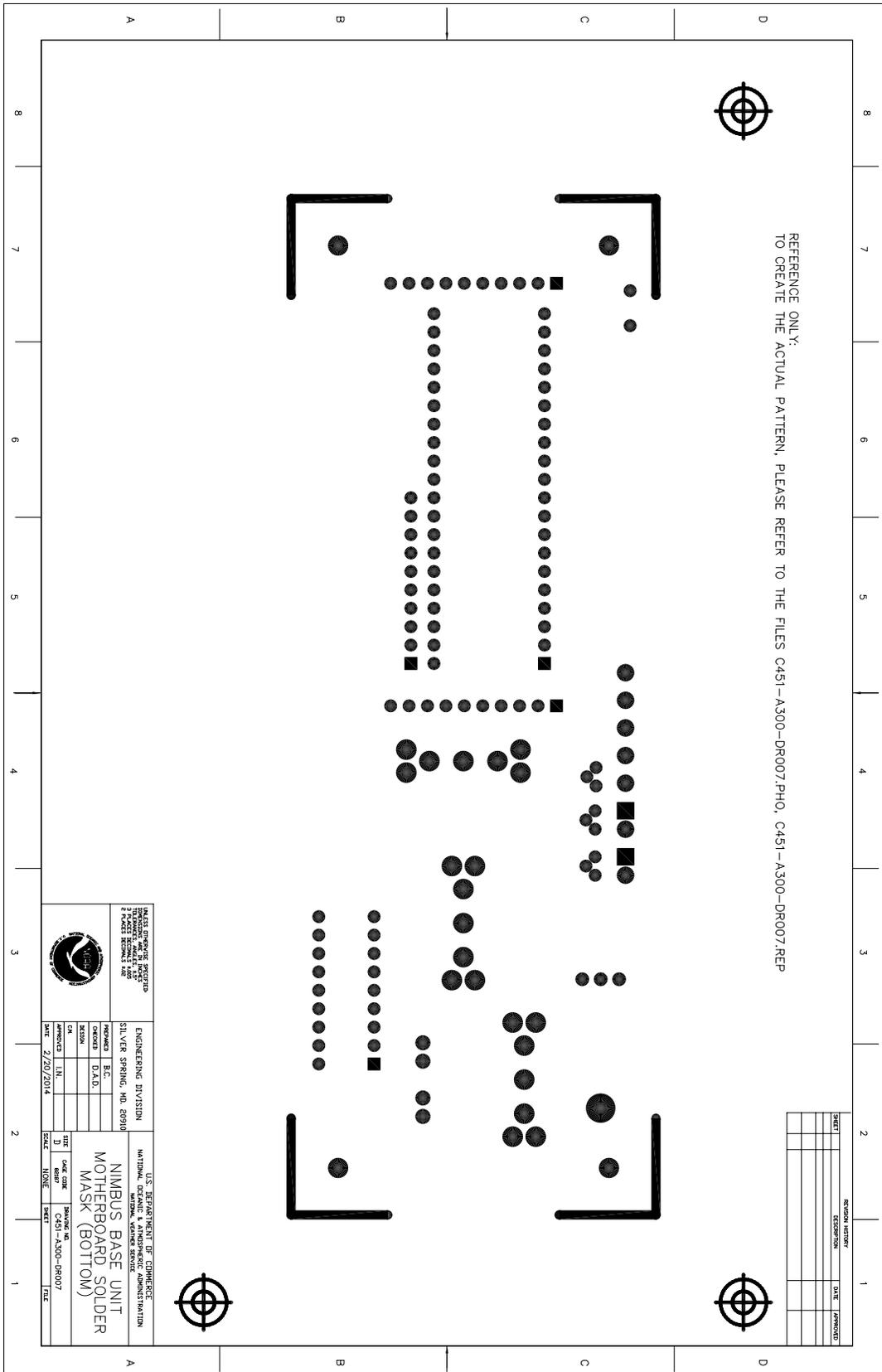




REFERENCE ONLY:
TO CREATE THE ACTUAL PATTERN, PLEASE REFER TO THE FILES C451-A300-DR006.PHO, C451-A300-DR006.REP

REVISION	DATE	APPROVED

		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION METEOROLOGICAL SERVICE	
SILVER SPRING, MD 20910 ENGINEERING DIVISION		NIMBUS BASE UNIT MOTHERBOARD SOLDER MASK (TOP)	
APPROVED BY: CHECKED BY: DESIGNER: DATE: 2/20/2014	SIZE: CAGE CODE: SCALE:	DRAWING NO: PART NO.: C451-A300-DR006	FILE

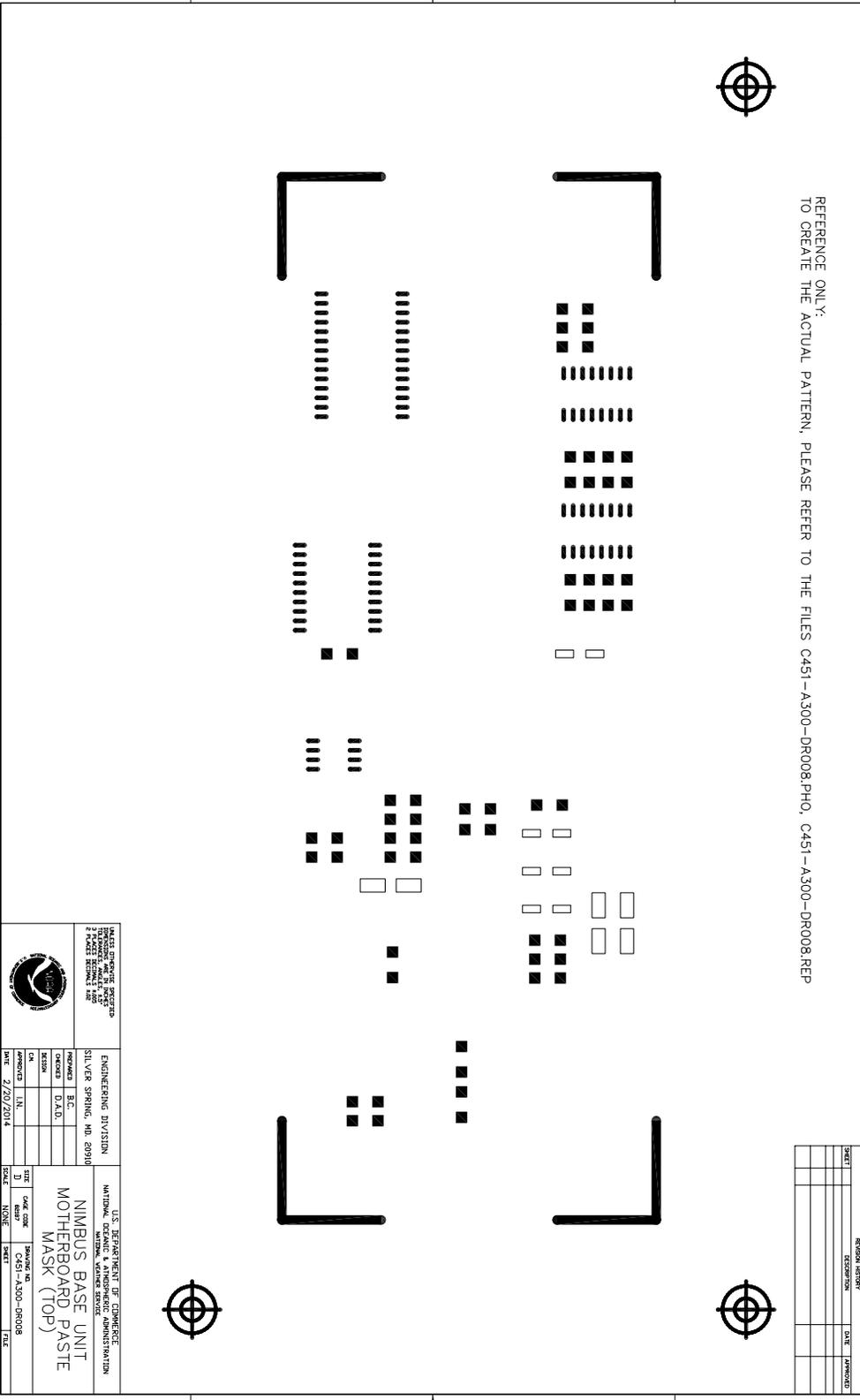


REFERENCE ONLY;
TO CREATE THE ACTUAL PATTERN, PLEASE REFER TO THE FILES C451-A300-DR007.PHO, C451-A300-DR007.REP

REVISION HISTORY		DATE	APPROVED

		UNITED STATES OF AMERICA NATIONAL DEFENSE AGENCY 2700 RINGBROOK DRIVE FORT BELLEVILLE, IL 62205	
ENGINEERING DIVISION		SILVER SPRING, MD 20910	
DESIGNED	B.C.	APPROVED	
CHECKED	D.A.L.	DATE	
APPROVED	L.N.	DATE	2/20/2014
U.S. DEPARTMENT OF COMMERCE NATIONAL BUREAU OF STANDARDS METRIC VERIFICATION SERVICE		NIMBUS BASE UNIT MOTHERBOARD SOLDER MASK (BOTTOM)	
SIZE		PROJECT NO.	C451-A300-DR007
DATE		SCALE	

REFERENCE ONLY:
 TO CREATE THE ACTUAL PATTERN, PLEASE REFER TO THE FILES: C451-A300-DR008.PHO, C451-A300-DR008.REP

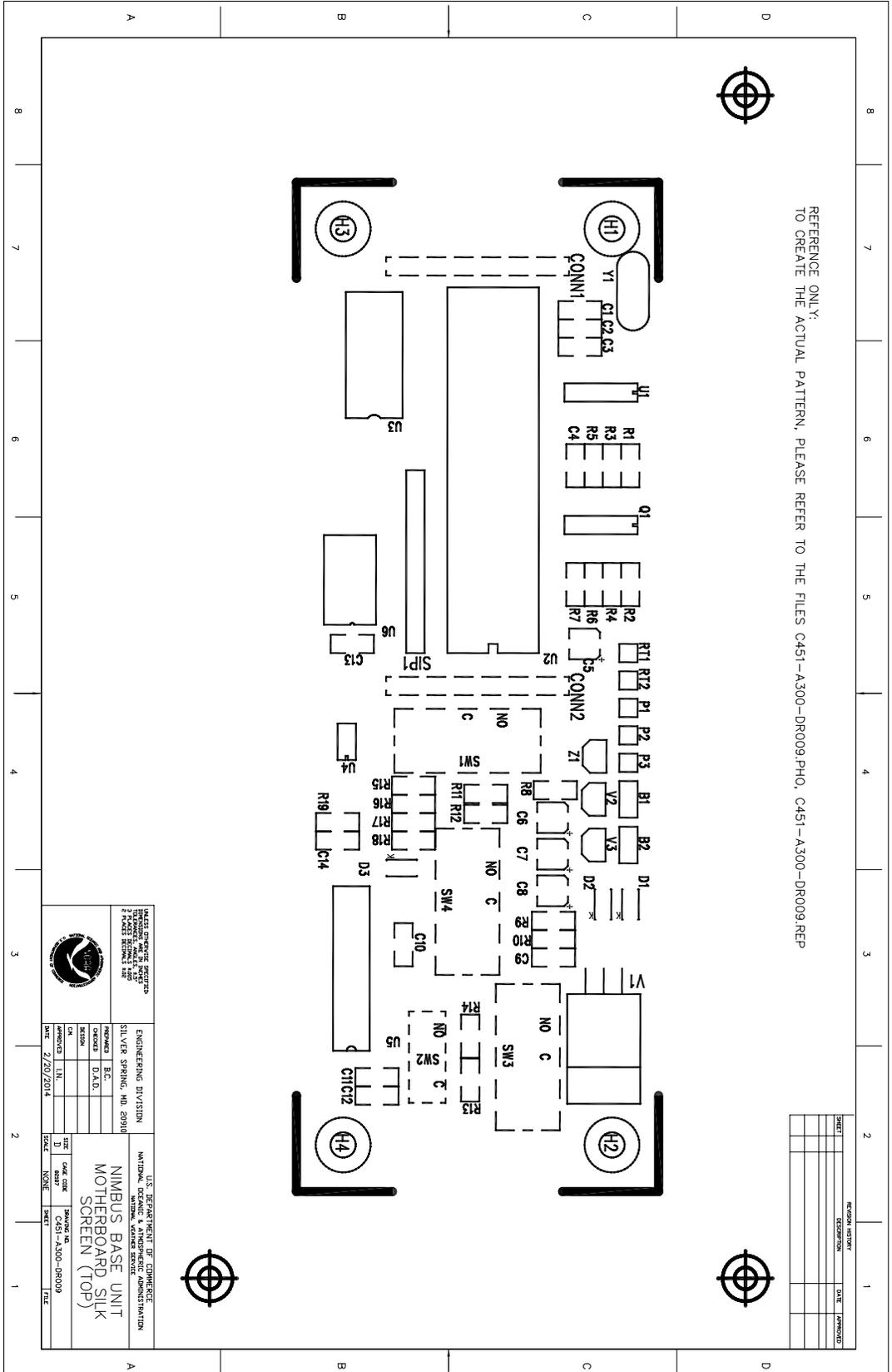


REVISION HISTORY		DATE	APPROVED

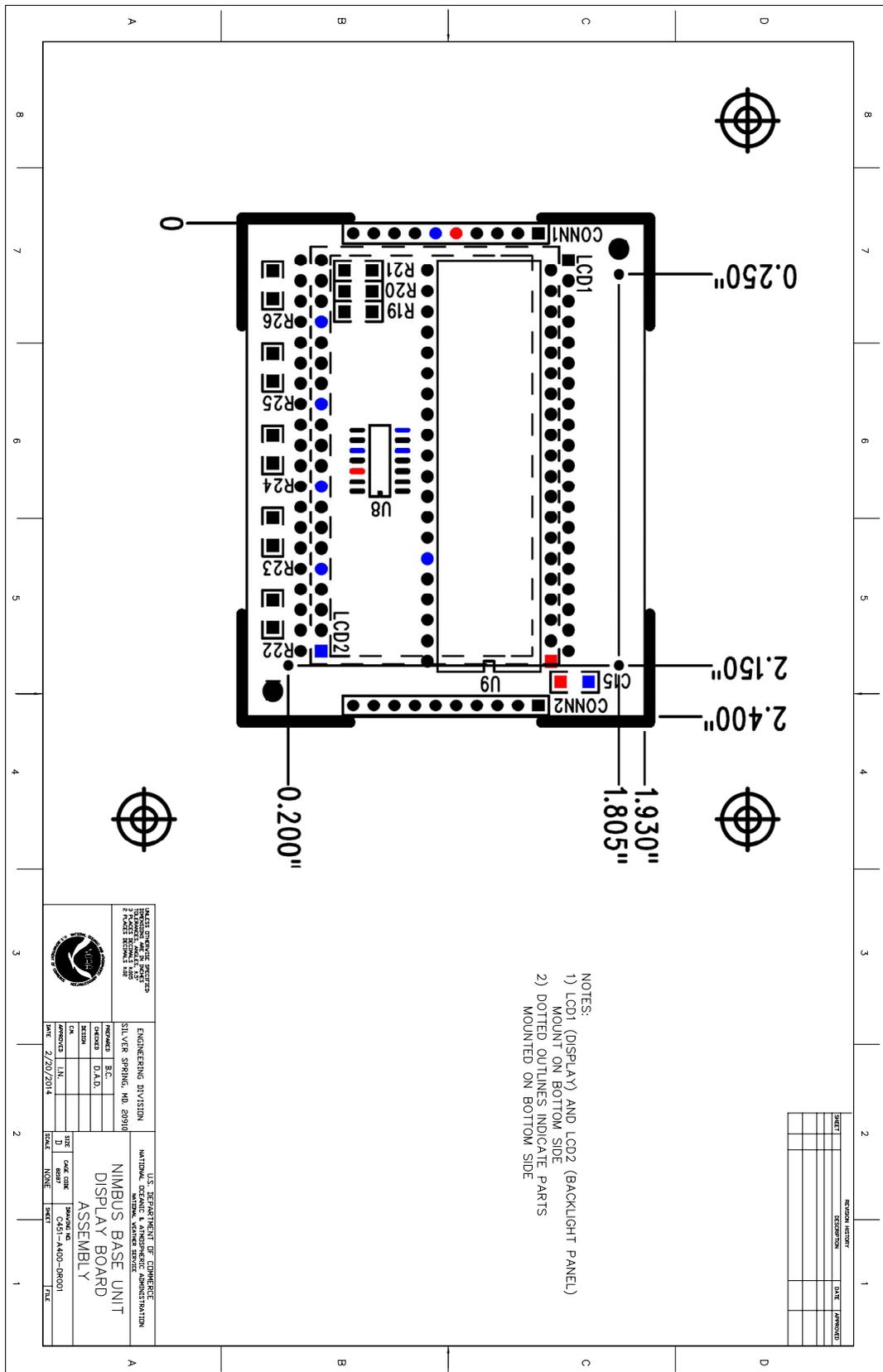
		UNITED STATES DEPARTMENT OF COMMERCE NATIONAL BUREAU OF STANDARDS 1700 BUREAU AVENUE GAITHERSBURG, MD 20878-1220	
ENGINEERING DIVISION SILVER SPRING, MD 20910		U.S. DEPARTMENT OF COMMERCE NATIONAL BUREAU OF STANDARDS NATIONAL TECHNICAL INFORMATION SERVICE	
APPROVED BY: _____ CHECKED BY: _____ DESIGNER: _____ DATE: 2/20/2014	SIZE: _____ CAGE CODE: _____ SCALE: _____	DRAWING NO.: _____ FILE: C451-A300-DR008	TITLE: NIMBUS BASE UNIT MOTHERBOARD PASTE MASK (TOP)

REFERENCE ONLY.
TO CREATE THE ACTUAL PATTERN, PLEASE REFER TO THE FILES C451-A300-DR009.PHO, C451-A300-DR009.REP

REVISION HISTORY		DATE	APPROVED



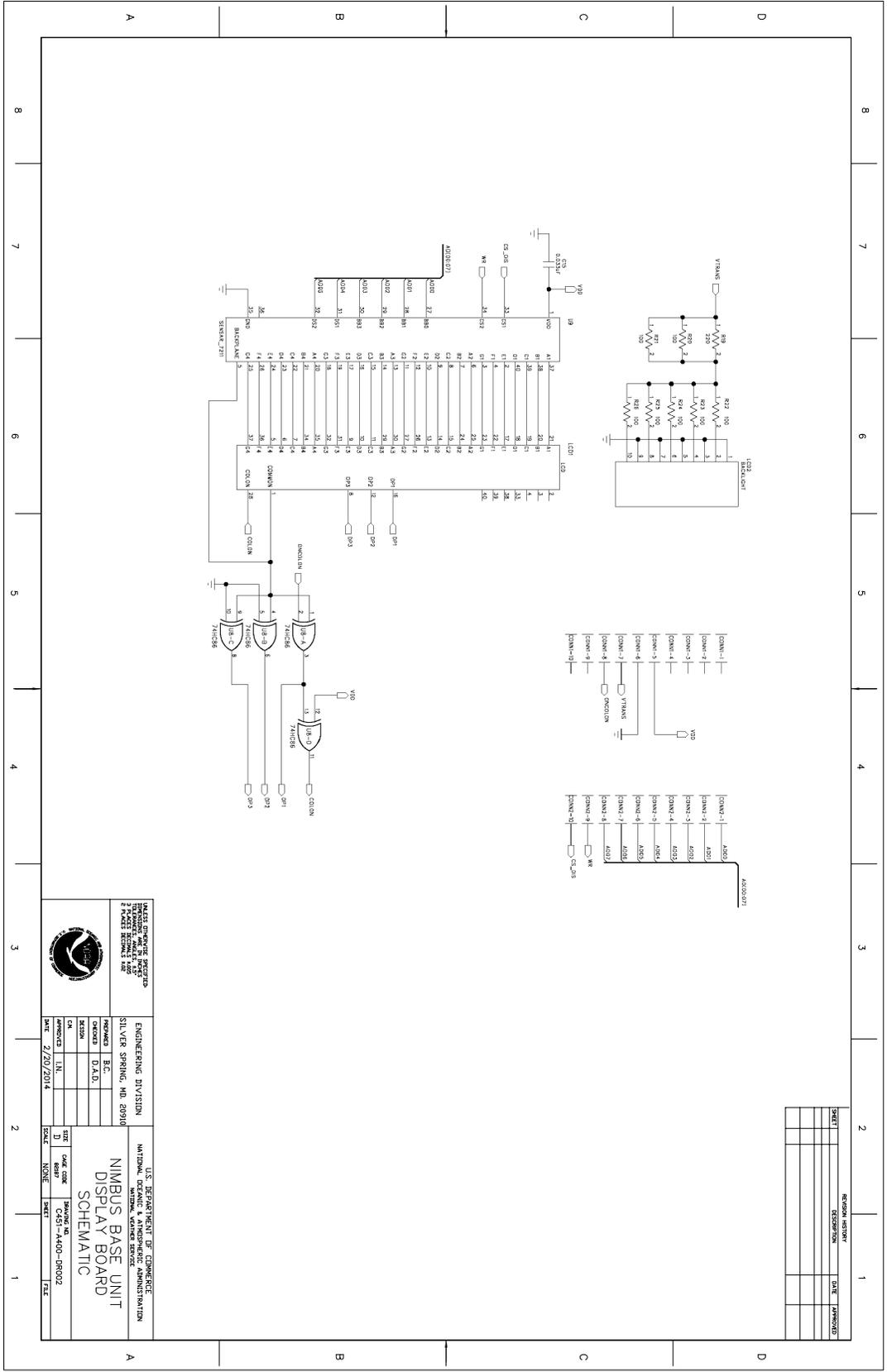
		U.S. DEPARTMENT OF COMMERCE NATIONAL BUREAU OF STANDARDS NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION METROLOGICAL SERVICES	
SILVER SPRING, MD 20910 ENGINEERING DIVISION		NIMBUS BASE UNIT MOTHERBOARD SLIK SCREEN (TOP)	
DRAWN BY: B.C. CHECKED BY: D.A.D. APPROVED BY: L.N. DATE: 2/20/2014	SIZE: 11x17 SCALE: AS SHOWN	DRAWING NO.: C451-A300-DR009 SHEET NO.: 88	FILE



- NOTES:
 1) LCD1 (DISPLAY) AND LCD2 (BACKLIGHT PANEL)
 MOUNT ON BOTTOM SIDE
 2) DOTTED OUTLINES INDICATE PARTS
 MOUNTED ON BOTTOM SIDE

REVISION HISTORY		DATE	APPROVED

 VIVID ENGINEERING INC. 2700 S. W. 10TH AVE. MIAMI, FL 33155		ENGINEERING DIVISION SILVER SPRING, MD 20910	
DESIGNED BY: [] CHECKED BY: D.A.L. APPROVED BY: [] DATE: 2/20/2014	U.S. DEPARTMENT OF ENERGY NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION WETTER, VANCE SERVICE		
NIMBUS BASE UNIT DISPLAY BOARD ASSEMBLY		DRAWING NO. C-21-14-00-09001	SHEET 1 OF 1



		UNITED STATES AIR FORCE NATIONAL DEFENSE SCIENCE & ENGINEERING RESEARCH AND DEVELOPMENT ADMINISTRATION WRIGHT-PATTERSON AIR FORCE BASE WRIGHT-PATTERSON AFB, OHIO 45433-3399	
ENGINEERING DIVISION SILVER SPRING, MD 20910		U.S. DEPARTMENT OF COMMERCE NATIONAL BUREAU OF STANDARDS METROLOGICAL ADMINISTRATION WASHINGTON, DC 20548	
APPROVED: B.C. CHECKED: D.A.L. DESIGNED: J.L.N. DATE: 2/20/2014	SIZE: 11x17 DATE: 2/20/2014 SCALE: NONE	PROJECT NO: 4409-DR02 SHEET: 100	FILE

REVISION HISTORY		DATE	APPROVED
1	ISSUED FOR MANUFACTURE		



REFERENCE ONLY:
 TO CREATE THE ACTUAL PATTERN, PLEASE REFER TO THE FILES
 C451-A400-DR003.PHO, C451-A400-DR003.REP,
 C451-A400-DR003.DRL, C451-A400-DR003NC.REP,
 C451-A400-DR003.LST

2.400"



1.930"



SIZE	QTY	SYM	PLTD
16	48	X	PLTD
125	2	Y	NPLTD
42	120	Z	PLTD

SHEET	REVISION	DATE	APPROVED

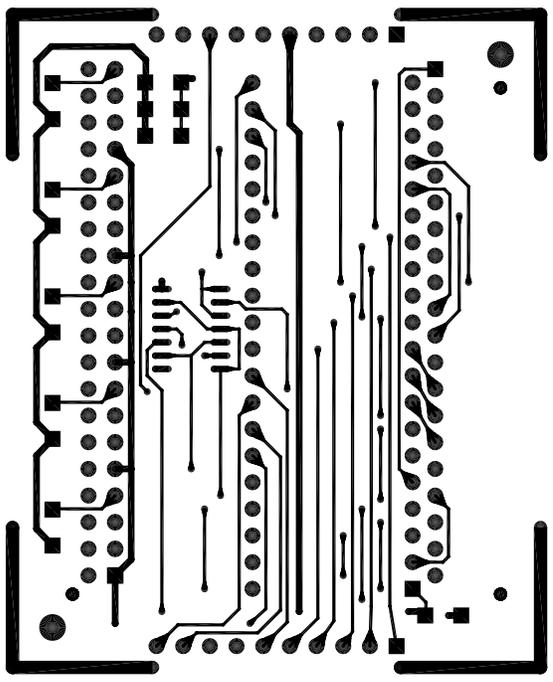
FABRICATION NOTES

1. MATERIAL: COPPER CLAD EPOXY GLASS, STANDARD FR4, UL 94V-0, TOTAL MATERIAL THICKNESS OVER MASK .062 INCHES +/- 10% TOL. COPPER WEIGHT: 1.5 OZ MIN. EXTERNAL & INTERNAL LAYERS CONFORM TO WORKMANSHIP STANDARD ANSI/JPC-A-600 CLASS 2.
2. NUMBER OF LAYERS: 2
3. TRACE WIDTH OUTER LAYERS= .008 MIN.
A. TRACE WIDTH INNER LAYERS= N/A
4. FINISH: SOLDER MASK OVER BARE COPPER (SMOBC), TIN LEAD 60/40 HOT AIR SOLDER LEVELED (HASL) OVER EXPOSED COPPER SURFACE.
5. SOLDER MASK: LIQUID PHOTO IMAGEABLE SOLDER MASK OVER BARE COPPER (SMOBC), COLOR GREEN, BOTH SIDES USING PATTERN(S) PROVIDED, NO MASK PERMITTED ON THE TERMINAL AREAS. SOLDER MASK TO ETCH REGISTRATION WITHIN .010 INCH TOTAL.
6. SILKSCREEN TOP SIDE WITH WHITE EPOXY NON CONDUCTIVE INK. NOMENCLATURE SHALL BE LEGIBLE. SILKSCREEN MAY BE TRIMMED OFF ANY SOLDERED ENTRY.
7. LOCATE VENDOR MARKINGS, FLAMMABILITY RATING AND DATE CODE ON SOLDER SIDE FREE FROM ANY METAL ENTRY. MARKINGS SHOULD BE ETCHED INTO THE GLASS.

		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION SILVER SPRING, MD 20910	
PROJECT NO. 14-400-DR003 2 PAGES (SHEET 1 OF 2)	DRAWING NO. 14-400-DR003	DATE: 2/20/2014	SCALE: AS SHOWN
APPROVED BY: [Signature] CHECKED BY: D.A.L.D. DESIGNER: [Signature]	TITLE: NIMBUS BASE UNIT DISPLAY BOARD DRILLING DIAGRAM	DRAWING NO. 14-400-DR003	DATE:



REFERENCE ONLY:
 TO CREATE THE ACTUAL PATTERN, PLEASE REFER TO THE FILES C451-A400-DR004.PHO,
 C451-A400-DR004.REP

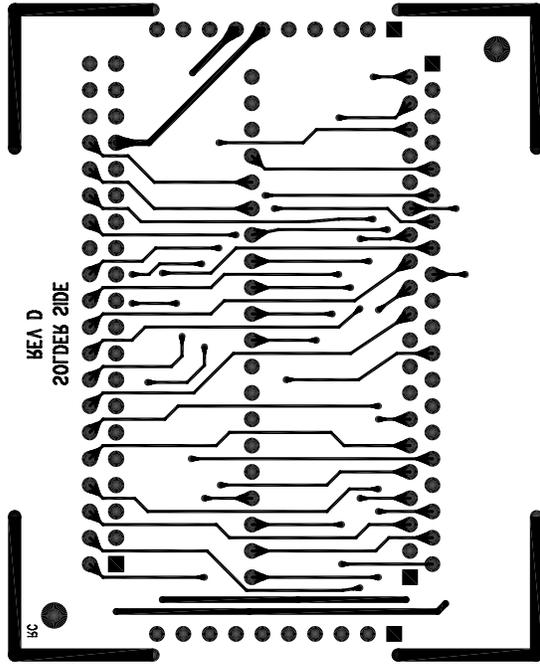


REGION HISTORY		DATE	APPROVED
SHEET	DESCRIPTION		

 MIL-STD-883C METHOD 2000 CLASS B 270000 270000		ENGINEERING DIVISION SILVER SPRING, MD 20910		U.S. DEPARTMENT OF COMMERCE NATIONAL BUREAU OF STANDARDS NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION WASHINGTON, DC 20541	
APPROVED	B.C.	DATE	2/20/2014	PROJECT NO.	C451-A400-DR004
CHECKED	D.A.L.	SCALE	1:1	SIZE	8 1/2" x 11"
DESIGN					
DRAWN					
DATE	2/20/2014				
NIMBUS BASE UNIT DISPLAY BOARD COPPER LAYER (TOP)			SHEET 1 OF 1		



REFERENCE ONLY:
 TO CREATE THE ACTUAL PATTERN, PLEASE REFER TO THE FILES C451-A400-DR005.PHO,
 C451-A400-DR005.REP

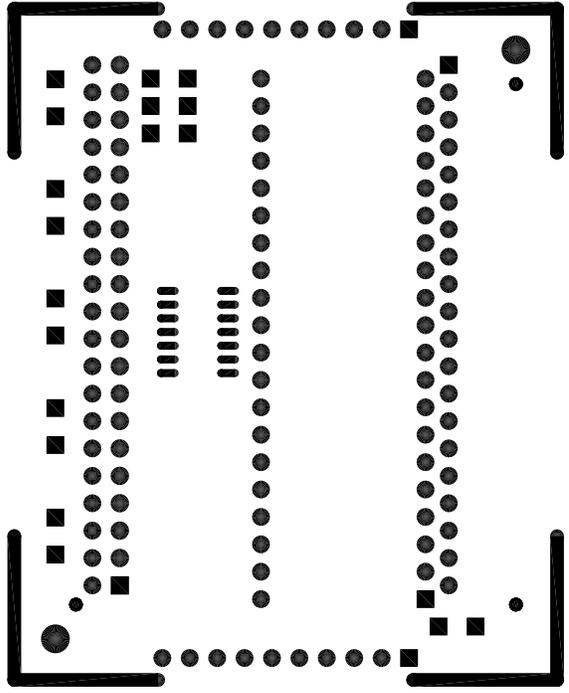


REGION HISTORY		DATE	APPROVED
SHEET	DESCRIPTION		

		UNITED STATES OF AMERICA NATIONAL DEFENSE AGENCY 2700 RUSTENBURG RD FORT BELVOIR, VA 22060	
ENGINEERING DIVISION SILVER SPRING, MD 20910		U.S. DEPARTMENT OF COMMERCE NATIONAL BUREAU OF STANDARDS NATIONAL DEFENSE ADMINISTRATION WASHINGTON, DC 20340	
APPROVED BY: CHECKED BY: DESIGN BY: DATE: 2/20/2014	NIMBUS BASE UNIT DISPLAY BOARD COPPER LAYER (BOTTOM)	PROJECT NO: C451-A400-DR005	SHEET: 1 OF 1



REFERENCE ONLY:
 TO CREATE THE ACTUAL PATTERN, PLEASE REFER TO THE FILES C451-A400-DR006.PHO,
 C451-A400-DR006.KEP



REVISION HISTORY		DATE	APPROVED



NAVY COMMUNICATIONS SYSTEMS
 2700 EAST BROADWAY
 FORT BELLEVILLE, IL 62209

ENGINEERING DIVISION
 SILVER SPRING, MD 20910

APPROVED: B.C.
 CHECKED: D.A.L.
 DESIGN:
 DRAWING: I.L.N.
 DATE: 2/20/2014

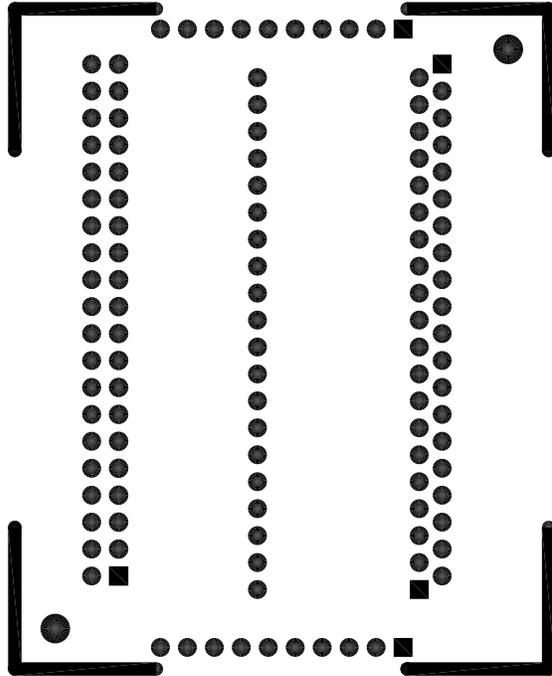
U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION
 WASHINGTON, DC 20541

**NIMBUS BASE UNIT
 DISPLAY BOARD, SOLDER
 MASK (TOP)**

SIZE:
 CAGE CODE:
 SCALE:
 DRAWING NO.: C451-A400-DR006
 SHEET:

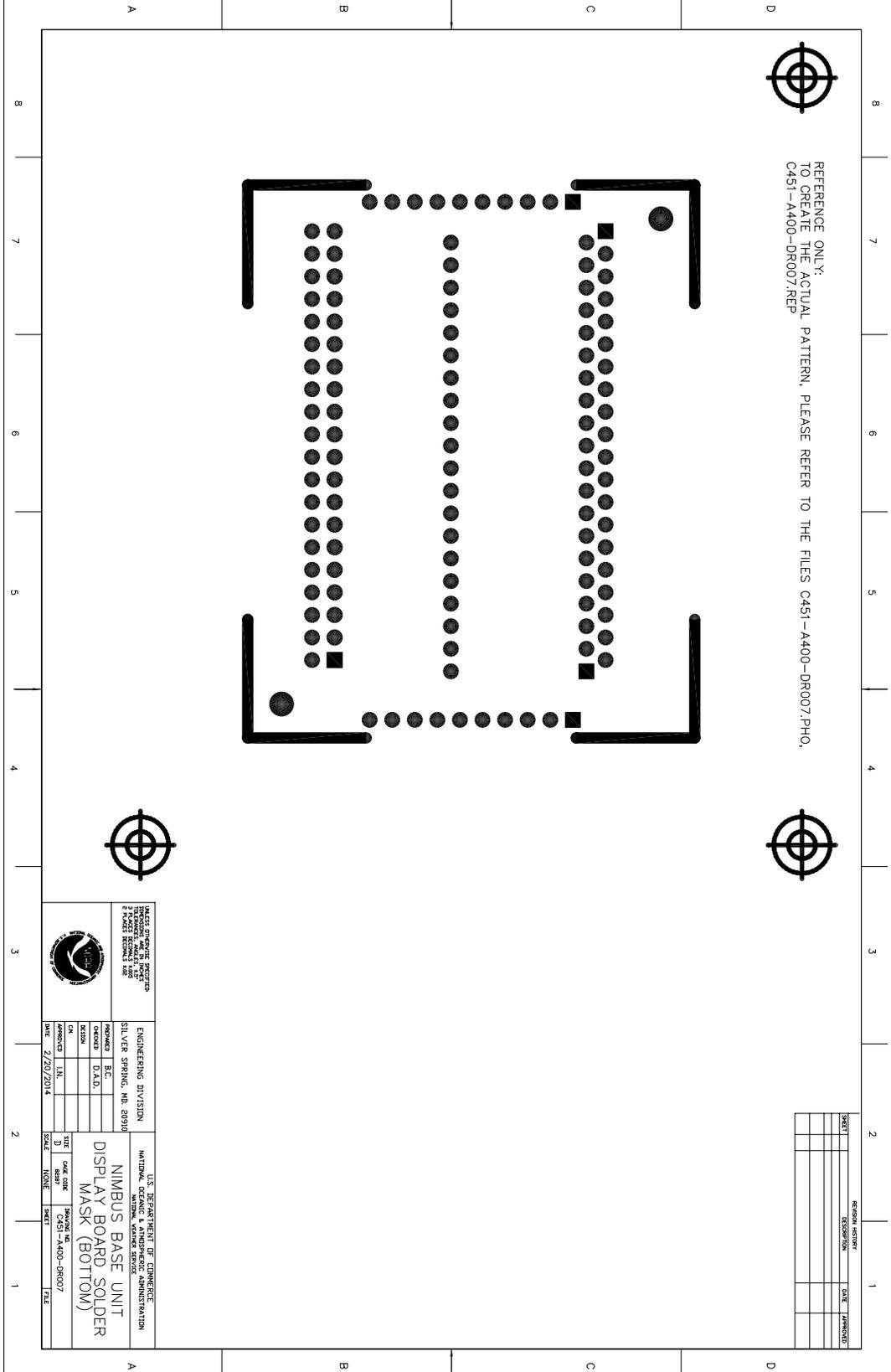


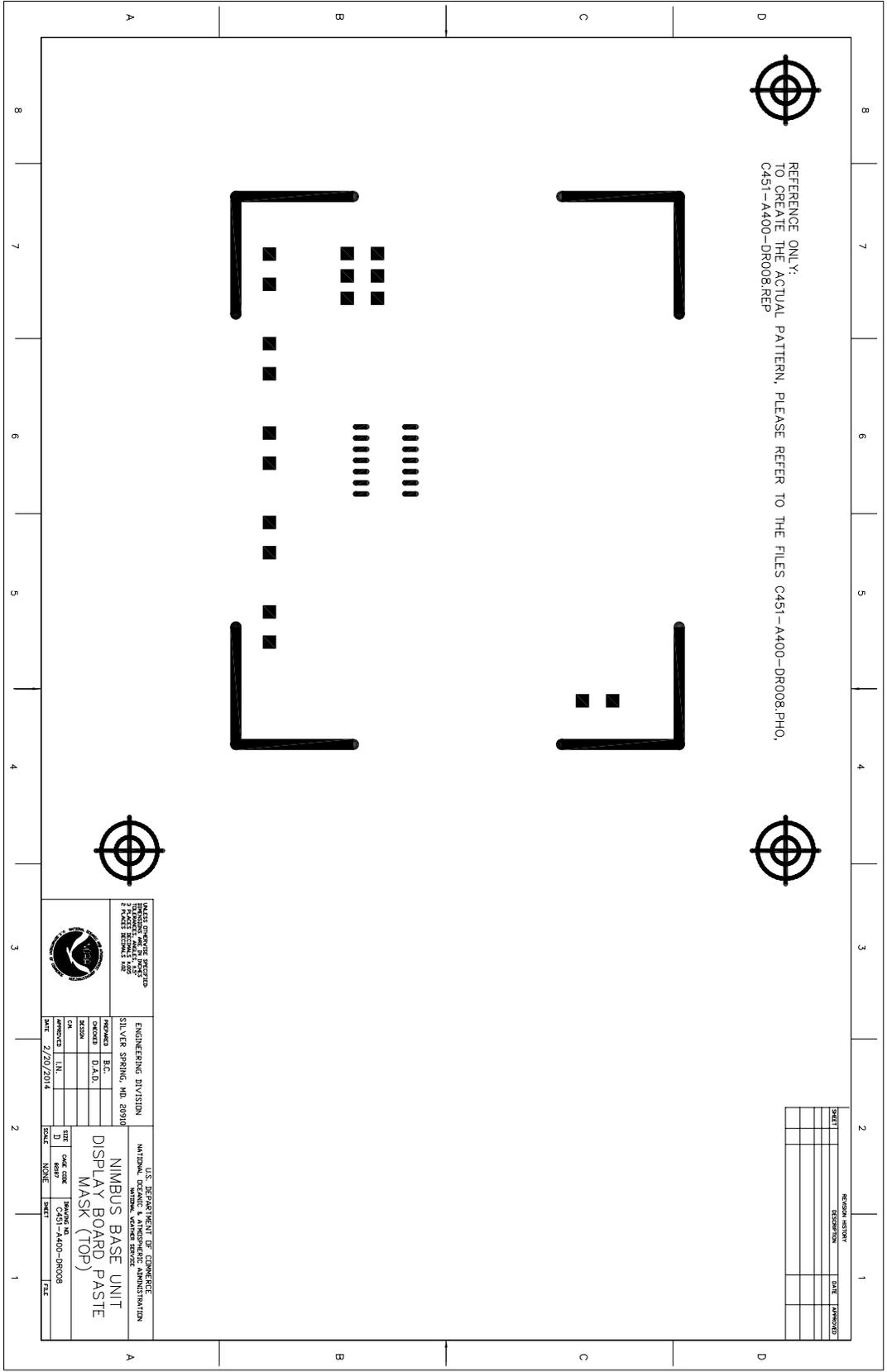
REFERENCE ONLY:
 TO CREATE THE ACTUAL PATTERN, PLEASE REFER TO THE FILES C451-A400-DR007.PHO,
 C451-A400-DR007.REP



REVISION HISTORY		DATE	APPROVED

		UNITED STATES OF AMERICA NATIONAL DEFENSE AGENCY 2700 RUSTENBURG RD FORT MONROE, VA 23606	
ENGINEERING DIVISION SILVER SPRING, MD 20910		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION WASHINGTON, DC 20541	
DESIGNED BY CHECKED BY DRAWN BY APPROVED BY DATE: 2/20/2014	B.C. D.A.L.D. L.N. L.N.	SIZE CAGE CODE SCALE	PROJECT NO. C451-A400-DR007 SHEET 1 OF 1





REFERENCE ONLY:
 TO CREATE THE ACTUAL PATTERN, PLEASE REFER TO THE FILES C451-A400-DR008.PHO,
 C451-A400-DR008.REP



REVISION HISTORY		DATE	APPROVED
SHEET	DESCRIPTION		


 UNITED STATES GOVERNMENT
 NATIONAL SECURITY AGENCY
 2700 RINGBROOK DRIVE
 FORT BELLEVILLE, ILLINOIS 62205-4302

ENGINEERING DIVISION
 SILVER SPRING, MD 20910

U.S. DEPARTMENT OF COMMERCE
 NATIONAL BUREAU OF STANDARDS
 NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION
 METROLOGICAL SERVICES

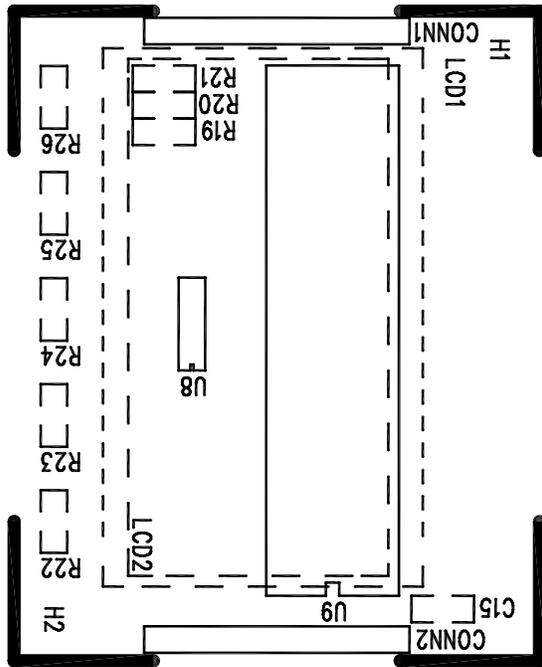
**NIMBUS BASE UNIT
 DISPLAY BOARD PASTE
 MASK (TOP)**

APPROVED	B.C.
CHECKED	D.A.L.
DESIGNED	
DRAWN	
DATE	2/20/2014

SIZE	PROFIT NO.	DATE
SCALE	CAGE CODE	FILE
	NSA	
	NSA	
	NSA	



REFERENCE ONLY:
TO CREATE THE ACTUAL PATTERN, PLEASE REFER TO THE FILES C451-A400-DR009.PHO,
C451-A400-DR009.REP



REVISION HISTORY		DATE	APPROVED

		VITAL DESIGN INC. REGISTERED 2700 WEST 10TH AVENUE SUITE 200 DENVER, COLORADO 80202	
ENGINEERING DIVISION SILVER SPRING, MD 20910		U.S. DEPARTMENT OF COMMERCE NATIONAL DETAIL & ANTI-CORROSION ADMINISTRATION WASHINGTON, DC 20548	
APPROVED BY: _____ CHECKED BY: _____ DESIGN BY: _____ DATE: 2/20/2014	NIMBUS BASE UNIT DISPLAY BOARD SILK SCREEN (TOP)		
SIZE: _____ SCALE: _____	DATE: _____ SCALE: _____	PROJECT NO: C451-A400-DR009 SHEET NO: _____	FILE: _____



Operating Manual

Nimbus PL
Digital Thermometer



Some Useful Temperature Conversions

Description	°F	°C	°K
Absolute zero	-459	-273	0
Point where F and C are equal	-40	-40	233
Origin, °F	0	-18	255
Water freezes	32	0	273
Room temperature	68	20	293
Normal lab temperature	77	25	298
Useful approximation in K	81	27	300
Normal body temperature	98.6	37	310
Objects too hot to hold	140	60	333
Water boils	212	100	373

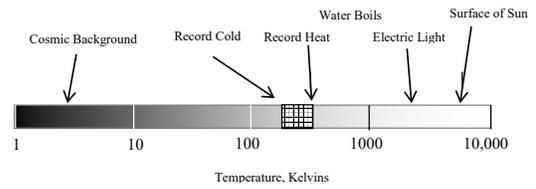
Note: Values are rounded to nearest degree except where shown

Global Cooling?

Five state high temperature records occurred in the 1990's. In the 1930's there were 24.

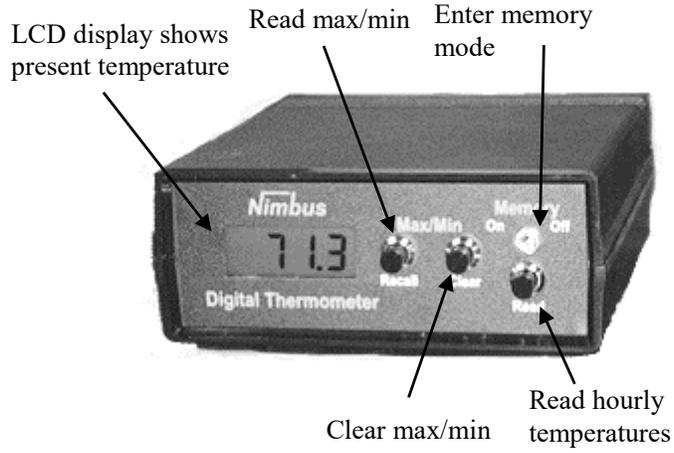
Low temperature state records occurred by decade:

- 1960's 2
- 1970's 4
- 1980's 6
- 1990's 6



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- **0.3°F accuracy**
- **Daily max and min for 35 days**
- **Hourly memory for 35 days**
- **Improved computer interface**
- **Ideal for networked applications**
- **Improved manual data retrieval**



The Nimbus base unit should be placed in a location convenient for viewing the display and for operating the controls. To maintain the highest accuracy do not place the unit near sources of heat or cold. In extreme climates do not place the base unit in unheated or uncooled spaces such as garages or sheds.

Installing the Battery:

The rear of the base unit contains a battery compartment. Open the compartment by pressing the tab of the battery compartment cover in the direction of the arrow, pulling the cover gently out, and removing the cover. Clip the battery terminal connector onto the 9v alkaline battery (it goes on only one way), insert the battery into the compartment, and close the cover. The unit is now on. This battery is for backup in case of loss of commercial power. It will last about five days. When the battery becomes low an indication is given on the display by a flashing "L" in the leftmost character.

Using the transformer power:

Plug the wall transformer into an outlet (115v, 60Hz) and then plug the connector on the wall transformer wire into the rear of the base unit. The jack is located on the lower right of the panel looking at the unit from the rear. Be sure that a light switch will not inadvertently remove power to the transformer.

**Use only the transformer
supplied with the unit.**

only.

Operation

- **Setting the Internal Clock**
- **Reading Present Temperature**
- **Reading Maximum and Minimum Temperatures**
- **Reading Daily Maximum/Minimum Temperatures**
- **Reading Hourly Temperatures**

Setting the Internal Clock:

- Buttons control setting hour, 10's of minutes, unit minutes.

Hold down the **[Max/Min Recall]** button for about 2 seconds and simultaneously flip the **[Memory]** toggle switch to **[On]** – the screen will momentarily blank and **E3E.3** will be displayed, signaling successful entering of the “Time Mode.” Release the **[Max/Min Recall]** button and the current time (as known by the instrument) will be displayed. The presence of the colon on the display indicates time mode. Setting the clock involves pushing various push-button switches. The buttons change the unit's time in the following ways:

1. **[Max/Min Recall]** – increments the hours in steps of one
2. **[Max/Min Clear]** – increments the minutes in steps of ten
3. **[Memory Read]** – increments the minutes in steps of one.

After the clock has been set to the desired time, flip the **[Memory]** switch back to off and the new time will take effect.

Note: When the time is reset the times of the daily max/min are not changed. For example, when changing to Daylight Saving Time, the previous times of highs and lows which were taken

- LCD display shows the present temperature

The Nimbus digital thermometer normally indicates the present temperature. The reading is updated every 16 seconds. The **[Memory]** switch on the right should be in the **[Off]** position.

Maximum and Minimum Readings:

The Nimbus produces two maximum/minimum data sets, Global and Daily. The Global maximum/minimum allows the user to define the time period over which the maximum/minimum is recorded. The user “resets” the Nimbus at the beginning of a new time period and recalls the data at the desired end time. The Global maximum/minimum data set is independent of the internal clock. The Daily maximum/minimum is dependent on the internal clock using midnight to midnight at the standard time period. The Daily maximum/minimum is recorded with the actual time of occurrence within the Nimbus memory.

Global Maximum and Minimum

- **[Max/Min Recall]** shows max/min temperatures
- **[Max/Min Clear]** resets
- **[Memory] switch [Off]**

The Nimbus thermometer remembers the highest and lowest temperatures occurring in the period of time since it was last reset. To determine the maximum and minimum values, push in the button labeled **[Max/Min Recall]** and hold it in. The display will alternate between the two as long as the button is depressed. To clear the max/min depress the **[Max/Min Clear]** button for about 4 seconds until "E2E.2" is displayed, signaling reset complete (the display will momentarily go blank). If you were to then press the **[Max/Min Recall]**

- Memory switch and **[Max/Min Recall]** button give daily highs and lows and their times

The Nimbus thermometer remembers the highs and lows for the last 35 days and also records the times they occurred. This information is retrieved sequentially day by day. The reading of the 35 daily max/min values and the times of occurrence (as opposed to the "global" max/min) are initiated by moving the **[Memory]** switch to the left **[On]**.

Perform the following steps:

1. Push the **[Memory]** toggle switch to **[On]** (left). The display will go blank.

2. Press the **[Max/Min Recall]** button and the display will read the number of days back, beginning with the present day (00). For each day there are four pieces of information: the high temperature and the time, and the low temperature and its time. Press the button again and the display will read the high temperature for the day. Another push gives the time of the high. Pushing again gives the low, and once more gives the time of the low. When the button is pushed again the day backs up to 01, meaning one day prior to the present. Four more pushes give the highs and lows and their times for this day.

You can also press and hold **[Recall]** in to cycle through data faster.

14:46 happened at 14:46 (2:46PM)
48.9 minimum temperature was 48.9
6:34 at 6:34
0.1 one day back (yesterday)
71.4 maximum temperature was 71.4
15:12 at 15:12
55.2 minimum temperature was 55.2
7:55 at 7:55
0.2
etc.

3. After day 34 (Note that 35 days of max/min includes today through day 35) the cycle repeats itself.
4. If you happen to accidentally skip past a reading and wish to go back to see what was missed flip **[Memory]** switch to **[Off]** and start over.
5. After retrieving the max/min data, flip **[Memory]** switch back to **[Off]** to display the current temperature.

Hourly Readings:

- **[Memory]** function shows hourly temperatures.
- **[Read]** button steps back by hour.
- **[Max/Min Recall]** button steps back by day.
- **[Max/Min Clear]** steps forward by day.

The Nimbus PL Thermometer records the present temperature in electronic memory at the beginning of every hour. At every subsequent hour, it records another reading. The readings stored are instantaneous values, not averages. When the 35

7

go blank (except for the decimal point). At this point you can begin using the buttons to control the day and time of the values you want to see. The buttons are used as follows:

1. **[Memory Read]** – moves time back one hour
2. **[Max/Min Recall]** -- moves time back one day
3. **[Max/Min Clear]** -- moves time forward one day

After you have entered memory mode momentarily push the **[Read]** button and the display will read the time of the last hourly reading followed by the temperature at that time. Pressing the **[Read]** button again, will display the time and temperature of the previous hour. Every time the button is pressed the instrument steps backward in time and displays the temperature at that time. Midnight is 00:00 hours and the clock is a 24 hour clock, i.e., 15:00 is 3:00PM. When you read past midnight the instrument automatically moves to the prior day.

Note: if you hold the button in, the time and reading will go by rather quickly. It takes about 24 seconds to scroll back 24 hours.

If the memory is read back to a time when the instrument was off, the corresponding memory locations will be empty. Their contents are the “zero” of the instrument and will appear as -99.9

At any point during memory read-back you can move forward or backward in time by one day. Depressing the **[Max/Min Recall]** button moves back in time one day a time while pressing the **[Max/Min Clear]** moves forward in time by one day.

[Read]	08:00	Time 08:00 hours. Last recorded reading.
	24.7	Temperature at 08:00 was 24.7
[Read]	07:00	07:00 hours
	23.8	Temperature at 07:00 was 23.8
[Recall]	01	One day previous
	31.1	Temperature was 31.1 at 07:00
[Read]	06:00	06:00 hours
	30.7	Temperature was 30.7 at 06:00
[Recall]	02	Two days back
	37.8	Temperature was 35.7 at 06:00
[Recall]	03	Three days back
	34.7	Temperature was 34.7 at 06:00
[Clear]	02	Back up to two days back
	37.8	temperature was 37.8

Etc.

You can forward or backwards through the last day (34) and continue with day 00 or 33, respectively.

Hint: The features example above illustrates a useful capability. You can step back to a particular hour, and then step back day by day to read the temperature at that same hour every day.

Important: When you have finished retrieving the data remember to throw the **[Memory]** toggle switch **[Off]** so that the instrument will read the current temperature.

The Nimbus PL Digital Thermometer is designed to connect directly to a computer for data display and retrieval or to a modem for remote data retrieval in networked applications. It has a nine pin male connector on the rear of the base unit for that purpose.

To connect to a modem, use a cable that connects to the Nimbus with a nine pin female connector on one end and has a 25 pin male connector on the other to plug into the modem. This is a standard RS232 serial cable (**NOT null-modem**) that is widely available (Radio Shack part #26-269).

To connect to a computer, use a cable that connects to the Nimbus unit with a nine pin female connector and has the appropriate connector on the other end that is compatible with your computer's serial port connector. This is also standard RS-232 serial cable; however this connection must be wired as a **null modem**.

DO NOT CONNECT THE UNIT INTO THE PRINTER PORT OF THE COMPUTER

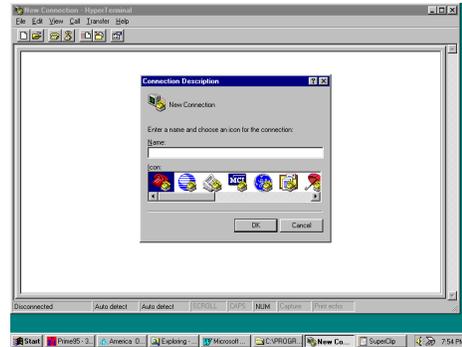
Please note: Computers have different RS232 serial port connectors. Some use nine pine connectors, others use 25 pin connectors. If you are unsure of the configuration of your computer consult your computer manufacturer's users manual or contact the supplier of the computer.

thermometer. You can communicate at 300,1200,2400,9600, or 19200 baud. Use eight data bits, no parity and one stop bit.

Example: Hyperterminal is widely used with Win95 and Win98. If this program is on your computer, start the program by clicking:

Start|Programs|Accessories|Hyperterminal

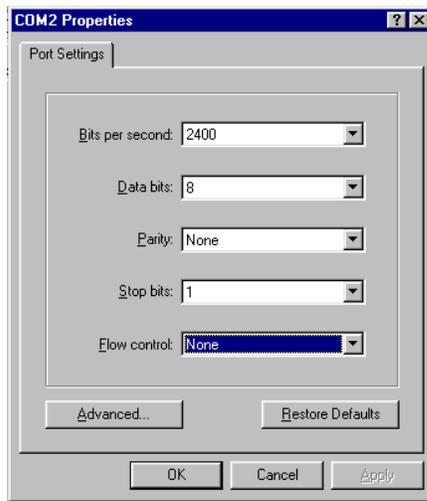
Sometimes “Accessories” is “Communications”. Alternatively, you can look for Hyperterminal in Windows Explorer by using Tools|Find.



Type a name in the box and click on OK. The window shown below will appear.

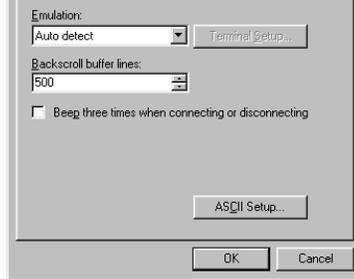


The window below then appears.

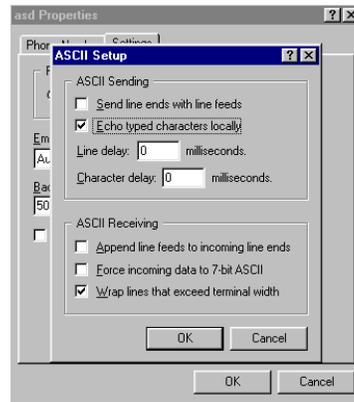


Click on Configure and choose port settings at the desired baud rate (300,1200,2400,9600, or 19200). Then select eight data bits, no parity, one stop bit, and no flow control. Then click OK. At this point the window will vanish, but with additional setup required click on File|Properties:





and then click on ASCII Settings



Select Echo typed characters and click the OK button to close the windows. The program is now set up to communicate with the Nimbus PL Thermometer.

```

at?
COMMAND SUMMARY.....

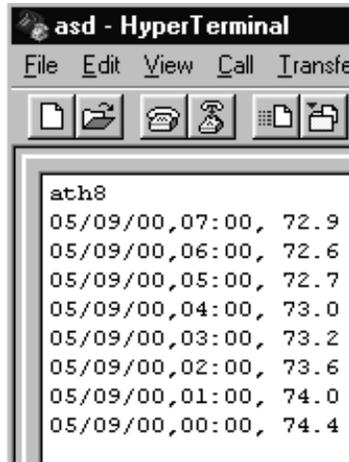
H[1..24]      Get hours
D[1..35]      Get days
M[1..35]      Get daily max/min
N             Temp
R             Reset
B             Battery
I             Unit info
S0=[mm/dd/yy] Get/Set date
S1=[hh:mm]    Get/Set time

```

Commands are preceded with “AT” and are case insensitive.

If you type, for example, **ats0**, the Nimbus will return the date.
 If you type **Ats1=14:26** the time will be set to 14:26 (2:26PM).

In the example we have typed **ath8** to retrieve eight hourly readings. Note that the date and time are given along with the data separated by commas. You can capture this data for other applications such as Excel using the Edit Command in Hyperterminal.



seconds if a command is not completed. Commands are terminated by <Enter>.

Command	Response	Example/Comment
at?	Returns command summary	
ath[1...24]	Returns 1,2,...,24 hourly readings	ath1, ath2,...,ath24
atd[1...35]	Returns hourly readings for 1,2,...,35 days	atd1, atd2,...,atd35 35 days = 840 hourly readings
atm[1...35]	Returns daily max/mins and times for 1,2,...,35 days	
atn	Returns present temperature	
atr	Resets instrument	clears memory and daily data, rests calendar and clock
atb	Returns battery OK or Low	
ati	Gives unit identification	
ats0	Returns date	
ats0=mm/dd/yy	Sets date to mm/dd/yy	ats0=05/18/00 Note date set only via RS232
ats1	Returns time	
ats1=hh:mm	Sets time to hh:mm	ats1=15:56 sets to 3:56PM

Batteries:
The instrument uses a nine-volt battery, which will normally last at least a year as backup and at least five days as primary power. When the battery needs changing, the leftmost digit on the display will flash **L**. The battery is located behind in the battery compartment in the rear of the unit. Use alkaline batteries only.

Cleaning:

The case of the base unit may be cleaned occasionally with a clean damp cloth.

TROUBLESHOOTING

At Power-Up:

- **Display is blank**

1. No power. If the decimal point is missing check to be sure that power is supplied to the wall transformer and that the transformer is plugged into the unit. Be sure that the battery is fresh.
2. **[Memory]** switch is in **[On]** position. Flip to the right **[Off]**.

- **Display reads number much too small**

Instrument left in **[Memory]** mode and is displaying a temperature from some previous time.

temperature from some previous time.

- **Readings are always –99.9**

Probe is disconnected or open. Check to be sure probe is plugged in and that cable has not been damaged.

- **Readings are always 255.5**

Temperature much too high or short in probe or cable.

- **Readings don't agree with NWS**

Temperatures vary widely even over short distances, therefore the values given by the Nimbus PL thermometer are not expected to concur with the local report. Each Nimbus is calibrated at the factory to exceed the specifications. Gross differences should be investigated.

- **Temperature readings erratic**

A common cause is from radio frequency energy coupling to the probe. Check to be sure that the cable isn't in the vicinity of computer or radio equipment.

- **Batteries run down quickly**

Be sure that the wall transformer is being supplied with power and that it is plugged into the base unit. Verify this by removing the 9 volt battery. If power is present the unit should continue to operate and the low battery indication "L" should appear.

**Use only the transformer
supplied with the unit.**

- **Accuracy, °F**

Note: Accuracy specifications are given for the base unit only for the Nimbus PL since the unit is connected to existing MMTS sensors. Calibrations are performed using at least eight points with precision resistors.

Range	Ambient Conditions	Accuracy, °F
-40 to 120	55-85	0.3
-75 to 150	55-85	0.5
-40 to 120	32-100	0.5
-75 to 150	32-100	1.0

- **General**

Resolution	0.1°F
Measurement Interval	16 sec
Units	°F (°C factory option)
Memory	35 day hourly
Max/Min	Until reset
Daily max/min	35 days with times
Internal clock	Hr and min (24 hr clock)
Clock accuracy	30 sec/mo
Display	4 digit LCD ½" char ht.
Power	12v dc wall transformer
Battery	9v alkaline transistor
Battery life	5 days active, 1 yr standby
Size	6"W, 2.4"H 7.5"D
Shipping weight	Approx 4 lbs
Storage conditions	32°F - 140°F non condensing

computer requires a null modem connection.

- **Electrical Specifications**

Parameter	Min	Max	Units	Conditions
Input				
Range	-30	+30	volts	
Threshold low	0.8		volts	
Threshold high		2.4	volts	
Hysteresis	0.2	1.0		
Resistance	3	7	Kohms	
Output				
Voltage swing	+/- 5		volts	3Kohm to gnd
Output resistance	300		ohms	
Short circuit current	Appr	18	MA	Infinite duration
Slew rate	Typ	30	V/us	C=10pf, RL = 3-7K

- **RS232 Pin Configuration**

Pin	Function
2	Received data
3	Transmitted data
5	Signal ground

Messages on the Display

E1E.1 Power up initialization indicator
E2E.2 Max/Min has been cleared
E3E.3 Entering time set mode.
Lxx.x Battery is low (x= any numeric)
255.5 Out of range high temperature (>150°F) or the probe or cable is shorted.
-99.9 No valid reading or probe open.

The record high temperature in North Dakota (121°F in July of 1936) is surpassed in only four other states (AZ,CA,NV,NM)

The record low temperature in Utah (-69°F in 1985) is surpassed only in AK (-80 in 1971) and Montana (-70 in 1954)

In Rapid City, SD the temperature dropped 62 degrees in two hours on January 12, 1911.

In Spearfish, SD the temperature rose 49 degrees in two hours, from -4°F at 7:30 to 45°F at 7:32 on Jan 22, 1943.

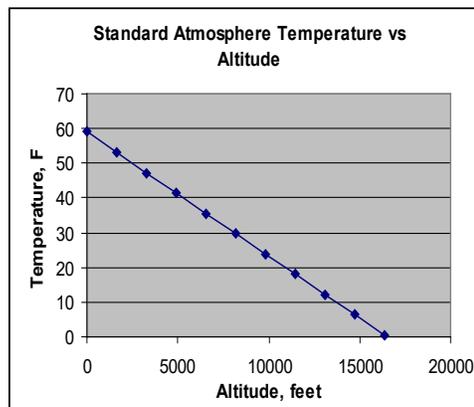
Concord, NH has over three weeks shorter growing season than Minneapolis, MN (142 vs 166 days).

Duluth,MN has over 10,000 heating degree days in a year, and it normally has about 100 in July.

In the “lower 48” Rhode Island has the lowest high temperature record, 104°F set in 1975.

Temperatures of Reference Points.
International Practical Temperature Scale of 1968

Reference Point	Temperature, Kelvins
Standard	
Triple point of water	273.16
Primary	
Triple point of hydrogen	13.81
Boiling point of hydrogen at 25/76 atm pressure	17.042
Boiling point of hydrogen at 1 pessure	20.28
Boiling point of neon at 1 atm pressure	27.102
Triple point of oxygen	54.361
Boiling point of oxygen at 1 atm pressure	90.188
Boiling point of water at 1 atm pressure	373.15
Melting point of zinc at 1 atm pressure	692.73
Melting point of silver at 1 atm pressure	1235.08
Melting point of gold at 1 atm pressure	1337.58



Electrical

Qty	Reference	Part Description	Digi-Key	Mouser	Other
			Display Board		
1	C15	Cap, SMT, 1206 Case, 0.033uF	490-1770-1-ND		
2	CONN1, CONN2	CON-SIP-10P (Male)			TSW-110-05-F-S (Samtec)
1	LCD1	7-Segment, 4-Digit, transfective			NRC Provided
1	LCD2	Backlight			NRC Provided
1	R19	Resistor, SMT, 1206 Case, 5% Tol, 220ohm	P220FCT-ND		
7	R20-R26	Resistor, SMT, 1206 Case, 5% Tol, 100ohm	P100FCT-ND		
1	U8	74HC86, SMT, SOIC-14	296-14859-1-ND		
1	U9	7211AM, PDIP	ICM7211AMIPL+-ND		
			Motherboard		
2	C1-2	CAP1206,47pF	478-1476-1-ND		
1	C3	CAP1206,470pF	478-1488-1-ND		
2	C4, C13	CAP1206, .033uF	490-1770-1-ND		
4	C5-C8	CAP1206,4.7uF (Electrolytic)	PCE3066CT-ND		
4	C9, C10-12, C14	CAP1206, .1uF	445-4007-1-ND		
2	CONN1-2	CON-SIP-10P (Female)			CES-110-01-G-S (Samtec)
3	D1-3	DIODE	S1MFSCT-ND		
1	Q1	CA3083MZ, SOIC-14, .150" wide body	CA3083MZ-ND		CA3083MZ (Broker)
1	R1	RES1206,82.5K	P82.5KFCT-ND		
1	R10	RES1206,332	P332FCT-ND		
4	R11-14	RES1206,470K	P470KFCT-ND		
1	R15	RES1206,909K	P909KFCT-ND		
1	R16	RES1206,4.3M	P4.3MECT-ND		
1	R17	RES1206,634K	P634KFCT-ND		
1	R18	RES1206,47	P47FCT-ND		
1	R19	RES1206,470	P470FCT-ND		
1	R2	RES1206,301K	TNP301KACCT-ND		
2	R3-4	RES1206,16.9K	P16.9KFCT-ND		
1	R5	RES1206,523K	P523KFCT-ND		
1	R6	RES1206,35.7K	P35.7KFCT-ND		
1	R7	RES1206,22.1K	P22.1KFCT-ND		
1	R8	RES1206,100K	P100KFCT-ND		
1	R9	RES1206,2.21K	P2.21KFCT-ND		

1	SIP1	RES-SIP10P9R,470K	4610X-1-474LF-ND	
1	U1	CD4046BCM, SOIC-14, .150" wide body	CD4046BCM-ND	CD4046BCM (Broker)
1	U2	87C54 DIP Adapter	3M5483-ND	
1	U2	P87C54SBPN	568-1014-5-ND	
1	U3	AS6C6264A-70SCN, 450mil SOP		913-AS6C6264A-70SCN
1	U4	TLC27L2	296-1317-1-ND	
1	U5	MAX242 DIP Adapter	3M5476-ND	
1	U5	MAX242, DIP-18	MAX242EPN+-ND	
1	U6	SN74HC373DW	296-1200-5-ND	
1	V1	LM317T	497-1575-5-ND	
2	V2-3	LP2950ACZ-5.0	LP2950ACZ-5.0NS-ND	
1	Y1	OSC,3.6864MHz	631-1094-ND	
1	Z1	LM385Z	LM385Z-2.5NS-ND	
1	P1	Wire, White, 8", Tinned, 24-AWG, 7-Strand		
1	P2	Wire, Orange, 8", Tinned, 24-AWG, 7-Strand		
2	B2, P3	Wire, Black, 8", Tinned, 24-AWG, 7-Strand		
1	B2	Wire, Red, 8", Tinned, 24-AWG, 7-Strand		
2	RT1, RT2	Wire, Black, 8", 18-AWG, Solid		
3	SW1, SW3, SW4	8125, Push Switch		
1	SW2	T102, Toggle Switch		

Mechanical:

Qty	Part Description	P/N
	Front Panel	
3	Cap for Push Switch	801802000 (C&K Components)
1	Vinyl cap for Toggle Switch	VC-156-7 (Caplugs)
2	4-40 hex nut	
2	Nylon washer	561-D432 (Mouser)
2	Nylon standoff	561-MF440-50 (Mouser)
4	BSOS-440-16 threaded standoff	
4	4-40 x 1" Phillips pan head screw	
4	4-40 star washer	
4	Nylon spacer	561-K4.50 (Mouser)
4	Nylon spacer	561-D4125 (Mouser)

Rear Panel		
1	DB9 Connector	5-747904-5-ND (Digi-Key)
6	4-40 x 3/8" Phillips pan head screws	
6	4-40 nuts w/ star washer	
1	Power supply, 12VDC, unregulated 500mA, with 12 foot DC cord	12500CEC-2061P-9.5MM-ROHS (Condor)
1	2.5mm Panel Mount Power Jack	PJ-005B (CUI)
1	Thermistor Probe Connector	207807-1 (TE/AMP)
2	Thermistor Probe Connector Pins	66589-2 (TE/AMP)
1	9V Battery connector	
Enclosure		
1	Nimbus Case	TEKO P/N: 233-B.9
2	Tilting feet kit	TEKO P/N: PF/4.9
2	Rubber feet kit	TEKO P/N: PT4.9
1	Cable Tie for wires	

34636-2086-101

Revision • B+ 3095+

Part • BRACKET,AZ ROTARY JOINT DRIVE •

Effective From: 06/25/1998 12:00:00 AM CDT to

...

Production

Unincorporated

BOM

Effective From: 06/25/1998 12:00:00 AM CDT To:

Level	Part Number	Item	Qty	U/M	Nomenclature	Ref Des	Cage	Drawing Number	Rev	Notes	Sites
.1	34636-2086-1	1	1	EACH	AL, TEE, QQ-A-200/9, 6063-T52 (2 X 3/4 X 1/8)		1M813	34636-2086			
.1	34636-2086-2	2	1	EACH	AL, QQ-A-250/11, 6061-T651 (1/4 X 1 X 3-1/2)		1M813	34636-2086			

Printed by: Alberts, Lindsey (lalberts) on 11/14/2022 10:26:50 AM CST

